

CHAPTER I

INTRODUCTION

1.1 Background

Effective education is an education that enable learners to be able to learn the easy, fun and achievable goals as expected. Thus, educators (lecturers, teachers, instructors, and trainers) are required to be able to increase the effectiveness of learning so that learning can be useful.

During this time, many opinions assume that formal education is valued only a formality to establish Indonesia's human resources. No matter how formal the learning outcomes, the most important is to have conducted a high education level and can be considered great by the community. However, the quality of education in general Indonesia is still low.

The agency reports the union of the nations for the field of education, united nation educational, scientific, and cultural organization (UNESCO) shows Indonesia's ranking in terms of education fell from 58 to 62 among 130 countries in the world. Clearly, education development index (EDI) Indonesia is 0935, under Malaysia (0945) and Brunei Darussalam (0965). Decline in the index mirrors the low quality of education in Indonesia is only a small picture of the education sector, among others, can be seen from how the performance of students, teachers, schools, and the quality of human resources or human capital which is derived as the output of the education system in Indonesia compared with other countries in the world. ([kabidsekmen](#), 2009)

The cause of the low quality of education in Indonesia, among others, is a matter of effectiveness, efficiency and standardization of teaching. It is still a problem of education in Indonesia in general.

So far, efforts to improve the quality of teaching to improve student learning outcomes are mostly done through the improvement or development of methods, models and learning media. Improving the quality of learning research largely focused on methods, models and media.

Efforts to improve the quality of learning through the improvement or development of teaching materials is very small. Though teaching materials play an important role in the learning process and enhance students' mastery of subject matter. At this time very few teachers and researchers (prosp 1 no compiled and develop their own teaching materials. Most teachers use te at have been provided schools or students to purchase instructional materials on the market. Some materials that have been circulating on

the market and used in schools include Yrama Widya, Tiga Serangkai, Erlangga, Esis, Yudisthira.

Most of these materials include questions to determine students' mastery of the material only at the end of the subject so that less measure students' mastery of each concept is learned. In addition, the questions are less students develop critical thinking skills.

Actually, Chemistry is the science of knowledge for all citizens (*science for all*). Characteristic of scientific knowledge debriefing in the framework is the knowledge of science to be used in everyday life. In achieving the purpose of learning science is not emphasized on understanding the concepts of science, but rather directed at the effects of learning the accompaniment of one of them is thinking skills. Such skills are very important development, because it will direct the pattern of action of each individual in society in the future. (Poppy K. Devi, 2009)

A wide variety of patterns of thinking that students need to be developed, ranging from basic to complex thinking or higher-order thinking. There are 4 higher-order thinking, i.e critical thinking, creative thinking, problem solving, and decision making. Among the four patterns of these higher-order thinking, critical thinking underlies the other three patterns of thinking. This means that critical thinking need to be mastered first before reaching the three higher-order thinking to another. Several studies have shown an understanding of science concepts can be enhanced through the development of critical thinking skills of students (Liliasari, 2009). Critical thinking is also useful to critically evaluate what they have learned in class.

Formal teaching in school systems tends to train analytical thinking power. Students are required to construct a logical argument, find answers, eliminating the wrong choices, and focus on the correct answer. The side effects are not students become accustomed to think critically and creatively, that dare to try new ideas and look for alternative answers, not just focus on one answer that is believed to be correct. Rational and objective thinking process is a process of critical thinking which the key to success in solving the problem.

Learning chemistry emphasizes providing learning experiences directly through the use and development of process skills and scientific attitudes. According to some researches, researchers concluded that, (1) chemistry is not famous subject matter for students; (2) chemistry is not able to improve students' cognitive ability; (3) chemistry make a gap between teacher and students; (4) chemistry has not improvement. Even though school programs have an effort to develop students' conceptual understanding, but there is no relationship among the materials (Perry, 2008). The material in chemistry is needed to be

developed especially in Salt Hydrolysis concept. Usually teachers explain the chemistry topic by conventional method, difficult language to be gotten, not interest student and inappropriate learning media.

Based on the explanation above, the writer is interested to conduct a research titled **“The Influence Of Critical Thinking Development In Learning Salt Hydrolysis Concept Through Chemistry Modules To Increase Students' Achievement Grade XI.”** The development of critical thinking in teaching materials is expected to enhance critical thinking skills and the results students' learning. It will be made in the form of essay questions that require students to develop the capacity to think. The questions are listed in general have a level of understanding to the analysis.

1.2 Problem Identification

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

- 1) The effort to increase the quality of teaching and learning process through the development of chemistry modul still rarely.
- 2) The module which is used largely lacking teaching materials to develop students' critical thinking skills.
- 3) Teaching module used in teaching and learning can not trigger the emergence of critical thinking of students.
- 4) Students are difficult to understand about Salt Hydrolysis chemistry topic.

1.3 Research Scope

This study was conducted to develop critical thinking skills of high school students class XI school year 2011/2012, especially in the preparation of teaching materials on the topic of class XI Salt Hydrolysis.

1.4 Problem Statements

To give the direction of this research, the problem statements in this research are as follows:

1. How the propriety level of teaching materials that develop students' critical thinking skills?
2. What the effect of application of chemistry module that developing the critical thinking of students higher than using chemistry module without developing critical thinking?

3. How the correlation between students 'critical thinking development toward students' learning achievement?

1.5 Problem Limitation

In order to keep our research become more focused and directed, we limit our problems as the following:

1. Teaching materials that will be tested on the learning process only on the subject of salt hydrolysis.
2. Student learning outcomes to be measured only cognitive ability levels C2 to C4 and Students' critical thinking skills measured by essay questions that measured the level of C3 to C5.
3. Chemistry module are developed instructional materials that is written by the author Justiana, Sandri and Muchtaridi with the title “*Chemistry for Senior High School*”

1.6 Research Objectives

The objective of this research is to increase the understanding of students in Salt Hydrolysis as a topic in chemistry subject, increase the science ability and increase the critical thinking ability of students. The specific objectives have been achieved in this research are the following:

1. Knowing the propriety level of chemistry module that develop students' critical thinking ability.
2. Knowing the effectiveness of chemistry module which develop the critical thinking to increase critical thinking ability of students.
3. The correlation of chemistry module which develop the critical thinking to increase the students' achievement.

1.7 Research Benefit

In general, with the development of critical thinking skills in the preparation of chemistry module is expected to provide benefits in the form of improved quality of the learning process on the topic of Salt Hydrolysis. In particular the benefits of this research are:

1. Get the propriety level of the chemistry module on Salt Hydrolysis topic that develop the critical thinking of students.

2. Knowing the Effectiveness of developing the critical thinking to increase the students achievement in Salt Hydrolysis concept.
3. As the addition of literature review for the teacher in teaching-learning process which can attract the critical thinking of students.
4. The existence of chemical learning module by teachers who emphasize the development of students' critical thinking.

1.8 Operational Definition

- Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.
- Module is a tool or a means of learning containing materials, methods, limitations, and how to evaluate systematically designed and attractive to achieve the expected competencies in accordance with the level of complexity. (Deni, 2007)
- Student's achievement means that student intellectual abilities to determine the success of student in gaining achievement.
(sunartombs, 2009)
- Salt hydrolysis is reaction of cation or anion, from a salt with water. Cation and anion which can be hydrolyzed are cation and anion of salt which belongs to weak electrolyte.