CHAPTER 1

Background of the Study

1.1 Science and Christian Perspective

Genesis 1:26-27 tells us that,

> And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him; male and female created he them.

The quotation above points out that man created differently and uniquely. Apostle Paul continues, "But it is one and the same Spirit who does all this; as he wishes, he gives a different gift to each person" (I Corinthians 12:11) by pointing out different kinds of gift and he continues by stating, "Actually I would prefer that all of you were as I am; but each one has a special gift from God, one person this gift, another one that gift". (I Corinthians 7:7)

God has entrusted different kinds of gift in each one of us so we responsible to seek what kind of gift that we have to serve Him and glorify His name.

Brummelen (2009, p. 8) claimed,

> Education is always based on faith commitment and ideals in which the education in school is to encourage the students in enabling them learn in community as a follower of Jesus Christ by developing and using their gifts and also to be responsible to serve God and their neighbor.

The quotation above suggests that God's given gifts should be developed in education.

One subject of education that students should learn in the school based on the curriculum in Indonesia which is KTSP curriculum (Kurikulum Tingkat Satuan Pendidikan) or unit level education curriculum is science lesson. According to Stoker (1993, p. 1), science is the study in which human attempts to

organize and explain in systematic and logical manner knowledge about themselves and their surroundings. Ward & Roden (2005, p. 1) claimed that,

> In social relationship with others science enables students to get involved in the group work where they can learn cooperatively with each other and share about their ideas and opinions in practical activity to achieve the learning outcomes.

The quotation above points out that by learning science, students will be able to work cooperatively in sharing what they think and also to understand their environment even themselves.

Teacher should teach students carefully about science because what teacher gave to students will impact the students view toward science also. Fleer and Hardy (2001, p.10) give more explanation about it through a diagram below:

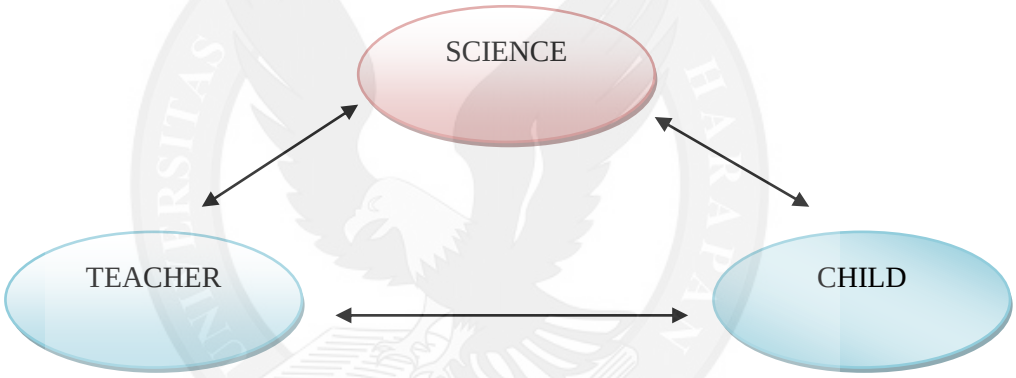

Figure 1.1 Teacher, child and science relationship

The figure 1.1 shows us that students view about science will be based on what teachers have taught to them about science. For instance science has influenced the life of teachers before and teachers also affect science through their conception or comprehension about science. So this is the opportunity for the teacher to change the relationship between students and science and also to give a right understanding about science to the students through teaching in the classroom so that students could have a right comprehension and view about science later on toward their lives and future (Fleer and Hardy, 2001, p.11).

