

## CHAPTER I INTRODUCTION

### 1.1. Research Background

Chemistry Education at this time have an important role, because chemistry is the basic knowledge for development of technology. Chemistry is one of the subject matter that considered to be difficult by the students, so students less interested to learn it. The difficulty related to the character of chemicals, like the concept, material and calculation. In addition, students inclined consider that study is the load, not a favourite. Therefore, learning of chemistry should be designed in such a way to be more affective and innovative (Marpaung, 2013).

Based on Tiastra ( in the Wawan, 2012), there are three things that caused the chemicals are considered to be difficult, among other : 1) Speech method and asked responsible still dominate in teaching and learning process so students often assume chemistry as a boring learning; 2) students learning the chemistry in spite of the purpose of the daily life but oriented for the test; 3) just a little students who able to continue to higher education level, this is certainly resulted in the spirit low of students to learning chemistry.

In the world of education, teaching and learning process dan using the exactly method in present the material can help the student to know and to understand everything was presented by teacher. Through the right learning, students expected able to know and to understand the material so useful in real life. One of the succes indicator of teaching and learnig process can be seen from student's achievement. Student's achievement is the mirror of knowledge, skill, and attitude. The success of teaching and learning process is the main thing that coveted in implement the education in the school. The main component in teaching and learning activity are teacher and student. In this case, the students to be the subject of learning. So, the learning paradigm that centered to the teacher should be a lesson that is centered on the students (Fajri, 2012).

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 mind of the 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 teacher and students.

If the student's prior knowledge is not 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 truth (Ihsan, 2005).

So, teacher need to using the learning model that can make it easy for students to know and to understand the concept/theory/principle that teacher should mastered. One of learning model that can be done by teacher is by using Model of Teaching to induce the Conceptual change (M3PK), is a teaching model based on constructivism through 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 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 student so intuitive concept of the students is the development of student's prior knowledge and the concept of the end of the students become intelligible, plausible, and fruitful.

The success of the Model of teaching to Induce the Conceptual Change (M3PK) in teaching has been investigated them by : Tetty M. Lumban Gaol (2007) is the mean of the student's score in control class for posttest is 7.30, and

the mean of the student's score in experiment class for posttest is 7.78. Hermawan Purba (2010) is the mean of the student's score in control class for posttest is 73.12 and the mean of the student's score in experiment class for posttest is 82.00. Monalisa perangin-angin (2013) is the mean of the student's score in control class for posttest is 75.26, and the mean of the student's score in experiment class for posttest is 85.73.

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 Coventional 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 is make the students sleepy and bored quickly. Therefore, a teacher 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).

Chemistry has sub-chapters, one of them is Solubility and Solubility Product. Research that will be done is to see the increasing of student's Achievement especially on the Teaching Solubility and Solubility Product. Based on the descriptive above, so that the researcher are interested in doing research with tittle **“The effectiveness of teaching to induce the conceptual change (M3PK) Simson Tarigan to increase student's achievement on teaching Solubility and Solubility Product”**

## **1.2. Problem Identification**

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

1. Model of teaching to induce the conceptual change could be used as a learning method when the teaching process is done in Senior High School.
2. The effectiveness of M3PK in topic Solubility and Solubility Product by looking the student's achievement on solving problems after using M3PK compared with conventional teaching method.

### 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 scope of study in this research. They are:

- 1 The research is conducted at the Senior High School (SHS) class XI (Superior) using KTSP curriculum, semester 2, T.A. 2015/2016
- 2 The subject matter that observed in this research is Solubility and Solubility Product.
- 3 Teaching method which is used in this research is M3PK and Conventional Method.

### 1.4. Problem Formulation

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

1. Is there the difference in student's achievement using M3PK with conventional teaching method?
2. How many the percentages of student's achievement using M3PK?

### 1.5. Problem Limitation

The Problem Limitation in this research are Solubility and Solubility Product, *Model of Teaching to Induce the Conceptual Change (M3PK)*, student's achievement in grade XI on the teaching Solubility and Solubility Product, seen from the evaluation after being treated..

### 1.6. Research Objectives

Based on the problem statement above, the objectives these research are:

- 1 Knowing the difference of student's achievement by using M3PK with conventional method on teaching Solubility and Solubility Product.
- 2 Determining the percentage of student's achievement by using M3PK with conventional method on teaching Solubility and Solubility Product.

### 1.7. Research Benefits

There are benefits from this research for researcher, teacher and learner. The general benefit is to increase researcher's experience in the teaching chemistry. The specific research benefits are:

1. Benefits for students

Provides opportunities for students to learn with different learning models so that they can optimize their potential

2. Benefits for Teachers

Provide feedback to teachers about the learning model that can improve learning outcomes and learning activities of students during the learning process

3. Benefits for Student Researcher

Gaining experience learning model, the selection of material, and develop a selection of instruments.

