

CHAPTER I INTRODUCTION

A. Background

According to Curriculum Education unit level (KTSP- Kurikulum Tingkat Satuan Pendidikan) state that learning science (physics) has a purpose as follow:

- 1) Increasing belief to God based on the existence, the beauty and order of nature of His creation
- 2) Develop an understanding of a variety of natural phenomena, concepts and science principles that are useful and can be applied in daily life
- 3) Develop a curiosity, a positive attitude, and awareness of the relationship that influence each other between science, the environment, technology, and society,
- 4) Foster scientific attitudes that include: honest and objective of the data, open minded to opinions based on certain the evidence, critical of the scientific statements and can work together with others,
- 5) Increasing awareness to participate in preserving, maintaining, and conserving the environment and natural resources
- 6) Increasing awareness to appreciate regularity of nature and all of God's creation,
- 7) Mastering the knowledge, concepts and principles of physics as well as having the knowledge, skills and scientific attitudes (Depdiknas, 2006).

Based on the description above, it is clear that the process of learning physics should be more emphasis on student-centered learning and learning process is not the amount of information that must be memorized. But in general, Physics learning is still a conventional. It is reflected in observation result which is done by Alamsyah (2009) shows that learning physics in classroom only write what teacher explain is and as an information that must be memorized by student. Teachers tend to be a center of information and to inform the formulas and also laws of physics to students. Because of its informative it is no wonder, the learning is dominated by lecturing method. The process of learning is inconsistent with the character of science itself, so it will have an impact on learning achievement is less than optimal.

This situation is reflected in daily student test scores (cognitive ability measurement) in schools that are observed are still low. Similar situation occurs

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also in one of the junior high school in Bandung. Author's observation result showed that the learning process tends to be teacher-centered, while the students are passive learners. The analysis result of physics subject in daily test results showed that students' average of cognitive ability is still low. The situation is shown by the last physics daily test (expansion) was only 5 students (16.66%) were able to achieve Minimum Completeness Criteria (KKM-Kriteria Ketuntasan Minimum), while KKM is 85.00.

By using the conventional model of learning, most students shows less response, it is seen from the passive attitude of the students, interest and motivation are low so that the acquired learning is still relatively low (Irawati, 2008). In fact, if students are interested, students will have motivation and excited to learning physics. So, students will study physics seriously and it can make learning becomes fun and can improve students' achievement.

Based on the author's understanding to solve problems above, we need a learning model that appropriate with understanding of constructivism which can improve learning process and facilitate students to get maximum achievement in learning process. One alternative constructivism learning model that can be used in teaching is a 7E learning cycle model by Eisenkraft (2003).

Bramapurnama (2009) stated learning cycle model is a learning model that involves students actively participate in constructing knowledge and provide an opportunity to build on the knowledge and experience they have gained to acquire new knowledge, assisted by teachers as mentors or facilitators. Besides that, learning cycle not only makes students active but continuity that appear in one concept to another concept. According to Sanjaya (2007), teacher who is competent is teacher who can act as a facilitator. Teachers can make learning situation as student-centered not teacher-centered. Teachers who could make teaching and learning more meaningful, not monotonous and bored and also the teacher could ask students to be more active in thinking. Eisenkraft (2003) developed a learning cycle into seven phases. Changes in stage 5e learning cycle to 7e occur in engage phase into 2 stages elicit and engage, while at elaborate and evaluate phase become three stages. There are elaborate, evaluate and extend.

According to Siribunnam and Tayraukham (2009) state that the students who learned on using the 7E learning cycle model shows the improvement of learning achievement on Acid-Base than did the students who learned with conventional method. Another study also state the implementation of 7E learning cycle shows that student's achievement on science become better, remember concepts is longer, increasing positive attitudes toward science and science learning, increasing the ability of reasoning and process skills to be better when compared with conventional learning approaches (Rahayu in Rahmayani, 2009). And also based on research results Rahmayani (2009) by using the learning cycle students responded well to learning and student interest. Another research result state that by using 7E learning cycle can improve students' achievement in cognitive, if the average score gain compared to the ideal score it will get a percentage is about 70.50% in middle category for the experiment class and 62.00% in middle category for the control class (Alamsyah, 2009).

From description on 7E learning cycle model above, there are several strength of 7E learning cycle such as:

1. Stimulate students to recall the subject matter that they had acquired earlier.
2. Motivate students to become more active and more curiosity.
3. Train students to find concepts through investigation.
4. Train students to communicate orally the concept that they have learned orally.
5. Provide opportunities for students to think, looking for, find, and explain examples of the application of the concepts that they have learned.
6. Teachers and students carry out stages of learning that complement each other.
7. Teachers get to apply this model to the different method.

(Lorsbach, 2006)

Actually 7e learning cycle can be carried out in all concepts because this learning model is student-centered and allows for each stage so that students can master the competencies to be achieved in learning process. 7E learning model provided students to build up the knowledge by themselves particularly during an

exploration and an elaboration phases. The students themselves were to find the technique to arrange the knowledge to learn. Every learning phase encouraged students to develop their thinking abilities, thus their learning achievements were improved also (Siribunnam and Tayraukham, 2009). In this research, the author takes the concept of motion with constant acceleration because characteristic of motion with constant acceleration is more contextual and one of phenomenon that occur in daily life.

Based on the background, researcher is interested to conduct the research about implementation of 7E learning cycle to improve students' achievement in cognitive domain on motion with constant acceleration concept.

B. Research Problems

Based on the background above, the research problem that will be investigated is: "Does 7E Learning Cycle model can improve students' achievement in cognitive domain on motion with constant acceleration concept?". This research problem has two specific research questions as follow:

1. What is the improvement of student's achievement in cognitive domain that using 7E learning cycle better than using conventional?
2. How do students' response to learning activities using 7E learning cycle?

C. Research Objectives

The research has two aims as follow:

1. To know the improvement of students' achievement in cognitive domain that using 7E learning cycle better than using conventional.
2. To know students' response to learning activities using 7E learning cycle.

D. Research Limitation

This research has limitation as follow:

1. Improvement students' achievement in cognitive domain based on Anderson's cognitive aspect which is measured are remembering (C1), understanding (C2), applying (C3) and analyzing (C4).

E. Significance of Research

This research has some benefits as follow:

1. Significance for researcher

This study can be used as a reference for other researchers as a consideration for future research.

2. Significance for students

Through learning cycle students gain understanding of material easily in teaching learning process and remembering concept is longer.

3. Significance for teacher

Teacher can develop a learning model in an effort to improve and facilitate learning, so the achievement of learning can be improved.