

# CHAPTER I

## INTRODUCTION

This chapter presents an overview of this study. It covers eight sections: background of the study, statement of problems, aims of the study, scope of the study, the significance of the study, clarification of terms, and organization of the paper and concluding remarks.

### 1.1 Background of the Study

English is used in many countries around the world. In this era, most people who are from a non-English speaking country, including Indonesians believe that English is an important language to be learned, since they have to prepare themselves toward globalization as the world's challenge in the future. English is used in many resources for many subjects. It will encourage the educators and also the students to use English actively or even passively to gain a deep comprehension and also information (Alwasilah, 2001; McKay, 2003; Tsui & Tollefson, 2007).

There are many International schools developed in Indonesia, where English is used as a medium of learning instruction to deliver the subjects. Indonesian students who are English language learners (ELLs) do not have the same opportunity to have good fluency in English like a native speaker, especially for primary school students who need process of acquiring the second or foreign language at that time (Dardjowidjojo, 2000). ELLs have another challenge when they have to understand Mathematics as a scientific and technical material which written in English.

Despite the challenge mentioned earlier, ELLs have to face another difficulty, in fact, they need to be assisted by their teachers to understand the questions written in English. The issue of how being taught in a foreign language affects the Mathematics knowledge and the skills of the learners is the concern of educators and parents. It is because the medium of learning instruction is less perfectly known than their first language. This will lead to reduced subject competence since they had an imperfect understanding (Hajer, 2000; Gooding, 2009).

The issue about language plays an important role in Mathematics learning has been an interested matter to be researched over many years. Even for the English speaking countries found that the language proficiency influenced the students to comprehend the mathematical word problems (Meiers, 2010). Since the language proficiency becomes an issue with the mathematical word problems, it is not surprising if Indonesian students (ELLs) often could not identify detail information in questions written in English. The mathematical word problem is organized differently compared to other English text types, such as the purpose of reading on mathematical word problem is stated at the end of the question. Pearson (2003) wrote that the way students understand the mathematical word problem should be like solving the mathematical problem. They need to select the right elements, then put those elements in the right relations with the right amount of each.

The students are challenged to learn and to understand the mathematical word problem written in English. They are expected to solve the mathematical word problem in English. They will have some difficulties to learn and memorize the mathematical vocabulary, because the words have different meanings in some other contexts. Rubenstein and Thomson (2002) stated that there were some difficulties of the student to understand mathematical vocabulary, such as the words have different meanings in each context, even both of them used in daily English and in Mathematics; some mathematical words which only can be found in mathematical context; some the mathematical words which have more than one meaning; some the mathematical words which are homonyms to daily English; and some the mathematical concepts which are verbalized in more than one way. The research by Bonnet (2004) figured out that the students would like to switch to their first language when they had problems to understand the conceptual problems written in a foreign language, but it has not being the solution of the problem. Both of the research concluded that there was a problem when students learning the subject by using English as their second language or as a foreign language.

The research about the students' difficulties in comprehending the mathematical word problems were conducted by Bautista, Mulligan, & Mitchelmore (2009) and other researchers such as Seifi, Haghverdi, & Azizmohamadi (2012). Bautista et al. (2009) found that a) the students in their study could more comprehend more if the problem were written in their native language, b) the students were seldom to use reading strategies, c) the students were not familiar with using visual displays information, and d) the students got the problems which the question

involved multi digit numbers. Seifi, Haghverdi, & Azizmohamadi (2012) concluded that the students's difficulties in comprehending mathematical word problems which were written in English for the students who lack of English vocabularies to bridge the information contained in the questions, so they could not make some appropriate strategies.

The teacher would like to give assistance to the students as the solution of the difficulties. The teacher helped the students by asking them to share their thinking process and justify the answer confidently (Berman, 2003). Sometimes the teacher gives the instruction to the student to get the keywords and the important information in order to understand the mathematical word problem. Lee and Sikjung (2004) stated that teachers could use manipulative, pictures, diagrams, kinesthetic tools, and body language or other medium to demonstrate the mathematical reasoning of the text. This visualization can help the students who have barrier of the language.

Based on the explanation above, the writer concludes that Indonesian students who are English language learners may have difficulties in comprehending the mathematical word problem written in English. This study tries to investigate the students' difficulties in understanding the mathematical word problems written in English and also to identify what strategies that the teachers used to overcome the students' difficulties in one of private Mathematics course in Bandung. Hopefully, this study can contribute for English as language teaching and learning even in Mathematics.

## **1.2 Statements of Problem**

This study is conducted to answer the problem formulated in the following question.

1. Based on teachers' and students' opinions, what difficulties do the students find in comprehending mathematical word problems written in English?
2. What are the teachers' strategies to help the students in comprehending the mathematical word problems written in English?

