

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Learning and transformation cannot be separated. Learning is a process and that process refers to the transformation in which people gain knowledge to be changed and be better. The Bible tells us in Romans 12:2 that we need to be transformed, “Do not conform to the pattern of this world, but be transformed by the renewing of your mind. Then you will be able to test and approve what God’s will is—his good, pleasing and perfect will.”

According to the Oxford dictionary, the word ‘transform’ defined as make a marked change in the form, nature, or appearance of something. Jenkins J. (1995) said that transformation is a process that begins from the heart, then changes our minds, action, and relationship. Further, learning is the process where students modify their behavior through the help of Holy Spirit who enables them in order to conform more to the will of God (Zuck, 1996, p.286). Regarding to this process, students need to be transformed and Christian education helps bringing them to the transformation by a changing of action and renewal relationship with others (Jenkins, 1995). Meanwhile, one might be questioning about why it is a must that the transformation takes place in the students’ learning.

Since the beginning, human is created wonderfully in the image of God as Genesis 1:27 tells us about the creation story and Psalms 139:14 tells us about God’s plan within each of human being even before they are born. God places us

in this earth with a great capability of ruling over it as our act of worship to Him. We are supposed to live for glorifying God's name, our Creator. Students, as human being created by God, have their own uniqueness in God's image. They have infinite and eternal possibilities (Knight, 2006, p.210). Meanwhile, human has fallen into sin and that sin hinders us from realizing our original image. We can't see and even use the great capability that God has given us to glorify His name.

Being able to teach students in School ABC made researcher see more clearly the condition of students as they are fallen being. In a particular class, the researcher faced the X grader in Social major with a condition where most of the students in that class had been known as low-achievers. After researcher checked their learning progress data, observed and taught them, gave them quiz (see table 4.1), and asked some teacher's observation regarding to this class (see appendix A), it was confirmed that most of the students in that class had low grades in the tests, especially in Mathematics. These grades refer to the students' achievement in cognitive domain as their learning goals.

In education, there are three domains of learning goals, which are cognitive, affective, and psychomotor (Hattie & Anderman, 2013, p.3). Cognitive area is related to the intellectual of the students and this is the specific area that will be talked about more deeply. The goal of learning is displayed in Bloom's Cognitive Taxonomy. The revision of the order of bloom taxonomy shows that the students grow more and more in their cognitive based on remembering, understanding, applying, analyzing, evaluating, and creating (Anderson, Krathwoh, & Bloom, 2001).

Looking through the level of Bloom's cognitive taxonomy, pre cycle shows that there were only about 31% of the students could pass the test which covers remembering, understanding, and applying the material that had been given by the teacher to them in application problem. The rest of the students had difficulty in getting good achievement in Mathematics.

They need the transformation so they can see and maximize God's given talent to glorify God in their lives. Because sin has blocked us from being transformed, the transformation takes place in us only because of the Salvation that has been brought by Jesus to us (Acts 4:12). Day by day, we are transformed toward a particular goal of being Christ-like. In here, Christian education takes part to help the students being transformed.

According to the researcher's observation, the students usually followed teaching-learning process in lecturing method. This method hindered the teacher from covering all of students' questions and assisting the students one by one. Furthermore, many times the researcher saw students asking their friends when they were doing exercise. Some of the students, who could understand the lesson, helped their friends. However, there was limited time to do that because they needed to finish their exercise individually by the given time. So, researcher saw the students' need to be given chance to ask and help each other in learning without removing their own responsibility to learn.

Harro Van Brummelen said that God has made all persons unique in order to contribute their talents into the whole community (2009, p.179). As the Galatians 6:2 says "Carry each other's burden and in this way you will fulfill the law of Christ." The researcher believed that students are able to contribute

themselves in the class-community, helping each other to gain the goal of learning with carrying their own responsibility to do their parts. The class becomes the place for them to accept and use their ability in the relation with themselves and others (Van Brummelen, 2009, p.179). Thus, the researcher focused on how to help the students to maximize their abilities in the learning process in order to get the learning objectives in cognitive area. To be able to achieve it, students needed to work hand on hand to help each other without removing their own responsibility.

