CHAPTER I

INTRODUCTION

1.1. Background

The development of innovative learning material with active learning and multimedia is very important for senior high school students today, so they will be motivated to learn and study more active in chemistry teaching and learning process easily.

Nowadays, developing of science and technology is very fast. It would require the carrying capacity of qualified human resources to produce human resources that is able to responds these challenges and develop technologies for the benefit of the community, state and nation as well as the master science. Facing the development, education is one of the foundation that determines toughness and progress of a community, state and nation. Of course it requires some development of education in many ways.

One of the development in education is development through innovation of learning material. The development through innovation chemistry textbook learning materials are very needed, especially in improving the quality of education. Learning innovation is one thing that gets attention, besides as supporting learning material, so that optimal learning process to be effective and selective in accordance with the subject being taught in improve student achievement. Sutama (2008) states, in line with efforts to improve the quality of education, innovation in learning process is one thing attention besides supporting facilities learning.

Education is a way that can express ideas and new values and have a considerable impact to people's lives. Education is a conscious and deliberate effort to create an atmosphere of teaching and process so that students are actively developing their potential to have the spriritual strength of religious, self-control, personality, intelegence, noble character and skills indeed and society. Learning innovation and integration character education will be given the opportunity to

improve the quality of education and develop in accordance with the national character of culture in Indonesia (Situmorang, 2013).

Textbooks indeed as a source and media in teaching and learning process. Textbook as a learning resource plays an important role in teaching and learning in the classroom (Abed & Al-Absi, 2015) that can navigate the learner based on their needs (Goods, *et al*., 2010). For high schools students, the textbook is certainly very important in the teaching and learning activities because it can strengthen and support the information material presented by the teacher in the class and could help the students to learn the material that has not been presented in the class. However, although the conventional and has been used for a long time and many consider traditional textbooks are still quite capable of giving a good contribution to learning, some learning materials can not be taught without the aid of textbooks. Traditional textbooks do not always make this possible, especially if students are already uncomfortable with the material (Hosler, 2011).

Accroding to Nasution in Prastowo (2012: 169) , there are some functions and purposes of textbooks. The function of textbooks are as reference material by learners as evaluation materials, a tool for educators to implement the curriculum, one of the determinants of teaching methods or techniques that will be used educators and as means to increase career and occupation. While the purposes of textbooks are facilitate educators in delivering learning materials, provide opportunities for learners to repeat a lesson or learn a new lesson, providing an interesting learning materials for learners. From above, can be concluded that the textbooks are used in various reference books level of education and the media as a source of learning in imroving the quality of teaching and learning outcomes education standards.

Textbooks on the market should be thoroughly tested and quality as source of learning media. Every textbook to be used at senior high school as a source and instructional media must have been through the process of assessment as a learning textbooks and the quality control standards of education, including high school science textbook that commonly design to satisfy demands stated in national curriculum that make it different to another book (Holliday, 2002).

Textbooks must be able to present quality teaching materials in accordance with the demands of the curriculum, folowing the development of science and technology and can facilitate learning so that a predetermined competencies can be achieved (Situmorang, 2013), thus the preparation of quality books are indispensable in meeting the learning needs independent. Good science textbook contains the vision, mission, context, content, and the process and the scientific information that are presented in the textbook will motivated the students to learn (Simatupang & Situmorang, 2013).

UNESCO Statistical data in 2012 mentions index reading interest in Indonesia reached 0.001. That is, from 1,000 people, only one person who is interested in reading. According to UNESCO education development index, Indonesia is at number 69 of 127 countries (Yulaningsih, Republika.co.id). Allegedly, low reading came from first impression with the book that unattractive and difficult to understand especially in chemistry. Science textbook have been describes as packed with the facts but lack in concepts and at worst condemned as inaccurate, poorly organizes and boring. The unavailability of a standard teaching materials increasingly difficult to make students learn chemistry (Yusfiani and Situmorang, 2011). Despite this facts, surveys show science teachers repeatedly rely on textbooks as both pedagogical guides as authorities in the moderns science classroom even though they believe the reading level of textbook is “too hard” for their students. Most science textbooks currently in use are not friendly textbooks.

The solution to improve the quality of education is the provision of quality learning materials that can be done through teaching materials. And according to Lee (2010) one way to increase quality of education is through present qualify learning materials. In addition, innovative learning may provide an opportunity to improve the quality of education. Selection of books as learning resources should consider the suitability of teaching materials with the goal to be achieved in the teaching and learning of science and technology which adjusts to allow for maximum learning.

There are several requirements needed to make the book as a source of learning, namely the availability of that which can be achieved by learners, can

help students to learn and meet the needs of students in independent study. Both books should be able to motivate learners to take advantage of things like drawing, illustration, example, the problem (case), has enough material to support teaching and can be used to support trouble shooting activities.

The use of information technology for learning has also encouraged a shift from conventional learning to learn independently so that the learning can be more memorable impression by students. According to Situmorang and Andry (2014), the utilization of information technology, multimedia and e-learning for learning through online facilities have been able to push learning shift from conventional learning to independently learning so as to facilitate senior high school students to learn not only depends on lecture but it comes from theirself. E-learning is a learning process use information and ommunication technology as tools that can be available whenever and wherever needed, so as to come over the constraints of space and time (Sutanta, 2009).

