

CHAPTER 1

INTRODUCTION

1.1. Research Background

Education is one of the necessities of life that are very important to increase students quality. The education that is able to encourage the building in future is the education that is able to develop student's potential, so students can be able to solve the life's problem that faced. It is fundamental to remember that education is made as one measure of human welfare and education is seen as an effective tool in trying to preserve and inherit the values of life.

The developments in science and technology has prompted reform efforts in utilizing the results of technology especially in education. One of the problem that faced by education world is the problem of lack of learning, children are less encouraged to develop the ability to think. The learning process in the classroom geared to the child's ability to memorize information without required to understand the information that he remembered it to connect with everyday life. Consequently, when our students leave school, they are clever in theory, but they are poor in applications.

This fact applies to all subjects. Where science subjects can not develop a child's ability to think critically systematically, because learning strategies that used to think less good in any learning process in the classroom. Children just memorize all the elements contained in the periodic table, element number, the location of the elements in the periodic table, but confused when they have to combine these elements into a compound. Such symptoms are common symptoms of the results of our educational process. School education in a child's brain is too crammed with a variety of instructional materials to be memorized; our education is not geared to build and develop character, creativity and potential, in other words, our educational process has never directed intelligent human form, that has the ability to issue life, and is not intended to establish a creative and innovative people.

The quality of education can be achieved with a suitable learning process in the classroom. However, there are still many facts on the ground that student management systems only be done by direct instruction methods that can not make students enough understand and lead to passive students which can not foster and promote creativity and student learning outcomes. This is obvious with the discovery of the facts on the ground in SMAN 1 Padangsidimpuan that the students are still low in chemistry learning outcomes. It can be seen from the results of daily exams with the KKM value of Chemistry is 70, while the students that were able to achieve only 30%.

It is caused by the characteristic of Chemistry. Situmorang (2009) states that chemistry has difficult things to be learned because of its characteristics, they are: 1) a number of chemistry is abstract, 2) chemistry was implication from the fact, 3) chemistry are successive and develop quickly, 4) chemistry are not only about the explanation of facts, laws, term and etc, but also the numeric problem that has important part in learning chemistry, and 5) there are so many topics in chemistry that must be studied. Furthermore, the topics in chemistry is belongs to 3 characteristics, they are the decomposition of concepts, mathematical calculations, and execution of experiments. According to this characteristics of chemistry and its topics, we need a creative teacher that has proper model of teaching for each chemistry's topics.

The lack of student's learning outcomes can not be separated from the quality of teacher performance in teaching and learning process in the classroom, where the teacher is an element in the process of teaching and learning that has important role in the success of students receive lessons and master optimally. The barriers in learning chemistry is where students are not comfortable the teacher's way in learning process because it just uses a speech method of making a boring lecture for the student to absorb the lessons without understanding it well.

White (2002) stated that Problem Based Learning model provides an alternative to traditional education: that Problem Based Learning model reverses traditional education by putting the problem first and using it to motivate learning. By using real-world problems, Problem Based Learning model enables students to

see the relevance that they often miss in other contexts. The promise of Problem Based Learning model is that students would learn better, understand what they learned, and remember longer by working cooperatively in groups. It prepares students to think critically and work creatively in using appropriate learning resources.

While salt hydrolysis is one of chemistry topic in senior high school for the second grade or class XI. On the topic of Salt Hydrolysis, there are 2 characters that must be mastered namely, 1) mastery of the concept of hydrolysis and the characteristic of salt solution, and 2) the calculation of the salt solution's pH. Because of that, for mastery salt hydrolysis, we should apply the model of Problem Based Learning.

The Laws of Number 20 Year 2003 about The National Education System in paragraph 3 states that the national education has function to develop the ability and form the character and the culture of nation that has value in educating nation's life. The national education has objective to develop the potential of students to be the faithful human to the God, have a certain character, healthy, bookish, capable, creative, autonomous, and being the democratic and responsibility citizen (Deputi Menteri Sekretaris Negara Bidang Perundangundangan, 2003).

Based on the function and objective of national education, Suyanto (2009) states that education in every level must be under one's belt systematically to reach the objective. It relates with the character formation of students to be able competing, have ethics, moral and respectful with interacting people. It shows that the quality of student's character education is very important to be improved.

One of the character that important to be developed in learning process is creativity. The creativity of students in learning chemistry is still low, it can be seen from the experience of the writer when doing PPLT in a senior high school. Teacher has responsibility to be a facilitator and guide in teaching and organizing the classroom. Teachers also expected being able to provide the learning material, learning media and using the learning approach that makes students become the

subject not as object in learning process, and arranging the exact evaluation until they can support the creativity development of students (Fatimah, 2009).

