

CHAPTER I INTRODUCTION

1.1. The Background of Study

One of the goals of students for learning chemistry is the ability to understand the concepts, principles, laws, and theories of chemistry and their interrelationships and their application to solve problems in everyday life. In fact, students often have difficulty in understanding the various concepts of chemistry and in the teaching-learning process that created the concept may differ from the actual concept of giving rise to a distorted concept. Skelly and Hall (1993) defined a misconception as a mental representation of a concept, which does not correspond to currently held scientific theory. Students come to class with their existing knowledge that they construct with their experiences or formal learning (Fetherstonhaugh & Treagust, 1992). Students' this prior knowledge is called as preconceptions. Some of these preconceptions are in conflict with the scientific view. Preconceptions which are in conflict with the scientific view are called as misconceptions. According to Mulford and Robinson (2002), misconceptions play a larger role in learning chemistry than simply producing inadequate explanations to questions. Students either consciously or subconsciously construct their concepts as explanations for the behavior, properties they experience. They believe most of these explanations are correct because these explanations make sense in terms of their understanding of the behavior of the world around them. Consequently, if students encounter new information that contradicts their alternative conceptions it may be difficult for them to accept the new information because it seems wrong. Such preconceptions are often incorrect from a scientific viewpoint and can interfere with student's learning of science (Driver and Easley, 1987; Fredette and Cimet, 1981). What a student learns, therefore, result from the interaction between what is brought to the learning situation and what is experienced while in it (Stofflet, 1994; Erdemir, Geban and Uzuntiryaki, 2000).

This misconception that happened to students often occurs in learning atomic structure. It can be happen caused atomic structure is a concept that is abstract and difficult to visualize such concepts born of atomic structure of SMA class X in which students build on atomic nucleus, electron trajectories, the trajectory energy levels, the presence of electron position in the trajectory, the maximum number of electron that can occupy the trajectory and the electron transfer from a single trajectory to another. It can be looked at from the student's result of studying one of the school in Labuhanbatu at structure atom year 2008/2009 and 2009/2010.

Table 1.1. Analyzing of Student's Result of Studing Structure Atom at SMA N 2 Nort Rantau Year 2008/2009 and 2009-2011.

Year of Studing	Avarage of Student	Student's Scoring	KKM	Average of Student's score	Number of Students Get passing and Not passing	
					>KKM (Passing) (%)	<KKM (Not passing) (%)
2008/2009	40	40	65	58,44	14 (41%)	20 (59%)
2009/2010	40	40	65	52,70	11 (52%)	29 (48%)

Source : 2012 List of Student's Scoring Structure Atom at SMA N 2 Nort Rantau

Many students still get bad scoring because they get misconception and then Atomic structure is fundamental concept that must be mastered students to understand the concepts of other chemical because of that the topic of atomic structure was first before the other concepts. So it is very possible the emergence of alternative conceptions when students build concept.

The review of literature shows that the students' misconceptions intensify on the abstract concepts such as mole concept, atom, molecule, chemical equilibrium, chemical bonding (Bar & Travis, 1991; Griffiths & Preston, 2000).

The percentage of grade X of SMA Nurul Islam Indonesia student's misconceptions about Atomic Structure is 34.00% (Hartati, 2010). The percentage of grade X of SMA in Bali student's misconceptions about Atomic Structure 68,1% (Redhana dan Kirna, 2004), The percentage of grade XI of MAN 1 Medan student's misconception about thermochemistry is 33.70% (Azlian, 2007). The percentage of grade X of SMA YAPIM Sei Glugut student's misconception about chemical bonding 33.61% (Suparjo 2006). There are student's misconceptions on chemical equilibrium at SMA in Medan (AliHusaini, 2011)the majority of students' misconception in understanding the direction of reaction 35.32%, The percentage of students' misconception at Chemistry department of state University of medan about radiochemistry is 42.00%(Sudrajat, 2003).

Therefore, in this case the researcher chose the title Analyzing of Students' Misconceptions on Atomic Structure at Senior High School in Labuhanbatu, this research aims to investigate the student's misconceptions about Atomic Structure at Senior High School in Labuhanbatu.

1.2. The Identification of Problem

Based on the background above, the identification of problem formulated as followed :

1. The students' original concept was different from the actual concept.
2. Students interpreted the new knowledge based on their own knowledge.
3. There were incompatibilities between student's concept and the true concepts.
4. Students had misconceptions on atomic structure.

1.3. The Scope of Study

The scope of study are :

1. This study limited to investigate the misconception of senior high school students.
2. The sample is limited to students grade X.
3. The matter is limited to atomic structure.

1.4. The Problem of Statement

The problem of statements of study are :

1. Are there student's misconception on atomic structure?
2. What are the types of students' misconception about atomic structure?
3. What is the percentage of students' misconception about atomic structure?

1.5. The Objectives of Study

The objectives of study are :

1. To identify the types of student's misconceptions about atomic structure.
2. To identify the percentage of student's misconception about atomic structure.

1.6. The Significances of Study

This study is expected as follows :

1. To be an information about student's misconception about atomic structure.
2. To be an input to improve the quality of teaching and learning chemistry especially about atomic structure in senior high school.
3. For researcher through this research expected can be an experience to know student's misconception.

