

CHAPTER I INTRODUCTION

1.1. Background of Study

Education is highly important in today society. Education is a formal process of learning in which some people consciously teach while others adopt the social role of learner. The importance of education is undeniable for every single person. Education plays a major role in everyone life without education a person will not get far in life. Education prepares a person to adapt to new skills and value that will be very essential in today society. It goes without saying that education has a positive effect on human life.

The education system in Indonesia is referring to the Law of the Republic of Indonesia Number 20 Year 2003 on National Education System. According to this law, the national education goal is to develop the intellectual life of the nation and the whole Indonesian, the man who is faithful and devoted to God Almighty, noble and virtuous character, has knowledge and skills, has physical and spiritual health, and has a stable personality and independent, as well as a sense of civic responsibility and nationality. Based on the education goal shows the problem of education is a shared responsibility in the society, nation and state. Everyone involve and interest in the education process.

The main objective of teaching and learning process is organized to achieve the goals for student success in learning, either on a particular subject or education in general. In the process of learning to implement an interactive, inspiring, fun, challenging, and motivating students to actively participate and provide enough space for innovation, creativity and independence according to their talents, interests and physical development, as well as psychological student, so the learning approach designed by teacher is a student-oriented activities.

Mathematics subject is one of the principal subjects taught begin during elementary school until to the university. Mathematics subject is also one of the subjects tested in the national examination both at the elementary school, junior high schools, as well as in senior high school. Mathematics is one of the most

important subjects that provide several vital skills to the learners. Some of the skills that people get from math include: the ability to identify and analyze patterns, logic and critical thinking skills, ability to see relationships and problem solving skills. Mathematics has a structure and a strong and clear linkage between concepts as to enable a student has skill to think rationally (Depdiknas, 2007). Cornelli (in Abdurrahman, 2009: 253) states that:

“Five reasons for studying mathematics because (1) mathematics is the means of clear and logical thinking, (2) mathematics is the means to solve the problems of everyday life, (3) mathematics is the means to know the patterns of relationships and generalization of experience, (4) mathematics is the means to develop creativity, and (5) mathematics is the means to raise awareness of cultural development.”

Furthermore, Cockroft (in Abdurrahman, 2009: 253) states that mathematics should be taught to students because it is always used in everyday life, all subjects require the appropriate mathematics, mathematics is a means of communication that is strong and clear, can be used to present information in a variety of ways, can improve the ability to think logically, and can give satisfaction to attempt to solve a challenging problems

In this changing world, those who understand and can do mathematics will have significantly enhanced opportunities and options for shaping their futures. Mathematical competence opens doors to productive futures. A lack of mathematical competence keeps those doors closed. All students should have the opportunity and the support necessary to learn significant mathematics with depth and understanding (NCTM, 2000: 50). Mathematics course is important to be mastered by the student, so the mathematics teaching and learning needs to be done well by the teacher. Teachers at least provide an opportunity for students to learn mathematics in depth and meaningful considering the math is important for students in the future.

Once the importance of the role of mathematics as described above should seek to make the subject fun and loved by the students. Nevertheless, it is undeniable that mathematics course is still a subject that is considered difficult, tedious, and often lead to difficulties in learning. These conditions resulted in the

subjects of mathematics is unpopular, ignored and even tends to be ignored. This of course poses a considerable gap between what is expected of learning mathematics with the fact that occurs in the field.

Two international researches conducted to demonstrate the ability of mastery in mathematics learning showed that Indonesian student capability still in the bottom level. UNESCO data shows Indonesia ranked mathematics 36 out of 49 countries in Trends International Mathematics and Science Study (TIMSS) in 2007 (IBE, 2011: 25). Meanwhile in test of PISA (Programme for International Student Assessments) in 2012, despite topping the list for being the happiest students at school, 15-year old Indonesian students score poorly in PISA tests and are ranked at the second bottom for mathematics, that ranked 65 out of 66 countries (OECD, 2013). This suggests that the improvement of mathematics education in schools need to be considered by various parties, including government, education observers and by teachers as the perpetrator of education itself.

The low of students' mathematics learning achievements is a problem that must be faced today. Many factors can lead to low mathematics student learning achievements, these factors may be the arrival of the student (internal factors) and also from outside the student (external factors). Internal factors may include: learning motivation, learning interest, talent, intelligence, learning styles. While external factors may include: family environment and school environment, as well as a learning approach or instrumental learning model used in the study are not in accordance with student characteristics and other factors that contribute to low student learning achievements (Slameto, 2010).

