

CHAPTER I

INTRODUCTION

1.1. Background

Science plays important and dominant roles in spearheading technological advancement, promoting national wealth, improving health and accelerating industrialization which aid development in many countries. Physics is one of the branches of science that attempts to describe how nature works using the language of mathematics. It involves the study of universal laws and the behaviors and relationships among a wide range of physical phenomena. (Argaw, 2016)

According Harlen in Suryana (2012) characteristics of learning physics among others: 1) is a science that natured on the product, which means that in learning physics is not enough just to learn the code, but also how to obtain the product; 2) the product of physics tends to be abstract and in the form of physical science and mathematical logic. In physics this means not only contains about theories or formulas to memorize, but in physics contains many concepts that must be understood in depth. Thus, in teaching students are required to be able to build his own knowledge and his active role in learning process.

The learning process of physics should be more emphasis on student-centered learning and the process of learning physics is not a large amount of information that must be memorized students, so that students can gain a learning experience. Therefore, the learning process should be more emphasis on the importance of meaningful learning. (Ompusunggu, 2016)

The result of interview of teacher in SMA N 11 Medan, author get that teachers already teach in two directions, namely by discussion and question and answer, but it seems still less precise method is used, as a discussion and Q & A conducted only limited to the usual presentation. So that author get that the reason why physics was difficult to student because the student not interesting with the way of teacher learning in class. How can the student pay attention to the teacher if the teacher always talk away in teaching and learning process. The result of student in this school in physics was not good. So the model of teaching and learning must change into model that attractive to the student. Inquiry training learning is one that suitable to this problem to make the teaching and learning process to be attractive.

According Singh, (2014) Inquiry training model: The essence of the model is to involve students in a genuine problem of inquiry by confronting them with an area of investigation helping them identify the conceptual or methodological problem within that area of investigation, inviting them to design way of overcoming that problem. Thus, they see knowledge in the making is initiated into the community of scholars. At the same time, they gain a healthy respect for knowledge & will probably learn both the limitations of current knowledge and its dependability.

According Joyce in Hayati (2013) inquiry learning model training is designed to bring students directly into the scientific process through exercises that can mandate the scientific process in a short period of time. The goal is to help students develop self-discipline and develop the intellectual skills necessary to ask questions and find answers.

Inquiry learning model is learning that requires students to solve problems through investigation activities that increase the skills and knowledge independently Vera (2016). That's why scientific method was relevant to inquiry training learning to improve the knowledge. Pandey (2011) concluded that inquiry training model have statistically significant effect over conventional teaching method on academic achievement of students (Ali 2014). Upadhyaya (2015) revealed Inquiry Training Model is more effective than the Traditional Teaching Method in developing the Scientific Aptitude for the students of High & Low Intelligence. Base on this research Inquiry Training model can improve student achievement.

Learning inquiry will train students to express opinions and discover their own knowledge useful for solving problems. The use of models in an efficient and effective inquiry will reduce the dominance of teacher during the learning process, and the boredom of students receive lesson will reduced. Jefri (2014). So, to make students pay attention and teaching learning process be a student centre needed not only model but be added a media, such as: power point, video, text and images along with other very assist teachers in teaching and learning process, so teaching and learning process become attractive. That's called a learning multimedia.

According to Mayer in Hayati (2013) said Multimedia is the presentation of material by using the words at the same time the pictures. Multimedia is the use of computers to create and combine text, graphics, diagrams, maps, or photos.

Peter in Lumbantoruan (2017) mentioned Multimedia is a mediator that make a teaching learning process become interesting and be fun. Mayor said that the material presented in verbal form, such as using printed text or spoken text and by pictures that the material is presented in pictorial form, such as using static graphics, including illustrations, graphs, diagrams, maps, or photos, or using dynamic graphics, including animation or video.

Gilakjani in Shah (2015) mentioned three reasons and the rationale for the use of multimedia in the classroom. According to him, its use increases students' interest level, enhances their understanding, and increases their memorizing ability. There are different learning styles for different students and multimedia provides a variety of learning styles at the same time to cater for the requirement of different students and address individual differences. In spite of some potential disadvantages of MAT, the advantages in the teaching and learning process have been documented. Meaningful learning environment recommended by cognitivism and constructivism can best be created with the help of multimedia.

