

CHAPTER I INTRODUCTION

1.1 Background

According to Gusti (2011), English in this global era, holds important role, being a dominant and official language, as a vital component which accommodate communication for millions of people around the world. Most of scientific technological and academic information in the world is expressed in English and over 80% of all information stored in electronic retrieval system of information is using English (Crystal, 1997:106).

To answer the necessity of producing qualified future generation with the ability to compete in global scope, International and Bilingual School has come in order to improve both quality of education and achievement of English as International standard for communication (Harahap, 2011:2).

In Indonesia, international school is called SBI (Sekolah Bertaraf Internasional) and some other use Bilingual attributes to mention the presence of two languages on subject delivery. Bilingual schooling implies the presence of two languages in the instructional process. RSBI (Rintisan Sekolah Bertaraf Internasional) for example, a model of bilingual school, will be directed to have international standard for teaching and learning process, going in such a gradual system, to give the school appropriate preparation during specific period of time.

The essential purpose of SBI based on educational consideration, in Sofa (2009) were the abilities in continuing education to international unit level, working for international institution, and attaining various achievements on science, mathematics, technology, art, and sports' competition. To obtain those purposes, subjects like Mathematics, Physics, Chemistry, Biology, and Economics were delivered differently compare to regular class. SBI for example, use both international curriculum as well as national curriculum to increase the quality of school and education by using English as second language (ESL) on teaching and learning process. That is why SBI and RSBI expect students to understand, explain, write, and present topics in English along with students' major language.

The schools were then, in intensive way on making teaching and learning process to be more effective than monolingual class because bilingual schools is designed for those who speak **English as a second language**. The experience of an effective bilingual model of learning, in order to raise students' competitiveness, is a consequence to make sure that content knowledge is well delivered. The competitive advantages of student's graduate from these schools were totally depending on teaching and learning process. This leads to learning and assessment models that were planned to build students' problem-solving skills and creative thinking in a form of authentic learning.

Form the result of biology daily test using Bahasa Indonesia, for Human reproductive System, the average scores obtained by students' of SMA Negeri 1 Medan Grade Eleven Science, Academic Year 2010/2011, was 77. It indicates that the students' were basically performed well for this topic, since Human reproductive System was considered to be interesting matters for them. But from beginning observation which was done before teaching and learning process on SMA Negeri 1 Medan, revealed that when 24 RSBI students' were directed to answer 7 biological question written in English, 37% were able to correctly answer 4 questions, 8, 3% were able to answer 3 questions, 1, 2 % of them were able to answer 2 question, and 41, 60% were answering incorrectly to all of 7 questions being asked.

Since English is not students major language especially the academic English, students find the languages become a problem to understand learning topics, in both written and spoken form. It will follow then with poor achievement for example when they have to finish some task using English text. This concern is one that the writer had experienced during her Integrated Teacher Training Program.

Students were generally find hardship in analyzing sentences, leading to misunderstanding. This is something regretful since students were not well acquainted with Science text as they did not fully interest in applying this language to enhance learning. They seem to pay not enough intention and interest

because of less ability in understanding sentences and lack of proper vocabulary to understand Biology text. Besides that, unfamiliar words and lack of background knowledge is also mentioned as some obstacles of learning using English on instructional process as well as some difficult concept on Academic text and, complex noun group. Academic English looks quite hard because it has different sense compare to usual English text which seldom use scientific interpretation to figure out.

The presence and mastery of English as a medium of science instruction will bring the impact on student's acquisition of science content knowledge. The foundation of this factor was Cummins (1981) work on cognitive academic language proficiency, which relates both cognitive and linguistic processes to the academic success of students, more specifically non-native English language learner (ELL). All students which identified as ELL can and should have every opportunity to learn and succeed in science (Torres 2001:2).

Biology will always be such an engaging subject, as most students were unreservedly challenged to involve as long as we provide them with such an appealing thread. In other hand, student' will find it also hard since Biology cover broad materials, especially for topics at Grade Eleven, because it contains anatomical and physiological theme which packed in such a dense topics and impossible for materials removal. For example, Human Reproductive System topics filled with terminology in which students have a hard time identifying and keeping tracks of key terms.

Teachers then play a critical and central role in this process and provide various effective techniques for science instruction that incorporate literacy skills (NSTA, 2009:1). Thus, there must be an increasing type of various technique and the need of correction for teaching method use in learning, since a feature of interesting and challenging class is something that teacher should concern in. It is in accordance to the importance of learning, as students were expected to acquire something new after teaching and learning process. Hence, method or techniques

to make students' improve learning and master scientific term were crucially important which will ease them to memorize and use the language.