The low of mathematics learning achievements and a lack of knowledge and ability of the students in understanding mathematics also occur at SMA Kalam Kudus Medan. Based on data obtained from a list of set value (DKN) in grade X SMA Kalam Kudus Medan, the average math student learning achievements have not been satisfactory as shown in the following Table 1.1.

Table 1.1 The Average Value of Students Mathematics Achievement in Grade X SMA Kalam Kudus Medan Year 2013/2014

No	Type of Test	The Average Value	KKM Value
1	Mid Odd Semester Exam	64	70
2	Odd Semester Exam	67	70

Source: Administration of SMA Kalam Kudus Medan

The averages value in Table 1.1 are still below the average value of the minimum completeness (KKM) of high school mathematics courses with an average value of KKM is 70. It means that the achievement needs to be increased to be better.

Based on the observations of researchers at SMA Kalam Kudus Medan, student's interest in learning mathematics is relatively less. There's still the difficulty of teachers for explaining the abstract of mathematics which result in the student learning activities are less enjoyable. Most teachers still rely on the lecture method that students are easily bored, less active and less excited.

Learning mathematics will be more meaningful if the students experienced what they learned, not just know it (Kunandar, 2009: 293). Indeed mathematics arises from real life every day. The learning process of mathematics should be able to connect between abstract mathematical ideas with real situations experienced or observed by the students. For it is necessary to approach or model that familiarize students learning experience for themselves what they learn so that what students are learning to be more meaningful. One alternative is to adopt the approach used contextual teaching and learning (CTL).

Contextual learning approach is the concept of learning that helps teachers link between what is taught by the students to the real-world situations, thus encouraging students to be able to apply them in everyday life. Contextual learning process emphasizes the involvement of students in full to be able to find a material that has been studied. Contextual learning process takes place naturally in the form of student activities and work experience, not a transfer of knowledge from teacher to student. The contextual learning approach has seven main components for effective learning, they are: constructivism, inquiry, questioning,

learning community, modeling, reflection, and authentic assessment (Sanjaya, 2009: 161).

Basically all approaches or learning methods have advantages and disadvantages, but not all of the subject matter may be submitted to one approach or learning methods alone. Each learning materials has different characteristics that require an appropriate approach to deliver such material. In addition to the selection of appropriate learning approaches, acquisition of learning achievement are also influenced by the ability of teachers to know and understand the characteristics of students, such as intelligence, attitude, aptitude, interests, and learning style.

Characteristics of students are the overall pattern of persistence and capability that exist in students as a result of the nature and experience that determines the pattern of activity in achieving its goals (Munadhi, 2008: 188). The views about the characteristics of these students have a significant meaning in the teaching-learning interaction. Especially for teachers, information about the characteristics of students continues to be very useful in selecting and determining teaching patterns to be a better one, to ensure ease of learning for each student. Teachers will be able to reconstruct and organize the media methods precisely, so it will be a process of interaction of each component in an optimal learning. It is definitely challenging teachers to always be creative in order to create varied activities, so that each individual student can participate to the fullest in the learning process. Furthermore, Dick and Carey (2009) also revealed:

“Teachers should be able to know and understand the characteristics of the students, because a good understanding of the success of student learning when teachers have to know the characteristics of their students so teachers can further customize the learning model used. It is also important to identify any specific characteristics of the learners that may be important to consider in the design of the instructional activities.”

One of the characteristics that affect student learning achievement in this study is the learning style. To determine the student's learning style, it is necessary to know what they know and how they learn. Often teachers expect their students to follow their own teaching style, and not vice versa because the teachers follow

their students learning style. Therefore, the student's learning style assessment needs to be one of the teachers in designing learning programs.

DePorter and Hernacki (2011: 110) states that a person's learning style is a combination of how he absorbs, and then organizes and processes information. The ability of each student tends to absorb information differently based learning modalities. There students have a tendency to absorb maximum information through the sense of sight (visual), there is also a maximum absorb information through the sense of hearing (auditory), while others absorb maximum information through physical activity or body (kinesthetic or learn somatic).

According to Hamzah (2008:181) and DePorter & Hernacki (2011: 112) there are three styles of learning style of students; visual, auditory, and kinesthetic. Although each student learns by using all the three-learning-styles, most students are more inclined to one between the learning styles.