Aunurrahman (2011, p.6) stated that according to Unesco (1996:85), education stands on four pillars, which are learning to know, learning to do, learning to live together and to live with others, and learning to be. In learning to live together and to live with others, students need to be trained to create good relation in learning together to achieve the learning outcomes. Cooperative learning can help students to learn together. This learning method allows students to help each other in order to achieve better together, but individual responsibility cannot be taken away from the learning process.

Researcher concerned to the students' responsibility in their own and others' learning. It is the students' responsibility to make the effort in their own and others' learning, but researcher wanted them to maximize their individual ability in the individualized-instruction before they then gather to discuss and help each other in their group rather than group discussion right after the teacher's explanation as the class-paced instruction. Thus, Team Assisted Individualization (TAI) method can be applied in the learning process. Slavin on Widdiharto (2006, p.19) said that this method helps students to be responsible to

their own learning by doing exercise and be responsible for their friends' learning by helping each other and making sure that all of members of their groups understand the material and get better achievement.

1.2 Statement of Problem

- Can the Team Assisted Individualization (TAI) method increase students' cognitive achievement in studying Quadratic Equations, Inequalities, and Modulus Function in Mathematics class of grade X in Senior High School?
- If so, how does Team Assisted Individualization (TAI) method increase the students' cognitive achievement in studying Quadratic Equations, Inequalities, and Modulus Function in Mathematics class of grade X in Senior High School?

1.3 Purpose of the Research

- Knowing whether the Team Assisted Individualization (TAI) method can increase the students' cognitive achievement in studying Quadratic Equations, Inequalities, and Modulus Function in Mathematics class of grade X in Senior High School.
- If so, describing the effective ways of implementing the Team Assisted Individualization (TAI) method in order to increase the students' cognitive achievement in studying Quadratic Equations, Inequalities, and Modulus Function in Mathematics class of grade X in Senior High School.

1.4 Benefits of the research

This research should be beneficial as follows:

1.4.1. For teachers

This research provides information about the benefits of applying the Team Assisted Individualization (TAI) method to the grade X students in increasing their cognitive achievement of studying Quadratic Equations, Inequalities, and Modulus Function.

1.4.2. For students

This research is useful to facilitate students' learning so that they can achieve higher level of thinking in cognitive area through the Team Assisted Individualization (TAI), especially in studying Quadratic Equations, Inequalities, and Modulus Function.

1.4.3. For the researcher

This research can help further implementation of the Team Assisted Individualization (TAI) method and development of cognitive achievement.

1.5 Definition of terms

1.5.1. Team Assisted Individualization (TAI) method

Slavin on Widdiharto (2006, p.19) stated "TAI method is the combination of cooperative learning and individual learning that solves the difficulty in students' learning individually to achieve cognitive ability." The steps of TAI method are: Teams and Placement test, Student Creative, Team Study, Team Score and Team Recognition, Teaching Group, Fact test, and Whole-class Units. From these steps, the steps of implementing TAI method were done and the indicators were chosen.

1.5.2. Cognitive achievement

Cognitive achievement refers to the achievement of concept and skills in cognitive area that students should gain through the learning process. Regarding to the learning outcomes in cognitive area (Guskey, 2000, p.214), the students' achievement is in line with the accomplishment of learning objectives of the given material. Putting the learning objectives in the Bloom's cognitive taxonomy, the indicators of this cognitive achievement are covered in achieving C1 (remember), C2 (understand), and C3 (apply). It is evaluated by the standard of passing grade (KKM) in the school.

1.5.3. Quadratic Equations, Inequalities, and Modulus Function

- Quadratic Equation is equation with general form of $ax^2 + bx + c = 0$ with $a, b, c \in R$ and $a \neq 0$. There are variable which is x , coefficients which are a and b , and constant which is c .
- Quadratic Inequalities is non-equation with general form of $ax^2 + bx + c > 0$ or $ax^2 + bx + c < 0$ or $ax^2 + bx + c \geq 0$ or $ax^2 + bx + c \leq 0$ or $ax^2 + bx + c \neq 0$ with $a, b, c \in R$ and $a \neq 0$.
- Modulus Function is function that maps every element in a domain to the positive value or zero result. In other words, we can regard it as an absolute value.

(Kurnianingsih, Kuntarti, Sulistiyono, 2009, p.62, 65, 73).

1.5.4. Grade X students

Grade X students in Social major are students in the first year of their senior high school who major Social as the optional of specific learning.