

CHAPTER I

INTRODUCTION

Background

Learning activities in schools will be carried out smoothly and according to the expectations of the school and students if supported by various facilities and learning support books in the form of adequate teaching materials. One of the teaching materials that can meet the needs of students independently is print-based teaching materials in the form of modules. Therefore, researchers are interested in developing problem-based learning modules. The purpose of this study was to find data on development activities, product feasibility from material, language, and presentation experts, and student responses after carrying out activities in the module.

Education is a process that is needed to obtain balance and perfection in individual and community development. Education is more than just teaching, which can be said as a process of knowledge transfer, value transformation, and personality formation with all the aspects it includes. The emphasis of education compared to teaching lies in the formation of awareness and personality of an individual or society in addition to the transfer of knowledge and expertise. With this kind of process a nation or state can pass on religious values, culture, thoughts and expertise to the next generation, so that they are truly ready to face a brighter future of the nation and state. (Nurkholis, 2013)

According to the SISDIKNAS Law No. 20 of 2003, education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the necessary skills. himself and society. According to H. Horne, education is a continuous (eternal) process of higher adjustment for human beings who have developed physically and mentally, who are free and aware of God, as manifested (manifested) in their intellectual, emotional and human surroundings. of humans. Every developed country will never be separated from the world of education. The

higher the quality of education of a country, the higher the quality of human resources that can advance and make the country proud. Education is an important factor for society, for the sake of progress and decline, the quality of the community or nation is very dependent on the education available to the people of that nation.

Chemistry is one of the science lessons that most students are less interested in. Education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential. Learning activities at school will be carried out smoothly and according to the expectations of the school and students if it is supported by various facilities and learning support books in the form of adequate teaching materials. One of the teaching materials that can meet the needs of students independently is print-based teaching materials in the form of modules. Pannen 2001 (in Prastowo, 2015:17), reveals that teaching materials are materials or subject matter that are systematically arranged, which are used by teachers and students in the learning process, public information received by students, and the objectives of students learning chemistry. high school chemistry learning must begin with building new ways of thinking of students about chemistry subjects. This can be done by explaining that chemistry is important, prosperous, fun, healthy, and beneficial to everyone. every high school chemistry learning must be linked back to the existence of chemistry in everyday life. students are trained to think critically and creatively on every aspect of the chemical material being studied. Thus, students are able to see the role of chemistry in explaining or solving daily problems and not only seen as mere knowledge. In this way it is hoped that the awareness, interest and motivation of students to learn chemistry can be increased. (Wayan Subagia, 2014).

Chemistry is one of the most important sciences because it deals with natural phenomena and what happens in the environment. Chemistry has several characteristics, one of which is the science that seeks answers to the questions of what, why, and how natural phenomena related to the composition, structure and properties, change, dynamics and energetics of substances, science that was originally obtained and developed based on experiment (inductive), but in later

developments chemistry was also obtained and developed based on theory (deductive). In learning chemistry involves three levels of representation, namely macroscopic, symbolic, and microscopic (Tuysuz et al, 2011: 452). At the macroscopic level chemistry is concerned with direct observation. At the symbolic level of chemistry it deals with symbols, formulas, reaction mechanisms. At the microscopic level, chemistry is related to chemical processes (Tuysuz et al, 2011: 452). Kozma and Russel (1997: 952) argued that most of the concepts of chemistry are at the molecular level which cannot be understood by students' direct thinking. Kozma and Russel (1997: 952) suggest that students have difficulty understanding various symbols in chemistry. This is what causes students to find it difficult to understand chemistry lessons, and is even considered a boring and less interesting subject by some students.

Based on the background above, the authors are interested in do research with the title "Development of PBL-based learning modules to improve student motivation and learning outcomes through a scientific approach to redox subjects." Chemistry is one of the subjects that students consider difficult, so students are less interested in learning it. One of the materials learned in class X that is considered difficult by students is the Electrolyte and Non-electrolyte solutions These difficulties are related to the characteristics of chemistry such as concepts, calculations and observations through practicum.

Students experience difficulties that affect their understanding. The Electrolyte and Non-electrolyte solutions material is very important to be studied and understood. In reality, students are required by the teacher to simply memorize without requiring students to understand the material deeply by connecting the material with everyday problems. This material not only requires appropriate teaching materials so that students can master the concept, but also requires a creative learning model that can make students master the concepts and applications of these materials in everyday life. The solution to the above problems is that learning must be packaged in teaching materials in the form of interesting modules and can also make students play a more active role in learning chemistry. The module can also be collaborated with one of the learning models that are in accordance with the 2013 curriculum. Problem-based learning (PBL) is

a learning model that can be used as an alternative choice, which in turn will enable students to learn independently with the existence of learning model-based module teaching materials.

1.2 Problems Identification

Based on the background above, the problem identification as follows :

1. The learning resources are still limited in the independent learning process.
2. The learning media that used have not been able to raise students awareness to learn the material first independently.

1.3 Problem Limitation

So that this research is more focused and achieves the target given the limitation of times, energy and cost, the researchers energy and cost, the researchers limit the problem, namely :

1. Chemistry learning media based on E-module using problem based learning on electrolyte and non electrolyte solution.
2. Learning media was developed with ADDIE, the development of this learning media was only up tot the design stage.

1.4 Problems Formulation

1. Does the development of e-module based on Problem Based Learning approach feasible based on BSNP criteria ?
2. How do students respond to the development of e-modules based on Problem Based Learning?

1.5 Research Purpose

1. Knowing the feasibility of e-module based on Problem Based Learning approach based on BSNP criteria.
2. Knowing the students response of e-module based on Problem Based Learning approach.

1.6 Benefit of Research

The benefits of this research are as follows :

1. For Researcher

This research is one of the sources of scientific studies that can be used as teaching material for later writers when they are already working.

2. For Teacher

- a. Improve the performance and role of the teacher as a mediator in learning.
- b. As information and reference in the application of learning design.
- c. Improving the thinking power and creativity of teachers.

3. For Student

- a. Increase the effectiveness of students in learning chemistry.
- b. Students increase new experiences in the learning process using the E-Module.

1.7 Operational Definition

Operational definitions in this study include:

- a) Feasibility is the criteria for determining the suitability of learning materials to achieve the learning process and learning outcomes that are in accordance with BSNP criteria. The standard score for feasibility criteria is 3,25 - 2,51.
- b) Problem Based Learning Approach that emphasizes exposure to problems as a learning trigger.

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