## **1.3 Aims of Study**

Based on the research questions provided, the purposes of this study are as follows:

1. Investigating teachers' and students' opinions toward the difficulties of students in comprehending mathematical word problems written in English.

2. Identifying the strategies of the teachers to help students in comprehending mathematical word problems written in English.

#### **1.4 Scope of the Study**

This research focuses on investigating the students' difficulties in comprehending mathematical word problems written in English from teachers' and students' opinions, based on the theories stated by Bresser et al, 2008; Moore and Harris, 2005; Bautista et. Al., 2009; Gooding, 2009; Meiers, 2010; Barwell, 2011; Seifi et.al., 2012; Al-Jamal, et.al., 2013 and how the teachers' strategies overcome the students' difficulties.

The researcher could not use observation as one of instrument of this study, since the researcher did not have permission to do observation in the classrooms. Thus, the researcher employed two research instruments, interview and questionnaire to collect the data of the study. The researcher conducted the interview to the teachers, and the questionnaires to the students.

The study seeks information of teachers' and students' opinions toward students' difficulties in comprehending mathematical word problem written in English. The participants are three teachers and ten students in one of Mathematics private course where they used English to deliver the subject in Bandung. There are some teachers and students as the participant in this research since the private course does not have the teachers and students as much as in international school, especially in the higher grades. This study investigated students in primary level because the ELLs might have the difficulties towards English proficiency to understand the mathematical word problems that written in English.

#### **1.5 Significance of the Study**

This study is expected to give some contributions to the areas of English development for Indonesian primary school students. First, practically, it can provide insight to the strategies applied in the classroom toward the difficulties of Indonesian primary school students in comprehending mathematical word problems written in English. Second, this study will help teachers in order to the students' English development in Mathematics class. The importance will be useful for teachers to improve their professionalism in teaching English in Mathematics class, and to help students to understand the mathematical word problems written in English. Third, the research findings can enrich the literature of the studies about Indonesian primary school

students' difficulties in understanding mathematical word problems written in English which can be useful for the future research.

## **1.6 Clarification of Terms**

### **1.6.1 Students' Difficulties**

The students have some obstacles that might distract them to answer the questions. The difficulties of the students to comprehend the word problems are related to four stages: problem translation, problem integration, plan the solution, and solution execution (Lopez, 2008). The students are failing to acquire information from the text to choose appropriate strategies to answer correctly.

### **1.6.2 English Language Learners (ELLs)**

English Language Learners (ELLs) are the students who are not proficient in English and they need instructional support to access academic content in the classrooms (Ballantyne, et al, 2008). They probably have/or not pass the English Language Proficiency (ELP). Therefore, ELLs may have Limited English Proficient (LEP). ELLs still need to acquire and use English in the classroom in order to help them get their best achievements of the subjects in their school (Francis, Rivera, Lesaux, Kieffer & Rivera, 2006 cited in Ballantyne, et al, 2008).

### **1.6.3 Mathematical Word Problems**

Mathematical word problems consist of complex mixture words, numbers, symbols, and also graphic for some cases. Therefore, mathematical text is a text which has similar elements like other types of text, but it is organized differently. The readers have to select the element of the text, then put them in relation to solve the problem. The readers need to understand the text like solving the mathematical problems (Braselton&Decker, 1994 cited in Seifi et.al., 2012; Pearson, 2003).

## **1.7 Organization of paper**

This paper is organized into five chapters as follows:

- **CHAPTER I INTRODUCTION**

This chapter covers the background of the study, the statement of problem, the aims of the study, the scope of the study, the significance of the study, research methodology, and the organization of the paper.

- **CHAPTER II LITERATURE REVIEW**

This chapter provides a relevant theoretical framework related to the study. The theories presented in this chapter focus on comprehending the mathematical word problems written in English for English Language Learners (ELLs).

- **CHAPTER III RESEARCH METHODOLOGY**

This chapter gives clear discussion about the methodology employed to analyze the data obtained in this study.

- **CHAPTER IV FINDINGS AND DISCUSSIONS**

This chapter presents the collected data and findings based on the result of interview and questionnaire in detail explanation in the form of description.

- **CHAPTER V CONCLUSIONS & RECOMMENDATIONS**

This chapter presents the conclusion drawn from the writer's interpretation of the findings of the study. The recommendations section presents the ideas for the development of the future studies.

## **1.8 Concluding Remark**

This chapter has presented the principles of the study. They are the background of the study, the statement of problem, the aims of the study, the scope of the study, the significance of the study, the research methodology, the clarification of terms, and the organization of the paper. The second chapter deals with the literature review.