

CHAPTER I INTRODUCTION

1.1. Background

The development of innovative and interactive learning using multimedia are very important to help students of senior high school in their learning process. Interactive learning expected can motivated students and also can support the students to be more active in learning activity. The innovation is conducted to provide standart learning material for senior high school students to make it easy to learn and to improve student's competencies.

Education is one of the important thing because without education there is now way to improve the ability of the nation. But nowadays, specially in chemistry, conventional teaching method comes as the serious problem which affects the unclearly knowledge transferring process by teacher to students. Several researches found four facts in chemistry teaching, they are: (1) Chemistry is unpopular and looks like it has no relation with daily life, (2) Chemistry doesn't improve the cognitive ability, (3) Chemistry tend to be the distractor between teacher and students, (4) No changing, because teacher is afraid to do the changing and teacher needs guidance to do the changing (Perry Burhan, 2008).

Another fact show that chemistry is also one of the science which consist of formulas and abstracts materials. So students are difficult to understand, relate, and applied chemistry in daily life. Even they have tried to learn chemistry they still failed. They don't understand the basic concepts correctly and they have the problem in continuously concepts (Desi, 2009:1).

Therefore, variation of learning strategy and relevant media (media which can prove the chemistry specifically) are really needed. This variation expected can help students to be well understanding about basic and continuously concept of chemistry and produced satisfied result. One of the effort is through educational program with technology learning media.

Technology is used as the part of education which aimed to light student's creativity and the educator. And educational technology is a way to obtain the educational goal using technology media to help students in empowering the

critical thinking creativity in educational system. As National Educational Goal written in UU No.20 year 2003 said about national educational goal is developing student's potential to have intellectual, personality, and good attitude. Technology in education consist of each possible tools which is used to deliver the information in education and exercise. Ellington (1989) said that educational technology basically is what is been popular by educational technology with the audio visual aid.

Multimedia will support of educational system. Through the technology and media, students may learn like historian , not only memorizing name and date. Students is not pressed in classroom. Through media and computer access like internet, students will be happy to learn. One of the recent progress in technology is saving information digitally. The information consist of text, audio, visual, etc. As written in Instructional Technology and Media for Learning (Sharon E and James D. Russel) media is the plural form of medium which means the communication tool. It means as the connector or companion. So, media is the tool which can be used by teacher to easiest the learning process.

Other media that no less important in learning process is textbook. Textbook is sources in teaching and learning activity and it can help both teacher and students in provide learning materials and to understand about the lesson. According to Crownther, he says that textbook is a book that giving instruction in a material used specially in school (Crownther, 1995: 123). So, textbook is the important component in education.

The rule of National Education Minister No. 11 year 2005 says that textbook is sourcebook. It is compulsory used in school and it must contain learning materials in order to increasing faith and piety, character and personality, the ability to master science and technology, sensitivity and aesthetic ability, and physical potential . It arrange based on national standart.

Whereas that textbook is one of important media in learning, so the quality that contain in textbook must be considered. Greene and Petty formulating textbook quality assessment, they are : text book should catchy the interest of students, could motivate the students, contain of illustration that catchy students

interest, should considering the linguistics aspect, the content must closely related to other material. The good book should stimulate students thinking, give the positive aspect to students, avoid unusual and blind concept. Based on explanation above, the textbook quality can assessed through content, presenting, graph and language aspect.

According to initial analysis about five general textbook which used in senior high school, the quality of textbook is low. Not sistematically, there is no objective, no students worksheet, etc. And that is why reseacher really want to develop innovative learning material.

But apart from the important of textbook quality, the students interest in reading book is still low. UNESCO (United Nations Education Scientivic and Cultural Organization), based on data in 2012, showed that index of reading interest in Indonesia is 0.001. It means that between one thousand just 1 person who is interest in reading book. The lack of Indonesian in reading book also approved by BPS (Badan Pusat Statistik) in 2006. They shows that society don't use book / reading activity as the way to get information. Society is more interested to watch TV (85.86%), litening radio (40.26%) than reading newspaper (23.464%). Then based on data of OECD (Organisasi Pengembangan Kerja Sama Ekonomi) reading culture of Indonesia placed in the lowest position of 52 coutries in East Asia (Republika Juni 2010). According to opinion above, the lack of reading interest is affected by the non interesting of book content.

Many researcher has been conducted the development of learning material. For example, Dimas Frananta S (2013) has been done with the title "the effectivity of Innovated Learning Module and Demonstration Methode with Macromedia Flash" with effectiveness percentage is 74.25 % for students without module and 83.33 % with innovated book. Same case has been done by Lanita Bernadetta Munthe (2015) with the title "The development of Innovative and interactive chemistry learning material on the teaching of Radiochemistry". The total average of respons is 3.49 and thats learning material is valid and good.

Based on description above, the researcher are interested to develop a module combined between innovation learning using multimedia. So the title of

this research is : **The Development of Innovative and Interactive Learning Material in Multimedia Based on Teaching of Acid Base Equilibrium.**

1.2. Problem Identification

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

1. Develop an innovative and interactive learning material in multimedia based on the teaching of acid base equilibrium.
2. Arrange the components to be integrated to make learning material of acid base equilibrium become innovative and interactive.
3. Design multimedia bases for learning material of acid base equilibrium to make it suited to students development.
4. Standardize the development learning material to make it standard based on BSNP criteria.
5. Students achievements taught by using developed innovative learning material better than conventional teaching ?

1.3. Problem Formulation

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

1. How to develop an innovative and interactive learning material in multimedia based on the teaching of acid base equilibrium ?
2. What are the components to be integrated to make learning material of acid base equilibrium become innovative and interactive ?
3. How to design multimedia bases for learning material of acid base equilibrium to make it suited to students development ?
4. How to standardize the development learning material to make it standard based on BSNP criteria ?
5. Are the students achievements taught by using developed innovative learning material better than conventional teaching ?

1.4. Problem Limitation

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

1. The topic that will be analyzed and developed is acid base equilibrium in senior high school.
2. Developing of learning material based on BSNP standard and suited with curriculum 2013
3. Developing of learning material do by integration of laboratory activity, animation, and learning multimedia.
4. The respondent used is student who learn acid base equilibrium in senior high school.
5. Validator for developed learning material is the expert chemistry lectures in State University of Medan.

1.5. Research Objectives

The objectives of this research is to develop an innovative and active teaching material on the teaching of Acid-Base Equilibrium in senior high school.

The specific objectives to be achieved in this study are :

1. To develop an innovative and interactive learning material in multimedia based on the teaching of acid base equilibrium.
2. To arrange the components to be integrated to make learning material of acid base equilibrium become innovative and interactive.
3. To design multimedia bases for learning material of acid base equilibrium to make it suited to students development.
4. To standardize the development learning material to make it standard based on BSNP criteria.
5. To investigate the influence of students achievements taught by using developed innovative learning material better than conventional teaching.

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 which can be used to develop and innovate interactive learning material based of multimedia in learning Acid-Base Equilibrium.
2. For teacher, as an inputs to make the interactive learning media in learning activity so they can create active,creative and pleasure learning.
3. Student who learn chemistry can help them to increase knowledge and interest in learning 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 Definition

Based on that explanation, the operational definition 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. Interactive learning are a modification of learning to meet attractive one. Said interactive 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.