So, to make students pay attention and teaching learning process be a student-centred needed not only model but be added a media, such as: power point, video, text and images along with other very assist teachers in teaching and learning process, so teaching and learning process become attractive.

According to previous researchers Ratni and Sahyar (2013) obtained differences in physics learning outcomes between groups of subjects who were given Inquiry Training learning model with groups who were given Direct Instruction learning model, The findings in this study proved that the average physics learning result count was given Direct Instruction is lower than the average physics learning outcomes given Inquiry Training model. From these results it is found that the application of model Inquiry Training can be increased from the category of inactive to the active category related Dynamic Electric materials.

According to previous researchers Dahlia and Sondang (2016) obtained differences in student learning outcomes that studied by Inquiry Training model

and conventional learning. Student learning outcomes taught by Inquiry Training model better than student learning outcomes taught by conventional learning.

Based on the above description, the researchers are interested to conduct a research on “The Effect of Multimedia Based Inquiry Training Model on Student’s Achievement on Topic Momentum and Impulse in Class X, SMA NEGERI 11 Medan A.Y 2017/2018”.

1.2 Problem Identification

Based on the background above, the problem of identification of this research are as follows:

- a. Students consider physics to be a difficult subject and always lead to calculations and formulas.
- b. Low interest of students to study the subject of physics.
- c. Low of student achievement for physics subject.
- d. Learning model is not varied that used by teacher.
- e. The dominance of the teacher in the learning process, so student do not have a chance to express their opinion.
- f. Lack of utilization of Learning media.

1.3 Problem Limitation

In order to keep this research become more focused and directed, the researcher limit the problems as the following:

- a. Learning model used is multimedia based inquiry training on the experimental class and conventional learning on the control class.
- b. The material taught is Momentum and Impulse.
- c. Conducted to determine the influence of multimedia based inquiry learning model on student achievement on cognitive aspects.

1.4 Problem Formulation

The problem formulation of the research in class X SMAN 11 Medan A.Y 2017/2018 are:

- a. How are the student learning outcomes by using multimedia based Inquiry Training model on topic Momentum and Impulse?
- b. How are the student learning outcomes by using conventional learning on topic Momentum and Impulse?

- c. Is there a significant effect of multimedia based Inquiry Training model on the cognitive aspects of students on topic Momentum and Impulse?

1.5 Research Objectives

The research objective in class X SMAN 11 Medan A.Y 2017/2018 is as follows:

- a. To know the student learning outcomes by using multimedia based Inquiry Training model on topic Momentum and Impulse
- b. To know the student learning outcomes by using conventional learning on topic Momentum and Impulse.
- c. To know the difference of student learning outcomes between multimedia based Inquiry Training model and conventional model on topic momentum and impulse.

