

CHAPTER I

INTRODUCTION

1.1 Background

Humans were given an ability of perseverance as they are created in a perfect design, in the image of God. God shares his attributes to His image, which often called as the communicable attribute of God. Therefore, work is also a part of God's design for human's life (Keller, 2012). It implies that work with perseverance is an act of worship to God because it means that human reflect their creator through what they do (Genesis 1: 26-28). The Apostle Paul also urges the congregation in Rome to present their bodies as a living and holy sacrifice which becomes their act of worship. By this, Greene (1998) concluded that everything that human do using their bodies, including brain, should be done in perseverance as an act of worship to God.

Therefore, with mind as a faculty to think, human created differently from the other creations. Human reasoned and make sense of items that they found in the creation and consider them as knowledge (Greene, 1998; Eggen & Kauchak, 2010). There are many forms of thinking that human possibly do, one of them is to find an appropriate way to attain the gap that they found in daily life, which called as problem solving ability (Huitt, 1992). Therefore, the ability of problem solving has become the essential outcome of education as well as become a primary component of mathematics education. Specifically, the learning of mathematics in primary schools should help the students to achieve basic ability that will help them in their future (National Council of Teachers of Mathematics, 2000, as cited in Van de Walle, 2007). Accordingly, Van Brummelen (2002) stated that the biblically based

values in mathematics are accuracy, precision, and responsible use of numbers and space which made itself possible to be integrated with any kinds of subject in the curriculum. The bridge that mathematics builds with the other subjects provide an experience for the students to apply mathematics in various situation of life. In the process of discovering solution, it is undeniable that the students will face difficulties, which make perseverance is the ideal attitude of the teacher to guide the students as well as the students to endeavor in the process.

Even so, sin has corrupted God's perfect design in human. They became separated from their Creator, their fellow beings, and even with their own selves (Genesis 3:8-13). Moreover, sin has also polluted all aspects of human's life, including mathematics. Consequently, it is affected the students' view of mathematics itself. The students often see mathematics as something irrelevant which made the students unwilling to persevere, the students are easily to give up if they face difficult problems. Moreover, the students are not giving their best effort in learning mathematics that often leads to carelessness in doing computation and misconception in understanding the context of learning. The misconception that occur weakens the students' performance in mathematics (Ben-Hur, 2006).

Meanwhile, Indonesian National Curriculum of 2013, the basic competence of mathematics for grade 6 requires the students to be able to understand factual knowledge and apply the knowledge in their daily lives which usually measured by the ability of the students to solve mathematical word problem. Moreover, the researcher observed that word problem plays the most difficult and complex kind of question that the students have to encounter in every mathematic exercises and tests. This condition indicated from the students' attitude towards it and their

mathematics achievements. From their reflection, the students think that the word problem causes them to write more and it wastes their time. Researcher also observed, that the students were careless in doing the computation. Though, the students participated well in learning and followed the procedures given by the teacher. Sepeng & Madzorera (2014) found that the common difficulties occurred among the students when they have to solve word problems are: the process of understanding the problem and deciding the operation that needs to be performed. These difficulties lead the students have poor mathematical communication.

By the grace of God, he initiated a reconciliation and restoration with men through his Son, and education is one of God's act to reconcile and restore the broken relationship of God and human. In addition, Greene (1998) stated that the purpose of teaching and learning process in Christian education is to prepare the students with attitudes that shape them as a responsible disciple of Jesus Christ. Moreover, teachers as God's agent of transformation has many roles in the classroom. One of teacher's roles in the class room is as a guide (Van Brummelen, 1998). In this case, the role as a guide is to guide the students to experience perseverance in maximizing the use of their basic mathematical skills as the gift that God has given to human, because human face problems every day. Perseverance as the most important attitude that the students should have in solving problems, which possibly built by the teacher as an act of becoming the agent of transformation. This might restore students' view of themselves as the image of God. Hence, the effect will be seen in the renewing of their mind, of the way they think, and their view of mathematics.

Therefore, all of the evidences urges the researcher to come up with an appropriate method that could help students increase their problem solving in the teaching and learning of mathematics diligently. The method should help the students on their computational proficiency, help the students to master the basic concept about fraction, and to habituate the ability to communicate the process of problem solving. For those reasons, researcher decided to make use of drill method which likely known as a frequently repeated exercises. Though, drill seldom to be applied in the classroom by the teacher because this method likely seemed to limit students' initiative and creativity (Kani & Sa'ad, 2005). Drill method also tends to be boring and form rigid habit because it forms an automatic habit (Resnick & Ford, 2008). However, this method is helpful in making learning permanent, especially to sharpen mental skills (multiplication, addition, subtraction, division, the usage of symbols) (Djamarah & Zain, 2006). Therefore, after evaluating this method to the needs of the students, the mentor teacher suggested the researcher modify some steps of this method, so that drill method suits to increase grade 6 students' problem solving ability in the teaching and learning of mathematics.

1.2 Research Question

From the description above, this research conducted in attempt to answer the following questions:

1. Does drill method increase Grade 6 students' problem solving ability?
2. If so, how does drill method increase Grade 6 students' problem solving ability?

1.3 Research Purposes

Based on the research questions, the purposes of this research are:

1. To know whether the drill method increases Grade 6 students' problem solving ability.
2. To know how the drill method increases Grade 6 students' problem solving ability.

1.4 Definition of Terms

1.4.1 Problem Solving Ability

Problem solving is considered as a form of thinking (Seifert and Sutton, 2009) or a cognitive process (Santrock, 2011) which requires people to find an appropriate way to attain a goal. Since human face problems every day, which is defined by Reys, Lindquist, Lambdin, Smith, & Suydam (2004) as a situation which a person wants something and does not know immediately what and how to get it, problem solving becomes the essential ability that human need. Thus, problem solving ability is a process of thinking where human links their knowledge to the recent situation to resolve the gap they identified. To get to the solution, there are two essential aspects of problem solving, which are the process and the product. In the teaching and learning mathematics, word problem becomes the tool to examine the ability of problem solving. Raharjo, Ekawati, & Rudianto (2009) define mathematical word problem as a narrative condition as a modification of computation question which related to student's daily life which will tell student's mathematical ability. However, the indicators of problem solving, which made specifically for the research (Kantowski, 1997; Polya, 1945; Ben-Hur, 2006; White, 2005; Bloom, 1956; Krathwohl, 2002) are:

1. The Process: reading, comprehension, transformation, and process skill.
2. The Product: encoding and carefulness.

1.4.2 Drill Method

Drill can be defined as an act of habituation. Resnick and Ford (2008) stated that drill is helpful to increase accuracy of their computational proficiency. Likewise, drill is a method that is applied best to practice-based subject in a frequently repeated way to impart and planted certain good habits that had been taught to the students to achieve perfect mastery, specifically mathematics basic operations in arithmetic (Djamarah & Zain, 2006; Resnick & Ford, 2008; Dinas Pendidikan Nasional, 2008). However, this method often triggers students' negative attitudes toward mathematics and beliefs in their abilities when it applied inefficiently (Van de Walle, 2007). Thus, drill is a method that is applied best to the practice-based subject, a repetitive task which help to embed as well as to preserve good habits that has been taught to the students to achieve perfect mastery. The steps of implementing this method are:

Firstly, teacher should provide the explanation about the purpose of the drill exercises. Then, during the drill period, teacher does several activities regularly, which are: recalling the skill which will be drilled, giving time for students to work on the drill in a period of time, and finally drawing the students' attention back to the lesson. Finally, at the end of the drill period, the students work on a test as an evaluation as well as to reflect towards their progress through the drills.