

CHAPTER I

INTRODUCTION

1.1. Background

According to Government Regulation No. 19 of 2005 in Chapter IV about National Education Standard stated that the learning process is interactive, motivating, enjoyable, and challenging, encouraging students to actively participate, and providing enough room for initiative, creativity, and independence in accordance with the talent, interest, psychological and physical development of students.

To create a more interactive and varied learning atmosphere, it can be done through the use of learning media that makes students do a lot of activities such as observing, asking and demonstrating (Sudjana in Alfin, 2021). Learning media is a tool used by educator so that the concept or material presented is precisely targeted and useful for students. The use of interactive learning media is one way to improve student achievement.

One of the interactive learning media is iSpring which is software that can change presentation files into the SCORM/AICC and flash formats, both of which are often used in e-learning through LMSs (Learning Management Systems). iSpring Suite application is easy to operate and does not require any programming languages comprehension. Some of the advantages of iSpring include be able to insert various forms of media, such as record and sync videos, add flash and Youtube videos, import or record audio, add presentation of making information, and can create unique designs so that the product of learning media will be more interesting. In addition, iSpring Suite can be optimized for web and can design quizzes with various types of questions, namely: true/false, multiple choice, multiple response, type in, matching, sequence, numeric, fill in the blank, and multiple choice text (Alfin, L.F., Listiadi, 2021). Therefore, the use of this application is expected to increase the interest and learning motivation of students

because the material displayed on the media is more interesting and interactive and also can be accessed using any platform, anytime and anywhere.

Chemistry is one of the clusters of Natural Sciences which is taught in Senior High Schools. Most of high school students assume that chemistry is a difficult subject (Purnawati, Ashadi & Susilowati, 2014). The difficulty of chemistry learning lies on the imbalance between concept comprehension and concept application therefore it inflict assumption that are difficult to learn and develop (Nuraeni, Saputro, & Redjeki, 2013). Moreover, chemistry consists of abstract and complex concepts. Understanding of chemical concept involves study of macroscopic, microscopic, and symbolic aspects. Presentation of chemical properties such as changes of material properties is interesting and quite easy to do, but explaining the process of chemical changes related to changes of material particles (microscopic aspect) and using symbols is quite difficult. Very small particles of material (invisible) are considered abstract. While chemical symbols are also abstract (Sudria, I.B.N., Redhana, I.W., 2011). So to master it requires a gradual and in-depth understanding of the concept.

Reaction rate is one of the chemical field which really demands the study of macroscopic, microscopic, and symbolic aspects. The macroscopic aspect can be interpreted that the chemical representation is obtained through observations of phenomena that can be seen and felt by the senses. In this case, students are faced with an event that can be observed through natural environment or laboratory. Microscopic representation is an abstract representation that provides an explanation at the particulate level. The representation of this level such as using computer technology by including words and audio, two and three dimensional images either movable images (animation/simulation) or immovable images. While symbolic representation is a representation to identify identities (eg. substances involved in chemical reactions) using qualitative and quantitative symbolic language such as chemical formulas, diagrams, pictures, equations, and mathematical calculations in reaction rate.

Reaction rate in senior high school is still taught through lecture and/or discussion method to memorize most of the reaction rate concepts (Sudarsana,

2010). The concept of reaction rate that is taught without involving the microscopic aspect cause difficulties/ obstacles in constructing the reaction rate concept in a meaningful way. The difficulty of students in understanding a concept can hinder student in understanding the next concept. In fact, if examined more deeply, the reaction rate concept is very useful for explain various phenomena in real life and has extremely broad applications in various fields of life. Apart from exploring the concept, in the 2013 Curriculum, one of the basic competencies of reaction rate is to design, implement and conclude the experimental result of factors that affect reaction rate and reaction order. Then the teacher should use a good analogy that can assist students to keep the information in their long term memory. Therefore, the development of iSpring interactive learning media in reaction rate topic is very appropriate to assist students in understanding the subject matter.

Related to the research, the preliminary observation was made at SMAN 12 Medan in order to analyze the problems, the needs of students and teachers, and to find out how effective the use of learning media in the school is so that it can make the learning process more interactive, interesting and motivating for students. Based on the result of an interview with a chemistry teacher at SMAN 12 Medan, teacher said that most students during the learning process using learning media tended to be less active and responsive, some students were lazy and some were just absent, but assignments were not done and collected. This is also in line with the results of the questionnaire via google form to the students of class XI Science as many as 36 respondents. The results obtained were 83.3% of students stated that the learning process was monotonous because the teacher had not maximized the use of learning media in both virtual meetings and assignments. The applications used during learning are still less varied. This makes students less interested and less motivated in the lesson. So it tends to be presumed that the utilization of media at SMAN 12, especially in chemistry subject is less interactive and less varied hence the development of interactive learning media is required. One of the interactive learning media is iSpring

application that will be developed by researcher to be applied in the school so that the learning process more active and interesting.

