

## CHAPTER I

### INTRODUCTION

#### 1.1. Background

Innovative learning material is believed to be applicable to improve students' competence in the teaching and learning process. The quality of education could be improved by studying through innovation to the learning material itself. Innovation in learning materials should provide opportunities in the formation of student competences to be skilled at building their knowledge capacity independently through high-level thinking skills in chemistry, such as critical thinking, creativity, and decision making, as well as solving problems. It could help the students to understand chemistry clearly, and make the learner free from students' misconception on specific terms (Situmorang and Herter, 2015).

Nowadays, technology and science develop very fast included chemistry but not balanced enough with the fast chemistry progress in learning material. In some educational institutions, many collegians consider that chemistry is quiet difficult to learn, that probably caused by the less systematic presentation, unattractiveness and boring material make it complicated to learn about. Utilization of the module as a kind of learning source has a very important role to enhance and complete the learning resources in order to improve learning activities in class (Situmorang, 2013). A good module is a module with three components of appropriateness according to the Badan Standar Nasional Pendidikan (BSNP), which are the appropriateness in content, language and presentation (Millah, *et al*, 2012).

More than one factor that causes learners less interested in this subject matter one of them learners assume that the subject matter is complicated to learn, so that learners already feel less able to learn it (Yusfiani and Situmorang, 2011). This matter can be caused by not yet developed and use of learning material according to the demand of curriculum, besides the presentation of elusive and boring material to make learners less master basic concepts of chemistry, and finally learn become no longer attractive to most learners, so that causing low learning outcomes of learners and interest in learning is reduced.

The utilization of learning materials should be improved in line with development of curriculum (Arlitasari, 2013). To be more supportive than innovative teaching materials, it is also important to use the right model of learning. One of the lessons that can be applied is project-based learning. Project-based learning is one of the learning models developed in teaching and learning activities. According to Thomas, et al (in Wena, 2013: 144) Project-Based Learning is a learning model that provides an opportunity for teachers to manage learning in the classroom by involving project work, with the research the implementation of project based learning to improve students' abilities, shows that after being given project-based learning methods, students' abilities have increased to 31.29 %.

Project-Based Learning Model is almost the same as Problem-Based Learning. This is because the beginning of learning based on the problems revealed, as well as collaborative learning activities or groups that emphasize the student environment to be active. The difference lies in the object where the problem-based learning required the formulation of the problem, data collection and analysis whereas in Project-Based Learning the student is more emphasized in the designing or designing activities from start formulating the job, designing, executing the work, and evaluating the results. Some previous researchers who have conducted relevant research on the use and application of innovative project-based chemistry materials can help students in learning to achieve competence according to curriculum demands, in their research.

According to Situmorang and Purba (2015) based on research with the title implementation of innovative chemistry learning material with guided tasks, the average percentage of student's creativity and perception in experiment class is 84.88 % and control class is 73.97 %. It means that the students were very interested to do the project for it was designed differently from the existing laboratory work. The excitement from students in the class was displayed when they were successful to determine the target analyses. The Project based learning was able to equip the student with adequate knowledge of the topic. The Project based learning was believed to be able to give deep understanding. Project-based learning succeeded in making learning more interesting and able to build the creativity and critical thinking

of students on the relationship of course material with daily life, and project-based learning can also give students a longer impression of teaching and improve student learning outcomes.

The project based learning one of strategy that can increase competence of students and also it can be applied in learning material. Project-based learning can serve as a teacher in improving students' thinking, collaborative, communication, and creativity skills (Creghan, 2015). Through collaborative learning, it can develop students' skills in individual strengths, learning styles, and group of a project.

Based on the above description, one of strategy to be used to facilitate and help students in teaching chemistry, the author develop the innovative learning material with project based learning for students, so the author was conducted research entitled **“The Development Of An Innovative Learning Material With Project On The Teaching Of Complexometry Titration”**

### **1.2. The Problem Identification**

Based on the background of the issues already raised, the following issues can be identified:

1. Students' understanding of the chemistry material is still low
2. Innovative learning material is needed to support the transformation of conventional learning into student-centered learning
3. Presentation of the chemistry material is complicated, less interesting, monotonous and boring
4. The lack of availability of module with innovative learning that require students perform simple experimets

### **1.3. The Problem Formulation**

From the description of the above background then the formulation of the problem in this study are:

1. How is the strategy to develop the innovative learning material with projec on Complexometry Titration topic?

2. How is the validity level of innovative learning material with project on Complexometry Titration topic based on BNSP?
3. How is the student's perception after using innovative learning material with project on Complexometry Titration topic?
4. How is the student's activity using innovative learning material with project on Complexometry Titration topic?

#### **1.4 The Research Purposes**

The specific purpose of this research is as follows:

1. To development an innovative learning material with integrating project to facilitate students in learning activities
2. To produce innovative learning material with project to fullfill the feasibility standars on Complexometry Titration topic
3. To know the students's perception after using innovative learning material with project based learning on Complexometry Titration topic
4. To know the student's activity after using innovative learning material with project on Complexometry Titration topic

#### **1.5. Research Benefits**

Benefits of this study are as follows:

1. Get a lot of knowledge and experience regarding the use of Innovation learning material with project-based learning that can generate interest and motivation to learn chemistry student.
2. Learning material developed can be used as learning material for lecturers and students in implementing the process of learning in class
3. As input for other researchers to create innovative learning material with project-based learning in accordance with applicable curriculum requirements.

### 1.6. Operational Definition

Based on the explanation, the operational definition on the following :

1. Development is an attempt to improve the conceptual, theoretical, technical, and moral abilities based on project to achieving a higher quality result.
2. Learning material is a learning component used as learning material for students and assist lectures in carrying out classroom learning activities.
3. Innovative learning material in this study is a learning material designed to integrate new innovations in material, such as the integration of project-based learning and the integration of the laboratory's operations with the aim that students become active, independent and more easily understand the lesson.
4. Project-based learning is a lesson that emphasizes student centered learning in a project. In project learning, students develop their own investigations with group friends and individually, thus automatically developing their research skills