Because of the reason, the writer wants to apply the learning model that can improve student creativity by using some media such as macromedia flash animation, power point presentation and etc. This is the suitable media for showing the visualization of the material so there is no misundersatanding between students and teacher. It shows the interesting illustration for students from the animation so student can be more active and creative in learning the topic. By using some media and Problem Based Learning model, students can more comprehend the material of Salt Hydrolysis well so it can improve the learning outcomes and the creativity of the students. Sinaga (2012) has done the research and state that the problem based learning with macromedia flash animation is better than the direct instruction method with macromedia flash animation on the topic acid and base. Then the research of Belliyna (2010) conclude that PBL give significant in learning outcomes of SMP Bridjen Katamso Medan students in chemistry on the topic acid and base as 30.69 %. The research of Raja (2013) also concluded that the effectiveness of Problem Based Learning (PBL) that integrated by multimedia based on computer is 11.56% in rate reaction topic.

Based on the background mentioned above, the writer has done the research which title is: **“The Implementation of Problem Based Learning with Multimedia Based on Computer to Foster The Student’s Creativity and Increase The Student’s Achievement in Salt Hydrolysis Topic.”**

1.2. The Scope of Research

To make it easier to understand the problem and simplify the implementation of the research, it is necessary to know the scope of study, they are:

1. The topic that taught was Salt Hydrolysis.
2. The model of teaching that used was Problem Based Learning.
3. The media that used was multimedia based on computer.

4. The result that measured were the student's creativity character and the student's achievement.
5. The subject in this research was the students in grade XI of SMA Negeri 1 Padangsidempuan, SMA Negeri 3 Padangsidempuan and SMA YP HKBP Padangsidempuan.

1.3. The Problem Formulation

To make research brief that can be used as reference, so the problem statement is made as below:

1. How is the student's chemistry achievement that taught by Problem Based Learning model with multimedia based on computer and Direct Instruction method?
2. Is the student's creativity character that taught by Problem Based Learning model with multimedia based on computer significant higher than taught by direct instruction method?
3. Is the student's achievement that taught by Problem Based Learning model with multimedia based on computer significant higher than taught by direct instruction method?
4. How many the effectiveness of Problem Based Learning with multimedia based on computer to increase the student's achievement if compared with the student's achievement that taught by direct instruction method ?

1.4. The Problem Limitation

The problem limitation in this research are :

1. The learning process that only directed to the ability of memorizing, and comprehending the information without any application makes students passive in classroom.
2. The model of learning that used was unsuitable and less in variation in chemistry learning so it can't develop the student's character.

3. The model of teaching that is used by teachers makes the role of students in learning process is still passive.
4. The development of character in classroom is seldom to be done by teachers now especially for student's creativity character in learning chemistry is still low.

1.5. The Objectives of Research

The objectives of this research is to know the implementation of Problem Based Learning model with multimedia based on computer in fostering the student's creativity and increasing the student's achievement. Specific objectives of the study are:

1. To know the student's chemistry achievement that taught by Problem Based Learning model with multimedia based on computer and Direct Instruction method.
2. To determine whether there are significant higher of the student's creativity character that taught by Problem Based Learning model with multimedia based on computer than taught by direct instruction method.
3. To determine whether there are significant higher of the student's achievement that taught by Problem Based Learning model with multimedia based on computer than taught by direct instruction method.
4. To investigate the effectiveness of Problem Based Learning model with multimedia based on computer to increase the student's achievement if compared with the student's achievement that taught by direct instruction method.

1.6. The Benefits of Research

This research is expected to give benefit especially for Chemistry teacher about how to repair the learning process by using Problem Based Learning model

with multimedia based on computer to Chemistry teaching on Senior High School. The benefits of this research generally are described as below:

1. Getting learning model that suitable and effective on teaching of abstract concept to increase the student's achievement and student's creativity character.
2. As the input for chemistry teacher how to design learning process in classroom that can increase the student's achievement and student's creativity character.

1.7. Operational Definition

To avoid the differences or lack of clarity of meaning, the operational definitions in this study are:

1. Problem Based Learning is a way of constructing and teaching course using problem as a stimulus and focus on student activity. PBL is an approach for structuring curriculum content, facing students with problems from practice, which provides a stimulus for self-directed learning of students following defined steps.
2. Multimedia based on computer is consist of some medias that is able to show the clear visual for students so the abstract material can be illustrated more interesting for the students by the using of animation picture and etc.
3. Creativity is a phenomenon whereby something new and valuable is created.
4. Student's achievement are the skill or knowledge, attitudes and the result that obtained by students after getting treatment from the teachers.