

CHAPTER I

INTRODUCTION

1.1 Background

Education is an organized effort that has meaning that education is done by human conscious effort with clear base and purpose, there are stages and there is commitment together in education process (Amri and Ahmadi, 2010). The purpose of education is to develop human quality. The main goal of education is to empower teachers and students as much as possible to develop student potential in accordance with environmental conditions. Education is always oriented to the preparation of students to participate in the future. Therefore, the development of educational facilities as one of the main prerequisites to choose the future with all opportunities and challenges (Tirtarahardja, 2005).

The quality of education is an indicator of the level of development of the country, therefore development in the education sector is the key to nation building. Unfortunately, the quality of education in Indonesia is still low. One of them is caused by the level of reading quality is not optimal. This is indicated by the low interest in reading for a student in school, especially in the field of chemistry. There are many students who fail the chemical exam in SMA Negeri 1 Tebing Tinggi. They have a lower chemical value than the KKM decided by the school. This is about 65% of students who have lower chemical values. This is due to the low interest in reading textbooks. Therefore, it is necessary to be given an interesting teaching material to read and easy to understand so as to generate a high interest in reading.

PISA (Program for International Student Assessment) is an international assessment program on literacy studies conducted by OECD (Organization for Economic Corporation and Development) aiming to periodically examine the ability of 15 year olds in reading literacy, mathematics literacy), and science (scientific literacy). PISA measures the ability of learners at the end of compulsory education to know the readiness of learners at the end of compulsory education to know the readiness of learners in order to face the challenges that exist in today's society (Hartati, 2014).

Indonesia consistently follows PISA. Unfortunately, Indonesia's achievements are always below the international standard set by OECD, and even tend to decrease because every 3 years Indonesia's ranking continues to decline. Based on the results of the PISA study in 2000, 2003, 2006, 2009 and 2012 the value of the Indonesian children's science literacy component is still below the average value set by OECD (OECD, 2014).

One of the causes of low literacy value of Indonesian children's science because the learning given to students is less meaningful. Mamluk and Rannikmae (Holbrook, 2005) argue that learning will achieve good results, if the learning is meaningful for students. Meaningful learning enables students to use science knowledge to solve problems in their lives. This is in line with Holbrook's (2005) opinion that learning becomes meaningful to the student if it involves the students in the process of scientific problem solving and socioscientification decision making.

There are several efforts that can be done to increase the science literacy of students, such as students must improve the ability to think critically then the presentation of science materials in schools should always be linked and synchronized with social and technological issues (Wardani, 2008: 4). Like the school litaerasi movement developed based on Permendikbud Number 21 of 2015 is one effort to foster interest in reading in a student. Teaching support other than the teacher is the teaching materials used during the learning process takes place. Teaching materials are not only as teacher guidance, but also for student coaches in shaping the mindset of children when learning, so they are not only limited to knowing knowledge and concepts but also know the knowledge widely and deeply. Majidi (2013) states that science is not a collection of facts, principles and formulas are simple, but in depth science is a collection of the core of a concept that guides a person to think about a material.

Science literacy develops through well-structured learning activities. In order for the directional construction to fit the purpose, a learning guide is required. A book-shaped learning guide is more effective than any other study guide. The book contains methods along with explanations that students need to

make it easier for students to construct knowledge. The book serves as a link to other learning resources (Hedge, 2008), practical in nature so that it can be used for both inside and outside learning (Osborne, 2010). Previous studies have confirmed that books play an important role in developing student literacy (Harahap, 2014). Based on this it is clear that the book has many benefits, if used as a teaching material.

Sanjaya (2010: 142) also has the same opinion about teaching materials, that is, in the learning process of teaching materials have an important role to improve the process of students' understanding of science learning, and the success of a learning process is determined by how many students can master the curriculum material. Thus, material that is not well-studied will never be retained, and material that can be transferred well seems to be remembered faster.

Teaching materials are all forms of materials used to assist teachers / instructors in carrying out teaching and learning activities in class (Amri and Ahamdi, 2010). The teaching materials may be written materials and unwritten materials. Textbooks are one form of written teaching material. According to Sitepu (2005), the textbook is one of the teaching and learning resources that contributes considerably in the effort to expand the opportunity to obtain education while also improving the process muru process and learning outcomes. Science learning also requires two important things: terminology and concepts, science textbooks are also the main source of science knowledge in science classes (Imbi and Priit, 2010).