4. Benefits for Schools

As one alternative to improve the system of teaching in the learning process.

### 1.8. Operational Definition

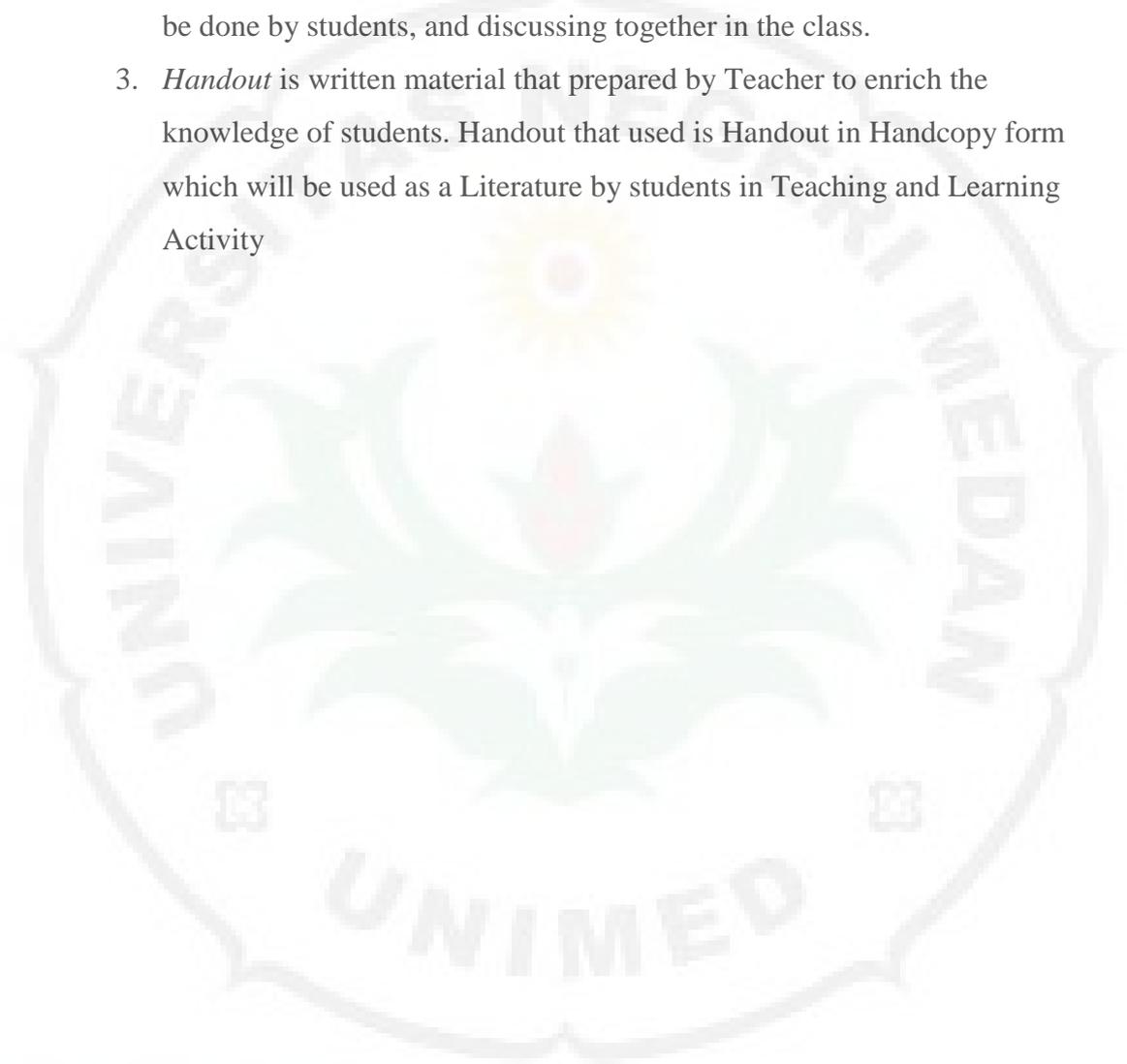
1. Teaching Model to Induce the Conceptual Change (M3PK) is a Learning Model which aim to induce the right and structured concept to students.

M3PK is a Learning Model that constructivism. In this case, students guided to build their own understanding or in other words students become the center in the learning. In this model, the conceptual change focused on three aspects, there are : *intelligibility* is the concept that has a meaning or significance in students. The second aspect is *Plausible* that is students believe that the concept that has been received correctly. And the Third concept is *Fruitfull* that is give the "Fruit" for himself.

2. *Coventional Learning* in this research is the learning with Expository Model. That is Teacher giving the material by explaining the material,

giving the example and it's completion, then Teacher give the questions to be done by students, and discussing together in the class.

3. *Handout* is written material that prepared by Teacher to enrich the knowledge of students. Handout that used is Handout in Handcopy form which will be used as a Literature by students in Teaching and Learning Activity



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