CHAPTER I

INTRODUCTION

1.1 Background

Education as an effort helping students to reach their maturity should be well organized. Teachers by mastering science and technology have to try to build an appropriate learning atmosphere that can let their students feel comfort and easy to catch learning materials. Teaching makes acquisition of knowledge and skills possible through systematic interaction between teachers and students. It happens everyday and involves teacher, students, methodology and materials interaction. Parts of these materials are known as instructional resources.

Indonesia is one of countries with low quality of education (according to UNESCO), one of its reasons is that teachers can not dig up student's potential. Most of time they force their will without paying attention to their students talent. A good education process gives student opportunity to become creative, this is because basically the way student thinks is unable to be directed.

Chemistry is recognized as one of difficult subjects to learn by students, this is because understanding of chemistry is based on assigning meaning to the unseen and the intangible. It contains many concepts which are difficult to be understood by students as it relates to chemical reactions, calculation (stoichiometry) and some abstract concepts. Mostly chemistry learning is held through boring and passive way with lack of students motivation and interest. In this situation students feel as if they are forced to learn about this subject and of course this affects their achievement. So that teachers should make efforts to make a much more interesting and effective learning.

One of chemistry materials that are assumed as interesting topic for students is colloidal system but it will be difficult to understand if the teachers can not find the appropriate learning model and media to teach that topic. This is because colloidal system contains many concepts related to daily life phenomena.

Project based learning is a model that can organize projects in a learning process (Giilbahar and Tinmaz, 2006). It gives an opportunity to the learning

system which is centered in students to make them more active and collaborative in doing the project. One of the reasons why Project Based Learning is important to implement is that according to the researches before 90% of students involved in the implementation of Project Based Learning feel optimistic face the real problem in life.

Project Based Learning requires a lot of information in the implementation. The information can be achieved from books ,internet, and other sources. In this case web-based learning media is chosen to be combined with Project Based Learning.

The use of learning media in teaching process provides the basis for improved teaching and learning of a subject. They are designed, produced and used to achieve specific instructional goal. An intelligent use of audio-visual aids will save time and stimulate students' interest. It increases the retention of knowledge and stimulates understanding and attitude. They help students to recognize a problem, provide solution and summarize discussion. More so, they facilitate independent study, aid communication, create a variety of sensory and make instruction more powerful.

The development of information and technology provides the education world lots of information sources that are widely available and can be accessed quickly. This technology is known as internet. The information in internet comes from individuals or organizations that is intentionally published to the world.

In fact, everyday many students are spending countless hours immersed in popular technologies-such as Google, Facebook, Myspace, World of craft or Sim city-which at first glance may seem like a waste of time and brain cells. But these genres of technology-Social Networking, Digital gaming, and Simulations-deserve a second, deeper, look at what is actually going. Students are more interested in using social media to have more friends than to get more information as their lesson materials. Market research data indicates that many a normal, middle-aged adult 1 uses these technologies with frequency (Klopfer, 2009 : 2)

Web-based learning is a long distance learning system which is based on the information and technology through web pages. Web-based learning media is

a programmed and individual learning form. Programmed learning is a learning system with materials that are well programmed to reach the goal of education. While individual learning is a learning system that pays attention to the need and characteristics of student. (Burns, 1971: 45)

Web-based learning serves learning materials shown through web browser and made in the web format. Web-based learning materials are mostly gained from websites or blogs, but it is not always depended on internet connection. As an example, a web-based learning which is done by using CD-ROM. In this case all the learning materials are running in it so the students can use it directly as learning media. The use of CD-ROM can be more effective if there is no internet connection in the school, house or community.

Based on the problem above the researcher is interested to do a research entitled "**The Influence of Project Based Learning Model with Web-based Learning Media to Increase Student's Achievement on The Learning of Colloidal System**".

1.2 Problem Identification

Based on the background explained above, the problem identification in this research includes:

1. Students find difficulties in studying chemistry as the understanding of chemistry is based on assigning meaning to the unseen and the intangible.
2. Teachers find difficulties in providing attractive and interesting learning model in chemistry learning.
3. Students have less willing in using school facilities like personal computer and internet access in learning process.
4. Student achievement of chemistry subject is still low.

1.3 Problem Limitation

In order to make this research well directed the problem needs to be limited to the applying of project based learning model with web-based learning media in increasing student achievement on the teaching of colloidal system. This is done by comparing the student achievement between the class taught by using project

based learning model with web-based learning media and the other class taught conventionally.

1.4 Problem Formulation

The problem formulation of this research includes:

1. How is the effectiveness of Project Based Learning model with web-based learning media in increasing student's achievement on the teaching of colloidal system?
2. Does Project Based Learning model with web-based learning media give higher significant difference compared to direct instruction learning model to student's achievement on the teaching of colloidal system?
3. Does Project Based Learning model with web-based learning media give higher significant difference compared to direct instruction learning model to student's motivation on the teaching of colloidal system?
4. Does Project Based Learning model with web-based learning media give higher significant difference compared to direct instruction learning model to student's interest on the teaching of colloidal system?

1.5 Research Objective

The objectives of this research are:

1. To investigate the effectiveness of Project Based Learning model with web-based learning media in increasing student's achievement on the teaching of colloidal system.
2. To investigate whether or not Project Based Learning model with web-based learning media gives higher significant difference compared to direct instruction to student's achievement on the teaching of colloidal system.
3. To investigate whether or not Project Based Learning model with web-based learning media gives higher significant difference compared to direct instruction to student's motivation on the teaching of colloidal system.

4. To investigate whether or not Project Based Learning model with web-based learning media gives higher significant difference compared to direct instruction to student's interest on the teaching of colloidal system.

1.6 Research Benefit

This research is hoped to bring benefits to:

1. Those who are directly involved in learning process (teachers and students), so they can build a more interesting and effective way to teach and learn colloidal system by using web-based learning media.
2. Students who are studying about colloidal system because they can access more materials on the web pages.
3. The next researchers who are interested in doing similar research in the future.

1.7 Operational Definition

1. Project Based Learning is a model that can organize projects in a learning process and it gives an opportunity to the student centered learning system in make students more active and collaborative in doing the project.
2. Web-based learning media is a long distance learning system which is based on the information and technology through web pages.
3. Student achievement is the result of a learning process, that is an interaction of teaching and learning action.

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