Good science teaching materials are teaching materials that are in line with student development and have a balanced scientific literacy load. Based on the role and function of the materials can be concluded that the teaching materials is a medium to facilitate students in conducting learning activities that can improve the ability of science literacy. According to Chiaptetta et al (1991) there are 4 categories of science literacy: (a) science as a body of knowledge, (b) science as a way of investigating, (c) science as a way of thinking, and (d) the interaction between science, technology and society (STS). Therefore, to increase the science literacy of students required learning process that includes four categories.

Many studies support more meaningful learning for students, such as Rakhmawan's research (2015) which states that inquiry based on science literacy learning is able to increase the science literacy of high school students on aspects of the students' content, context, process and attitude. The same thing was also expressed by Dyah Lukito (2015) about the experiment of integrated science teaching materials based on science literacy on students' literacy ability on the matter of heat transfer in life in SMP N 2 Mertoyudan showed good module quality with overall assessment result / validation of 72,43 % with good category.

Based on the interviews of Chemistry subject teachers in SMA Negeri 1 Tebing Tinggi, Chemistry textbook is a guideline that is always used in classroom learning. The textbooks used already present many materials that illustrate the usefulness of science and technology but never present the negative effects of the development of science and technology.

It is also found in the preliminary study of three high school textbooks from private publishers. The Chemistry books especially on Salt Hydrolysis material show that the content of learning materials is more dominant to theories, facts and concepts, and does not apply to the students real life. Then the book also has not motivated students to dig deeper about the knowledge that has been presented in the book through scientific work. This is evident from the presentation of a book that focuses only on theoretical explanations of concepts, but does not invite students to try to collect the evidence of truth from the theory through the activities of the scientific method. It does not contain the four components of science literacy, therefore it needs to be improved in the learning activities. An increase in each component of science literacy, is expected to improve the quality of learning outcomes.

From the description above, researchers interested in the development of chemistry teaching materials for senior high school, students are expected to increase interest in reading science books, and in addition to obtaining understanding of chemistry, students are also expected to indirectly recognize the concepts of life value associated with chemistry. Therefore this research entitled

“The Development of Teaching Material Based on Science Literation on Salt Hydrolysis for Grade XI Senior High School”.

1.2 Problem Identification

Based on the background of the problem, the following issues can be identified:

1. The level of Indonesian students' science literacy based on PISA 2000, 2003, 2006, 2009 and 2012 is still below the average of the OECD standard.
2. Student still less understanding of concept in chemistry lecture, can see in score that they have is low and not appropriate with Criteria Completeness Minimum (KKM) standard.
3. The teaching material based on science literacy was not found in the school
4. The lack of students interest on reading textbook and the teaching materials used are more dominant to present the concept and do not apply in everyday life.

1.3 Problems Limitation

In order for this study not to deviate from the research objectives then the limitation problem as follows:

1. Development of teaching materials based on science literation in the form of chemical articles in class XI IPA even semester.
2. Test product are applied to determine differences of effectiveness in learning outcomes based on component of science literation.
3. Teaching materials developed only on salt hydrolysis.

1.4 Problem Formulation

Based on the restrictions above problems can be formulated the problems studied are:

1. How to develop chemistry teaching materials based on science literacy on *Salt Hydrolysis* for grade XI SMA/MA?
2. Is the developed of chemistry teaching material based on science literacy of learning outcomes on *Salt Hydrolysis* more effective?
3. Are the student learning outcomes that taught by using Module Based on Science Literacy is significant higher than student learning outcomes taught by using Module in school ?

1.5 Research Purpose

1. To develop chemical teaching materials based on science literacy on Salt Hydrolysis for grade XI SMA/MA.
2. To know the developed of chemistry teaching material based on science literacy of learning outcomes on *Salt Hydrolysis* more effective.
3. To investigate the student learning outcomes that taught by using Module Based on Literacy Science is significant higher than student learning outcomes taught by using Module in the school.

1.6 Research Benefits

1. To enrich and increase the repertoire of science in order to improve the quality of learning specifically related to the development of chemistry materials.
2. As a material consideration and an alternative for teachers in the selection of learning resources.
3. Technological teaching materials based on science literacy as the completeness of instructional tools that can be used in the learning process.