1.6 Research Benefits

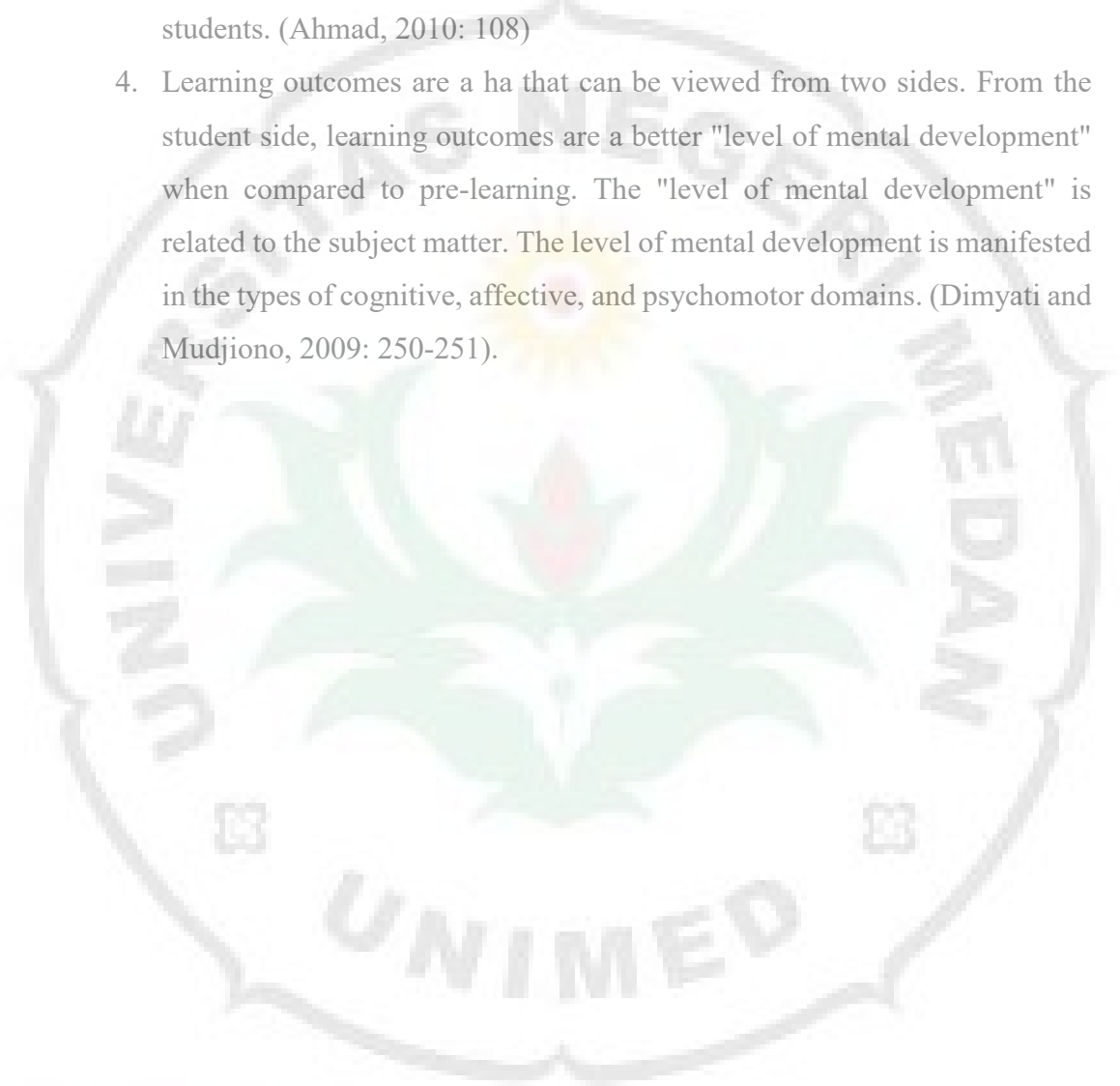
The expected benefits of this research are as follows:

- a. As a basis for researchers in conducting research.
- b. improving student achievement in the subjects physics, especially the material Momentum and Impulse. as a basis for researchers in conducting research.
- c. Opening think conception of teachers in developing teaching and learning model one uses inquiry training learning model.
- d. As feedback to improve the effectiveness and efficiency of the learning activities.
- e. As a solution for the same case in society.

1.7 Operational Defenition

1. Conventional learning is a way of delivering information orally to a number of listeners, this activity centered on lecturer and one-way communication.
2. According to Joyce, et al (2011: 201), the Inquiry Training instructional model is a model designed to bring students directly into the scientific process through exercises that can condense the scientific process into a short period of time.

3. The use of media in learning is not solely a means of entertainment, in the sense of being used just to complement the learning process to attract more students. (Ahmad, 2010: 108)
4. Learning outcomes are a ha that can be viewed from two sides. From the student side, learning outcomes are a better "level of mental development" when compared to pre-learning. The "level of mental development" is related to the subject matter. The level of mental development is manifested in the types of cognitive, affective, and psychomotor domains. (Dimyati and Mudjiono, 2009: 250-251).



THE
Character Building
UNIVERSITY