

## CHAPTER I

### INTRODUCTION

#### 1.1 Background

Nowadays, a lot of students are lack in motivation when they study in school. Some of them just do school for formality. They don't have good motivation to learn, so that it also influences their achievements in study. These conditions happen for all school subjects, especially chemistry. Most of student doesn't have good motivation to learn chemistry. They learn about chemistry just for formality, so that they can graduate from school (Christensen. 2010).

Most of teaching model that applied by teacher in school is using direct instruction. Direct instruction model is rarely connecting learning subject with real life, because teacher just give direct information to students. By connecting subject with real life, it will be easier for students to understand because they experienced it in real life.

Another reason why students get bored in classroom is teaching style and presentation that teacher show in classroom is not interesting. The quality of presentation that shown by teacher is very important. Good presentation will raise students' interest and they will have willing to study. And of course if they have will to study, it will be easier to teach them.

Chemistry is a branch of Natural Science which describes the structure, composition, properties and material changes. Most of the chemistry material classified as an abstract, that chemistry studied by simplification of the many object in this world and its discussion not only with solving problems which consists of numbers (numerical problem) but also includes explanation about chemical phenomena contained in it.

According Silitonga (2011), the reality that often faced by teachers in schools is that students often think chemistry is a difficult lesson so that students felt unable to learn advance in chemistry. These difficulties have an impact on student's learning result are less satisfactory.

Education that we can see around is often using Direct instruction method without using some media. Teacher is teaching by speaking in front of class about subject. “Likewise with the using of media is still minimal in teaching and learning. This happen because some teachers think that using media is very troublesome and requires a lot of funds” (Aristohadi, 2008). We can see that not all the media is requires a lot of fund. Some media can be used by using things surround us and also some cheap things that affordable by teacher. Like in topic of oxidation we can use a slice of apple to show students oxidation process. Some of media may be troublesome for teacher that not have basic about instructional technology or educational technology. Definition of educational technology according to Commission on Instructional Technology is “instructional technology means the media born of the communications revolution which can be used for instructional purpose alongside the teacher, the book, and the blackboard” (Sukiman: 2012). What we need the most is communication media that grow rapidly and we can used it on education. This tools of technology is called hardware like TV, radio, video, PC etc.

Media that widely used nowadays is PC or personal computer. Computer is one of learning media that can help students in learning process, so that it will be easier for students to understand. In recent years, computer is widely used by students from the entire grade. A lot of people said that nowadays is global era, where in this era we can use information technology that the main tools is Computer. Information that we can make not only sound or image, but we can show information in multimedia. We can use computer a to type, draw, photo editing, video player, to play a song and to analyze experiment result or to operate scientific program etc (Sukiman: 2012).

We can conclude that computer is widely used by a lot of people. People use computer because computer very helpful for people, especially for teacher and students. For teacher, computer can be a very helpful media. By using computer teacher can make some animation, video or presentation slide that can increase the students interest. Using computer have a lot of program or software so that we can choose which one is more suitable with our subject that will we teach. Not only

understand about computer and its software, teacher need to know which one is suitable when teacher teach some subject.

Teaching with media that's attractive is one of key roles to improve the student's ability. One of attractive media is the simple animation multimedia. Multimedia is media and content that uses a combination of different content forms. The term can be used as a noun (a medium with multiple content forms) or as an adjective describing a medium as having multiple content forms (<http://en.wikipedia.org/wiki/Multimedia>).

Students activity also important thing to be concerned in learning. Students will be easier to understand if student get involved in teaching and learning process. Teachers must be more creative to give freedom and opportunity to student while they are study in the classroom. From learning activity, students will learn more if we compare it just by listening (Gagne. 1996).

Instructional curriculum that have been used in Indonesia since 2006 is KTSP. This curriculum has a different concept learning approach with curriculum in 1994, which is based on students competency, where the school program focus students activity. One of the important materials in application of KTSP is depend on the teachers understand how to apply contextual learning strategy in the class. Direct instruction method is widely used by teacher. This teaching model is need to be upgraded and need to be changed. However, its not easy for teacher to change teaching methods, because teacher needs ability and skill to do another teaching method.