Previous studies related to the iSpring development including Anwar et al (2019) stated that iSpring-based learning media succeeded in increasing student interest in learning. Then Amali et al., (2019) showed that the implementation of iSpring learning media made the learning process more participatory. Meanwhile, research conducted by Faiqotul Himmah (2017) using *iSpring Suite 8* media towards students at SMPN 1 Puri Mojokerto in the academic year 2016/2017 on material additives that get an increase of student learning outcomes. The research results were seen from learning media with an average score percentage of 93.9% with very good criterion and students response of 98.33% with very good criteria.

A similar research conducted by one of the bachelor of education student of Chemistry Education UNIMED, Yossi Lestari (2021) discovered the average value of student learning outcomes taught utilizing a problem-based learning paradigm with iSpring media on the reaction rate material in online learning was greater than the KKM value 72 which is equal to 81.71. However, the display is less attractive, not combine with hyperlink slide and quiz. Based on the information that researcher has collected, there has been no study on the development of interactive learning media thus far using iSpring media in Bilingual Chemistry Education Study Program, only in Regular Chemistry Education Study Program.

In light of the issue foundation that has been portrayed, the researcher is keen on conducting research with the title "The Development of Interactive Learning Media Based iSpring Application on Reaction Rate Material for Grade XI Senior High School."

1.2. Problem Identification

Based on the above problem background, the problems identified are as follows :

1. The difficulty of students in understanding the concept of reaction rate due to lack of involving macroscopic, microscopic and symbolic aspects.

2. The lack of variety of teacher learning media in conveying teaching material.
3. Most teachers have not developed application or program-based learning media.

1.3. Research Scope

The scope of problems for this research can be formulated as follows:

1. This research discusses about the analysis of the development of interactive learning media based iSpring application on the reaction rate material.
2. This research discusses the feasibility of interactive learning media based iSpring on the reaction rate material.

1.4. Problem Formulation

Based on the problem identification and problem limitation, thus the problem formulation in this research as follows :

1. How is the analysis result of the needs and learning media used in SMA Negeri 12 Medan nowadays?
2. How is the feasibility of interactive learning media based iSpring application on the reaction rate material?
3. How is the students response towards the interactive learning media based iSpring application on the reaction rate material?

1.5. Problem Limitation

In order to the problem in this research is not widespread, so it is required to make the limitation in this research as follows:

1. Learning media that will be developed is interactive learning media based *iSpring*.
2. The material presented in learning media is the reaction rate material in senior high school of class XI.

1.6. Research Objective

This research will be conducted with the following objectives :

1. To know the analysis result of the needs and learning media used in SMA Negeri 12 Medan.
2. To determine the feasibility of interactive learning media based iSpring application on the reaction rate material.
3. To determine the students response towards the interactive learning media based iSpring application on the reaction rate material.

1.7. Research Benefit

This research is expected to provide the following benefits :

1. Based on theoretical point

Through the research, it is expected to add the insight of development knowledge and broaden thinking about the development of interactive learning media based iSpring.

2. Based on practical point

a. For students

The availability of this iSpring media can assist students in comprehending the rate reaction content presented by the teacher. Also train students to be more active and independent during the learning process, as well as enhance students' interest.

b. For teachers

Improving the quality of chemistry learning is expected by using iSpring learning media on the reaction rate material. It is also an input to be more innovative and creative in contributing to the education field, in order to make learning more effective and active.

c. For school

The existence of iSpring media is expected to be a source of learning and information in studying chemistry in school.

d. For researcher

To enhance the knowledge and creativity of researcher as a prospective teacher in scientific research specifically in the field of chemistry learning media. It is also can be a valuable experience as teaching supplies.

e. For the next researcher

As an input and consideration in the context of conducting relevant further research.

1.8. Operational Definition

1. The Development of Learning Media

Learning media development is an attempt or procedure undertaken to create a learning media based on existing development theory. In educational world, there are several learning development models that are commonly used, including the ASSURE, ADDIE, 4D, Jerold E. Kamp, etc. models. In this study, the learning development model used is 4D learning development model. As the name implies, the 4D model consists of 4 main stages, namely Define, Design, Development, and Disseminate.

2. Interactive Learning Media

According to Daryanto (2013), interactive learning media is a learning media that is equipped with a controller that can be operated by the user so that the user can choose what they want for the next process. Interactive features in learning media also help users understand the material better so that they can improve students' cognitive abilities and interest in learning. Developed interactive multimedia has several features such as images, animations, video, simple laboratory experiment and quiz. The interactive learning media used in this research is iSpring interactive learning media.

3. iSpring Application

The learning media used in this research is iSpring suite application. Ispring is a software that can convert power point presentation files to flash and SCORM/AICC formats, which is often used in e-learning through LMSs

(Learning Management Systems). With the existence of this application, the material displayed on the media will be more attractive and interactive. The operation of iSpring is easy and can be accessed through any platform so as to make the learning process more active and effective.

4. Media Feasibility

Media feasibility is the suitability of the media with the format, quality, and conformity of the concept so that it can be used as a learning media. The feasibility of media will be assessed through validation instrument based on BSNP by material and media experts.