Innovative learning are indispensable and can be obtained in the teaching materials that lead to optimal and efficient communication. Innovative learning as outlined in the teaching materials is very important to get a better learning outcomes and increase the effectiveness of learning towards renewal. Creating innovative teaching materials by using e-learning is also important in developing the teaching-learning process. Active learning using technologies can be effective to improve student achievement. Finally, e-learning material and high quality may be transported and used in different educational contexts or at different institutions. Because the kind of teaching material that is easy to share, the best examples can be adjusted wherever they are needed, at the level of training for beginners to post-graduate and even across international boundaries.

As Rosenberg (2001) argued that a good learning materials must be able to present the teaching material according to the demands of the curriculum, following the development of science and technology and can bridge the learning for competencies has been established can be achieved. Chemical materials in the learning materials should be systematic, complete, and easier to understanding, attract, motivate independent study and has additional material as appropriate to

the characteristics of student enrichment because chemistry presents some special challenges (Lang, 2009). Many SHS students consider chemistry as a difficult subject that make them not interested to study (Situmorang & Saragih, 2013). Therefore, innovation in teaching and learning chemistry will do to make the students are motivated to study chemistry. One of a strategy is conducted through the development of innovative chemistry learning material to obtain good teaching materials that suit to students' development in reaction rate topics.

Based on the descriptions, the researcher were interested to do a relevant research that has been mentioned above, that in this study, the researcher will make a chemisty learning material in the form of innovative learning material. This title of this research is **"The Development of Innovative Learning Material Reaction Rate with Active Learning and Multimedia"**.

1.2. The Problem Identification

Based on the background of which has been decribed previously, some problems can be identified as the following :

1. The arrangement of chemistry learning material on the topic of reaction rate in order it is suited to the *K13* curriculum.
2. Prepare an innovation and active learning material on the topic of reaction rate in order the teaching and learning process can be proceeded optimum.
3. Make development, innovation and integration of active learning and multimedia on chemistry learning material reaction rate in order the students can easily study chemistry.
4. Standardize a developed learning material to meet the standard provided by *Badan Standar Nasional Pendidikan* (BSNP).

1.3. The Problem Formulation

Based on the background that has been stated previously, then the formulation of the problem in this study are :

1. How the arrangement of chemistry topic reaction rate in order it is suited to the *K13* curriculum ?
2. How to prepare an innovative and active chemistry learning material on the topic of reaction rate in order the teaching and learning process can be proceeded optimum ?
5. What kind of development, innovation and integration of active learning and multimedia on chemistry learning material reaction rate in order the students can easily study chemistry ?
3. How to standardize a developed learning material to meet the standard provided by *Badan Standar Nasional Pendidikan* (BSNP) ?

1.4. The Problem Limitation

From the formulation of these problem, so that limitation of the problem in this study are :

1. Arranging and developing the standard innovative and active learning materials on the topic of reaction rate.
2. Developing chemistry learning material of reaction rate with active learning and multimedia.
3. The source of teaching material that willl be developed are from 7 books that usually used by SHS students before and books from the other preverence.
4. This teaching material will be assessed and revised by expert chemistry lecturers and SHS students until have the standard learning material.

1.5. Research Objectives

The objectives of this research is to develop an innovative and active teaching material on the teaching of reaction rate in senior high school. The specific objectives to be achieved in this study are :

1. To make the arrangement of chemistry topic in order it is suited with the *K13* curriculum.
2. To set an innovative and active learning material on the topic of reaction rate topic so teaching and learning process can be proceed optimum.
3. To make the kind of development and innovation to the chemistry learning material of reaction rate with active learning and multimedia in the teaching process in order student can easily study reaction rate.
4. To standardize a developed learning materials so meet standard provided by *Badan Standar Nasional Pendidikan* (BSNP).

1.6. Research Benefits

In the implementation of this study is expected to be able to provide benefits to many people. This study is expected to provide the following benefits :

1. For researchers, is a valuable experience can analyze the book, be able to prepare and develop innovative learning materials with active learning and multimedia on the topic of reaction rate.
2. For lecturers, provide information and input as well as assist in the delivery of learning materials for students as a source of learning.
3. Student who learn chemistry can help them to increase knowledge and interest in learning materials so that students can learn according to their ability and absorption characteristics.
4. For futher research, provide information and reference in future studies for students, especially students in chemistry department in State University of Medan.

1.7. The Operational Defenition

Based on that explanation, the operational defenition as the following :

1. Innovation are research activities, development and engineering which aims at developing or applying the practical value and the context of the new science or new ways to apply science and technology that already exists in production process because innovative for learning material here is learning that is designed / composed by integrating new innovations in the learning with the goal of keeping students more easily understand the learning. Innovation is a new breakthrough that is different from the ordinary (conventional) learning, such as the addition of the media in the process of learning and the formation of discussion groups and so on.
2. Active learning material are a modification of material to meet attractive one. Said active learning because the user will experience the interaction and being active for example actively paying attention to images, pay attention to the writings of varying color or motion, sound, video and even animated films.
3. All materials (both information, tools or text) that are arranged systematically, which shows the figure of whole of the competence to be controlled by the learners and are used in the process of learning with the aim of planning and review the implementation of the study.
4. *Badan Standar Nasional Pendidikan* (BSNP) is an independet institution and professional to develop, monitor and evaluate the implementation of national educational standard.