Due to the problem of Learning outcomes and academic English mastery and effective method to overcome such problem, we can bring the idea of testing for an evaluation tools from learning method that can provide both anxiety and achievement for biology topics.

Crosswords and word searches were ideal at presenting work in a way that it does not really feel like "proper work" to pupils of most ages and abilities. These puzzles can be very versatile and help to vary activity and motivate pupils. Word puzzle have been used as review tools prior to exam, as it always believed to improve students' learning (Williams 2002:1). Crossword solving involves several useful skills including vocabulary, reasoning, spelling, and word use skills. To solve any crossword puzzle, a person must be able to identify and understand the terms being used. This often involves acquiring new vocabulary or terminology.

From background of study, the writer was conducted an experiment to see the effect of crossword puzzle on students' learning outcomes and academic English mastery, (English scores including spelling ability, vocabulary developments, English spelling ability, and writing ability) for Eleven Grade Science Program at SMA Negeri 1 Medan, Academic year 2011/2012.

1.2 Problem Identification

Based on the elaboration of the background of the study above, the problems of study were formulated as follow:

- a. English is not students' major language, especially the academic English; students find the language as a main problem to understand both written and spoken form.
- b. Student pay not enough intention and interest in starting Science Language acquisition because of less ability in understanding

sentences, lack of proper vocabulary to understand scientific and Biological text. Unfamiliar words and lack of background knowledge is also mentioned as some obstacle of learning using English on instructional process as well as some difficult concept on Academic text.

c. Human Reproductive System topics can be such an interesting learning matters, but at the same time, it consists of biological text with long and complex sentences that were laden with facts. It also filled with terminology in which students have a hard time identifying and keeping tracks of key terms.

d. One approach on teaching using Foreign Language, task based approach in form of engaging evaluation tools that will affect students' vocabulary mastery, reasoning, spelling, and word use skills problem on academic English as well as students' learning outcomes.

1.3 Research Scope

The scope of this study will be limited to the effect of crossword puzzle as learning evaluation tools, for the topics of Human Reproductive System, on students learning outcomes including and academic English mastery, which includes test scores on writing, vocabulary use, spelling and, reasoning abilities. Other details were mentioned below:

- a. Research was done at SMA Negeri 1 Medan
- b. Research was conducted for Grade Eleven (XI) Science Program at SMA Negeri 1 Medan Academic Year 2011/2012

1.4 Research Question

- a. Do crossword puzzles significantly affect students' learning outcome on Human reproductive system, grade eleven science programs SMA Negeri 1 Medan?
- b. Do crossword puzzles significantly affect students' ability in answering question from Bloom's taxonomy of Cognitive Domain, (C1, C2, C3, C4, C5, and C6 on Human reproductive system, grade eleven science programs SMA Negeri 1 Medan?
- c. Do crossword puzzles significantly affect students' writing abilities on Human reproductive system, grade eleven science programs SMA Negeri 1 Medan?
- d. Do crossword puzzles significantly affect students' vocabulary use on Human reproductive system, grade eleven science programs SMA Negeri 1 Medan?
- e. Do crossword puzzles significantly affect students' spelling abilities on Human reproductive system, grade eleven science programs SMA Negeri 1 Medan?
- f. Do crossword puzzles significantly affect students' reasoning ability on Human reproductive system, grade eleven science programs SMA Negeri 1 Medan?

1.5 Objectives

Based on the problem of the study, the objectives of the research were:

- a. To see the effect of crossword puzzle on students' leaning outcome, for Human Reproductive System grade eleven science program.
- b. To see the effect of crossword puzzle on students' ability in answering question of Bloom's taxonomy cognitive domain (C1 to C6), for Human Reproductive System grade eleven science program.

- c. To see the effect of crossword puzzle on students' writing abilities for Human Reproductive System grade eleven science program.
- d. To see the effect of crossword puzzle on students' vocabulary use for Human Reproductive System grade eleven science program.
- e. To see the effect of crossword puzzle on students' spelling abilities for Human Reproductive System grade eleven science programs.
- f. To see the effect of crossword puzzle on students' reasoning ability for Human Reproductive System grade eleven science program.

1.6 Significance

The research findings will be important to:

- a. Researcher; to provide the information that can be used to overcome problems on teaching and learning process on Human Reproductive System topics for students at bilingual class.
- b. Teachers;
 1. To provide information about an effective evaluation tools in helping bilingual students' learning problems.
 2. To provide some feedback for teachers and educators in term of enlarging knowledge and improvement on classroom activities and student's achievement in Biological topics.
- Students; to help students with a more effective way of learning.