Teaching process still dominated by opinion that knowledge as a fact to remember. Teaching is not only focused on giving knowledge theoretically, but also teacher have to think how experience in teaching and learning process connected with problems that faced by students in real life. The main point of CTL approach is connection between every learning subject with real life. Connection it we can use some illustration or example that have a relation with real life. Then, the teaching and learning process will be more interesting, and also students will feel the benefits that can apply in real life (Rusman: 2011).

In KTSP, the teacher does not have to describe objectives and materials in detail for a teaching learning process in the classroom. Hence, the teacher is given freedom to use an approach that is relevant to the KTSP, for example the CTL approach. One of the approaches that emphasizes the process and content of writing, which was discovered by Dewey (1916), is a contextual approach. The contextual approach is a learning philosophy that emphasizes students' interests and experiences. The contextual teaching and learning (CTL) was developed by the Washington State Consortium, which involved 11 universities, 20 schools and some education organizations in the United States (Satriani:2012).

Multimedia is the field concerned with the computer-controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally. A Multimedia Application is an Application which uses a collection of multiple media sources e.g. text, graphics, images, sound/audio, animation and/or video. Hypermedia can be considered as one of the multimedia applications (Marshall:2001).

Hydrocarbon in chemistry has a major role in human life and livelihood. Processes in nature that around us is most associated with hydrocarbonal system. (Susilowati: 2009).

Based on the background above, so that the writer take a title : **“The Effectiveness of Conceptual Teaching and Learning (CTL) and Multimedia to Increase Students Achievement and Students Activity on Teaching Hydrocarbon”**.

### **1.2 Problem Identification**

Based on the background above, problem identifications of this research are like below :

1. Low students motivation that effecting students achievement in chemistry lesson, because they have some difficulties especially hydrocarbon.
2. Students are rarely taught to solve problem and connected to real life.
3. The presentation of subject by teacher in learning process is less interesting.



### **1.3 Scope of Study**

To make this research more specific and focus, so the writer makes the scope of study as follows:

1. The research will held by using Contextual Teaching and Learning (CTL) and also use multimedia, then compare with Direct instruction Method.
2. Multimedia that used by researcher is simple animation and video or flash.
3. This research will held in Chemistry subject on High School with subject Hydrocarbon.

### **1.4 Problem Formula**

1. Is there increasing of students achievement after applying Contextual Teaching and Learning (CTL) using Multimedia if compare with achievement by Direct instruction method?
2. Is there the effectiveness of Contextual Teaching and Learning (CTL) using Multimedia by looking the students achievement on solving problems related with chemistry subject after applying teaching method compare with Direct instruction teaching method?

### **1.5 Research Objectives**

1. To investigate how the effect of Contextual Teaching and Learning (CTL) using Multimedia by looking the students achievement on solving problems related with chemistry subject after applying teaching method compare with Direct instruction teaching method on teaching hydrocarbon.
2. To investigate the effect of Contextual Teaching and Learning (CTL) using multimedia and students activity in teaching hydrocarbon.
3. To know the correlation of students achievement with students activity.
4. To know what cognitive domain competence developed by this teaching model.

### **1.6 Research Benefits**

The benefits of this research are :

1. As a knowledge for the researcher
2. As a suggestion for teacher and another educator about the compatibility of CTL with chemistry subject especially Hydrocarbon.

3. As a references for another researcher that related with this research.

### 1.7 Operational Definition

1. Contextual Teaching and Learning is a teaching approach that emphasizes the process of full involvement of students to be able to find material to learn and connected it to real life situations that encourages students to apply the acquired knowledge into daily life. CTL involves seven main components, like : Constructivism, Inquiry, Questioning, Learning Community, Modeling, Reflection, and Authentic Assessment (Rusman: 2011).
2. Multimedia is come from multi and media. Multi is related with the amounts and media come from medium that means to deliver (Sukiman: 2012). So multimedia is way than more than one to transfer something. In this case example of multimedia is simple animation and video or flash.
3. Direct instruction means traditional ([http://www.thefreedictionary.com/Direct instruction](http://www.thefreedictionary.com/Direct+instruction)). So Direct instruction method mean a kind method that was used traditionally, like lecturing method.
4. Students Achievements is capabilities or disposition that students acquired after teaching and learning. It accessed as normalized gain and posttest score.