

# CHAPTER I INTRODUCTION

## 1.1 Background

Today science becomes an important concern world wide. Progress of a nation can be measured from level of mastery of science. Chemistry as a part of science is also one discipline to be mastered, so chemically active learning engaging and quality are needed. Competency Based Curriculum is a curriculum that emphasizes the concept of capacity to perform tasks with certain performance standard, so the results can be felt by students, such as mastery of a particular set of competencies (Nurhadi, 2004). Education is not only focused on mastery of the material, but at also emphasized mastery of skills (characters). Students must also have the ability to do something by using scientific principles and processes that have been mastered, learning to know, and learning to live together must be achieved in teaching learning activity (Sanjaya, 2010). Furthermore when researcher done observation in SMAN 2 Kisaran, student learning outcomes in subjects chemistry is still relatively low, based on the results of observations with chemistry teacher was found from 43 students only 15 people (35%) were valued at a minimum completeness criteria established 82. Student learning outcomes become low caused by somethings, such as low student interest, an explanation of material carried by student teachers have not fully understood and lack of discussion groups.

Motivation in learning process is very important in attainment achievement. According Sugihartono (2007) motivation is a condition that can caused certain behavior and give direction in behavior. High motivation in

learning process can we see from spirit of student that not surrender to get a success. Sunyono (2006) say "Decreasing student achievement was caused of difficulty in understanding concept of chemistry & low interested in chemistry lesson". The low activity, interest & chemistry student learning outcomes can be caused by several factor, among others: (1) student are given no direct experience in observing a material, so that student assume chemistry is abstract & difficult to understand and don't get motivation. (2) The model was used to teach are less variable & are not innovative, so make the bad condition like sleepy, bore, or even noisy. Needed a creative teacher to create learning. Intrinsic motivation is very necessary to be developed because motivation is purely arise in student's own, without any outside influence. Intrinsic motivation is motivation that lives in students and useful in learning situations that functional. However, expect the emergence of this motivation is not easy, this may be due to students do not like the lesson. Increased motivation doing because in general, child's motivation to learn is low. Efforts to increase motivation and ideally knowledge of quality improvement of the learning process undertaken by teachers to offer a learning model that can increasing student achievement. Learning model that is able to change negative views of students on a lesson to be enjoyable. This learning model as not only bring fun to learn, but it will also give a positive impact to development of cognitive and social aspects.

Trianto (2009) says that "Students will be easier to find and understand of difficult concepts if they were discussions with his friend". This is reinforced by recognition of teachers that students consider difficult chemistry courses. Application of learning models that variation can increasing learning process and

all at once as indicators in increasing quality of education. Learning process, have two part that very important things such as model of teaching and learning media. These two aspects very related. Selection of one models in teaching will be affect type of appropriate media, although there are various aspects that must be considered in choosing media (Arsyad, 2002). In this case, model that used not only using model-based approach to teacher centered but student centered. Good model in teaching must be appropriate with characteristics of subject matter that will be explain, so created of model and media very needed. According Killey (2005), *Problem Based Learning* (PBL) has advantages in helping students to sort problem abstraction, problem definition, and problem refinement, to help develop critical thinking, verbal and writing communication can develop with discussion group. *Problem Based Learning* (PBL) model lead students are more motivated to work hard if comparison with traditional teaching where activity of students very little (Graff and kalmos, 2003). *Problem Based Learning* are developed improve interpersonal skills, critical thinking, search information communication, respect and teamwork (Sungur and Tekaya, 2006).

According Suyanti teacher as professional workers should facilitate him with a set of experience, skills and knowledge about teacher. Many teachers in teaching still seems just abort obligations (Mukhtar, 2007). Thus teacher should be able to arrange a way to develop professionalism of teachers with probe or test their teaching practice in order to become more effective and precise so that all the learning objectives are achieved. Mutiara (2014) research with entitled "Implementation of Scientific Approach based Lesson Study on the law of definite proportions to practical aspects of affective and psychomotor ability".

Affective aspects of students, which include honesty, cooperation, precision and cleanliness. While the students psychomotor aspects, including how to use tool, heat the substance and measuring in class X SMA Negeri 7 Pontianak. Results that ability of affective aspects and psychomotor aspects of student very good with an average of 87% in affective aspect and psychomotor aspects 90% after learning by using a scientific approach based on lesson study.

Communication tool can be used to transmit information from the source to students participating in learning activities (Situmorang and Silitonga, 2011). Existence of learning media can help student in study. Chemistry lecture is a lesson that difficult categories. According (Dale, 2013) using of media also need consider the composition of amount information obtained by students through sense of sight around 75%, through sense of hearing around 13% and through other senses around 12%. Learning with use sense of sight will give benefit to students. Learning with computer media have a good function as a communication tool in delivering course material. According (Situmorang and Silitonga, 2006) the conclusion is student interest amounted to 35.06% and improvement of learning outcomes by 54.80% when using multi media. Efforts to improve quality of education constantly done both conventional and innovative. Government has also made efforts to improve education system, either through arrangement of software (software) and hardware (hardware). One of computer application that can be used to create teaching materials are *eXe Learning* (*elearning XHTML editor*). This application can use by teacher in making teaching materials that not master of HTML programming, because application is ready to use. Zebua research (2010) used of *Problem Based Learning* model using

*eXe-Learning* media higher 21% of student learning outcomes without using media *eXe-Learning* can increase learning outcomes chemistry student with an average gain of 0.58 and affect activity of students significantly by 57.4%. Priyambodo (2010) shows used of application *eXe-Learning* program in preparation of learning media in schools to attract and enhance students' understanding of chemistry and create a fun learning. Advantage of *eXe-Learning* media is one of open source application program that used for manufacture of teaching materials based on e-learning. Operation of teaching materials prepared by *eXe-Learning* can be done repeatedly, suitable for students who need a repetition of learning (remedial), so teachers' time and energy spent more efficiently.