One of the principal points to appreciate in learning styles is that all styles can be effective. However, the actual task demands can make one type of style less effective than another. One of the issues relating to meeting the needs of diverse groups of learners in the classroom is the teacher's personal experiences and of course the teacher's own personal learning style. Some learners will feel more comfortable with certain teachers.

Mathematics - as the course lesson in this study - is a subject that involves both auditory and visual/spatial abilities (Reid, 2005: 90). Not all students have preferences in both. It is important therefore that a range of strategies is used to put across the mathematical concepts that are to be learnt. In mathematics learning, the teacher is more dominant for visual activity. Mathematics courses always display diagrams, functions, formulas, and pictures are included in such material. Sentences that are quite difficult to mathematics verbally expressed, so that students with auditory learning style will have difficulty in learning than students visual learning style.

By knowing the characteristic of students, especially for their learning style, the teacher can adopt learning approach used in mathematics learning process. The appropriate learning approach used with the students' characteristic

will give a good result of the students' mathematics achievement. The students who have learning style, either visual or auditory will be satisfied in the learning process. It is important therefore that teachers are aware of their own learning style and aware of the kind of teaching situations they may feel less comfortable with (Reid, 2005: 91).

Based on the relevant study conducted by Sujarwo (2013) in his journal entitled "The Effect of Learning Method and Learning Style to Students Mathematics Achievement" concluded that the student's physics achievement that has a visual learning style is higher than students who have auditory learning style.

Based on the description above, researcher has interested in conducting research entitled "The Effect of Contextual Teaching and Learning (CTL) Approach to Students' Mathematics Achievement and Learning Style in Class X SMA Kalam Kudus Medan".

1.2. Problem Identification

Based on the background above can be identified the problem as follows:

1. The conventional approach is often used in SMA Kalam Kudus Medan while the contextual approach has not been applied fully in the learning process include in mathematics learning;
2. There is still need for improvement on students' mathematics achievement held in SMA Kalam Kudus Medan for Academic Year 2013/2014 where most students get mathematics achievement in mid semester exam and odd semester exam are less than KKM value;
3. There's still the difficulty of mathematics teachers in SMA Kalam Kudus Medan for explaining the abstract of mathematics;
4. There's still difficulty of teachers in SMA Kalam Kudus Medan to understand the students' characteristic as the selection for appropriate learning approaches; and
5. Students have differences characteristics that causes each student's learning style in mathematics is different.

1.3. The Limitation of Study

Based on the limitation scope of research location, research time and the research variable cause this study limited in the scope of:

1. The achievement in the cognitive aspect with the subject of Three Dimensional Space for Class X in SMA Kalam Kudus Medan for Even Semester Academic Year 2013/2014.
2. The learning approaches for this study are categorized by using contextual (CTL) approach and conventional approach.
3. The learning styles of students are categorized into visual learning style and auditory learning style.

1.4. The Problem of Study

Based on the background and problem identification above, the writer formulates the general problems of the study as “Is there any effect of contextual teaching and learning (CTL) approach to students’ mathematics achievement?” where the study questions are given as follow:

1. Is the students’ mathematics achievement taught by using contextual approach higher than by using conventional approach?
2. Is the mathematics achievement of students who have visual learning style higher than students who have auditory learning style?
3. Is there any interaction between learning approach and learning style to the effect to students’ mathematics achievement?

1.5. The Objective of Study

The objectives of the study are:

1. to know the students’ mathematic achievement by using contextual learning approach is higher than by using conventional learning approach

2. to know the students' mathematics achievement of student who have visual learning style is higher than student who have auditory learning style
3. to find out the interaction between learning approach and learning style to the effect to students' mathematics achievement.

1.6. The Significance of Study

The result of this study hopefully will be useful for:

1. For teachers

This study will provide useful experience in designing and facilitating learning contextual learning. From the experience of the teacher is expected to develop a learning model, a kind of worksheets and learning resources on the subject of the other and can implement it in the classroom. This study can also be used as a reference to determine the appropriate approach to learning with the learning styles of students in order to achieve the goal of effective learning.

2. For students

This study will be useful because they indirectly helped in being taught mathematical concepts that provide opportunities for students to improve their learning outcomes to be optimal. This is due to contextual learning provides opportunity to interact with his friends and designed the materials studied related to daily life so that students become more interested in learning math.

3. For researcher

This study will be useful as a reference tool for the researcher as a teacher in the future to work directly so that can see, feel and appreciate what learning practices have been effective and efficient.