God teaches us in the bible when they have created all things in the world, He says in Genesis 2:15 to man to cultivate and guard the creation. “Then the LORD God placed the man in the Garden of Eden to cultivate it and guard it”. This is commandment of God to human to learn so that man can develop their mind to think and utilize the creation well to glorify God. Bible also says in Daniel 1:4 (KJV),

> Children in whom was no blemish, but well favoured, and skilful in all wisdom, and cunning in knowledge, and understanding science, and such as had ability in them to stand in the king's palace, and whom they might teach the learning and the tongue of the Chaldeans

The quotation above points out that God reminds us to learn about His creation well with our knowledge for glorifying His name in all aspect of science that we are doing. He wants us to learn, to have knowledge and teach science according to the truth which is the word’s of God itself so that science could be used in right way.

Chemistry is one of branch of science that is should be learned for students as a claim from *KTSP* (*kurikulum tingkat satuan pendidikan)* or unit level education curriculum in Indonesian. Brown (2006, p. 3) said that Chemistry is the central of science, central to a fundamental understanding of other sciences and technologies. The purpose of learning chemistry is to understand our world and how it works and it concerns in improvement of health care, how to protect our environment and also supplying our every day needs such as food, clothing and shelter. (Brown, 2006, p. 3)

When we see the purpose of learning science especially chemistry above, so we can conclude that students need to learn chemistry for their future and cultivate the creation of God around them. Through the education students are

expected to be able to use their potential that has been given by God in achieving this purpose. Brummelen (2009, p. 17) also said that teacher helps the students extend their awareness that the whole world is God's creation and he further explained that students will learn about God's world and how human responded to God's mandate to take care of the earth. (p. 14)

Van Dyk (1997, p. 23) emphasized that learning should be focused on the social and emotional development of the children in order to enable them relating to others in the community. Barry and King (2006, p. 17) said that the effective teaching is about helping students learn so that they become self directed life-long learners. But problem in the teaching and learning process in the school based on pre classroom observation that (1) Students looked bore in the class and some students fall asleep and chatting during the learning process. (2) The process of learning is still focused on teacher centered not students centered so that students looked passive during learning process. (3) Students have never interacted with other students in the classroom so that they are poor in learning experience. It might be due to teacher teaches the students by the way of speech or presentation during the learning process, ask students to take some notes and students remain passive in the learning.

Due to the above mentioned problems therefore the study intends to use of Student Teams Achievement Division to increase learning achievement of grade X students.

1.2 Statement of the Problems

1. Can the use of Student Teams Achievement Division increase chemistry learning achievement of grade X students?
2. How can Student Teams Achievement Division increase chemistry learning achievement of grade X students?
3. What are the constraints of using Student Teams Achievement Division to increase chemistry learning achievement of grade X students?

1.3 The Purpose of the Study

1. The purpose of the study is to increase grade X students chemistry learning achievement by applying Student Teams Achievement.
2. The purpose of the study is to determine the way of using Student Teams Achievement Division to increase grade X students chemistry learning achievement.
3. The purpose of the study is to determine and to overcome the constraints of using Student Teams Achievement Division in increasing grade X students chemistry learning achievement.

1.4 The Benefits of the Research

This study might be beneficial to help teachers increase the learning achievement of the grade X students by implementing Student Teams Achievement Division. Students might be more enjoyable in the learning process and cause them to participate more actively in the learning process.

1.5 Definition of terms

1) Cooperative learning is essentially a set of instructional methods in which students work together in small, mixed ability learning groups to maximize their own and each others' learning achievement (Slavin as cited in Ong & Borich, 2006, p.107).
2) STAD is a cooperative instructional technique where students are assigned into heterogeneous group of four to six students to work on certain task. (Lefrancois, 2000. P. 261).
3) Teaching strategies is an approach that is used by the teacher to employ their skills and understanding in order to achieve the students learning achievement (Barry & King, 2006, p. 228).
4) Achievement is an accomplishment of the instructional objectives against preset standard (Callahan, Clark & Kellough, 2002, p. 349).
5) Chemistry is the study of matter and the changes it undergoes. Chemistry is often called the central science because a basic knowledge of chemistry is essentials for students of biology, physics, geology and ecology. (Chang, 2007, p. 4).