Concerning with the problems of learning above, the writer is interested to conducting research with titled "*The Effectiveness Problem Based Learning (PBL) Model Based on Lesson Study using eXe-Learning Media Toward Motivation and Student Learning Outcomes in Redox Topic*".

## 1.2 Problems Identification

Based on the background Explained above, there are some problems are identified to make the research be focused, they are:

1. Student still less understanding of concept in chemistry lecture, can see in score that they have is low and not appropriate with Criteria Completeness Minimum (KKM) standard.

2. Student still less understanding of concept learning process that can influenced spirit in learning process because model of learning process not variation.
3. The lack of a way to develop professionalism of teachers with probe or test their teaching practice in order become more effective and precise so that all the learning objectives are achieved, so we need a lesson study.
4. Student still less understanding of concept learning process that can influenced spirit in learning process because the motivation not optimal.
5. Student achievement in learning process and indicator to increasing quality of education very less, so we must attention media that used.

### 1.3 Problems Limitation

Based on the scope of the problem that has been described above, seen so many problems arise. Therefore, the discussion of issues that need to be examined more focused issues.

1. This research focus in application *Problem Based Learning* (PBL) based on *Lesson Study* with utilization Computer media (*eXe-Learning*) to increase student Achievement.
2. In this research is limited to Senior High School chemistry class X on subject Redox Reaction..
3. Learning Model that used is *Problem Based Learning* (PBL) based on lesson study.
4. Media that used in learning process is computer media with using *Exe-Learning* program.

5. Research that doing based on Lesson Study.
6. Topic of Redoks Reaction: Including definition of Redoks reaction, Reduction, Oksidation, application of redoks reaction in daily life.

#### 1.4 Problem Statement

The formulation of the problem in this research is:

1. Is there different influence *Problem Based Learning* (PBL) model based on Lesson Study using *eXe-Learning* media and Expository model based on Lesson Study without using *eXe-Learning* media toward student learning outcomes?
2. Is there different influence student learning outcomes between high motivation and low motivation level?
3. Is there an interaction between *Problem Based Learning* (PBL) model based on Lesson Study using *eXe-Learning* media and Expository model based on lesson study without using *eXe-Learning* media with level of student motivation toward student learning outcomes?

#### 1.5 Objective of Study

The purpose of this research based on problem statement is to know:

1. Different influence *Problem Based Learning* (PBL) model based on Lesson Study using *eXe-Learning* media and Expository model based on Lesson Study without using *eXe-Learning* media toward student learning outcomes.

2. Different influence student learning outcomes between high motivation and low motivation level.
3. Interaction between *Problem Based Learning* (PBL) model based on Lesson Study using *eXe-Learning* media and Expository model based on lesson study without using *eXe-Learning* media with level of student motivation toward student learning outcomes.

### **1.6 Significances on Study**

The expected benefits of this research are:

1. For student, as a source in learning so can increasing motivation , activity and interest in learning activity.
2. For teacher, can improving the quality of teaching and learning process to make it more attractive, effective, efficient, interactive in an effort to improve student learning outcomes, particularly on the subject Redoks reaction.
3. For researcher, as an information and reference materials, researchers who want to study further about *Problem Based Learning* (PBL) Model Based on Lesson Study that integrated by using *eXe-Learning* media in improving student learning outcomes.

### **1.7 Operational Definition**

1. *Problem Based Learning* (PBL) is a activities that must be performed by students. *Problem Based Learning* (PBL) did not expect the students just listen, take notes, and then memorize subject matter, but through PBL



active students to think, communicate, seek and process data, and finally concluded (Isjoni, 2009).

2. *eXe-Learning* Media is a software used for learning system that uses computer, program is an abbreviation of elearning XHTML editor, which is a program used to create web-based teaching materials designed to deliver teaching material becomes easier and interesting (Priyambodo, 2010).
3. Lesson Study is process that use to developed professionalism of teacher to investigate teaching process become effective (Daryanto, 2012).
4. Extrinsic motivated is individuals do not engage in the activity out of pleasure but rather do so to derive some kind of rewards that are external to the activity it self (Vallerand, 2004).
5. Intrinsic Motivated is motivation that come from themselves of student without compulsion other people (Daryanto,2012).
6. Learning outcome are also seen to have direct benefits for accrediting students, learning outside of the class, by providing a clear indication of what student are expected to achieve in relation to specific awards (Maher, 2004).
7. Redoks Reaction are process involve solid, liquid and gases. they involve transfer of electron and therefore are delineated as electrochemical reaction. Such processes actually proceed by two simultaneous half-reaction oxidation and reduction (Schoor et all, 2011).