CHAPTER I

PRELIMINARY

1.1.   Research Background

Law No.20 of 2003 concerning the National Education System states that education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual strength, self-control, personality, intelligence, noble character, as well as the skills required by himself, the community, the nation and the state (Kesowo, 2003). Education in Indonesia is based on Law Number 20 the Year 2003 concerning the national education system by upholding philosophical learning to know, learning to do, learning to be, and learning to live together. The four philosophical principles each accommodate specific skills that need to be developed in learning activities, such as critical thinking skills and problem-solving, communication, collaboration, creation, and innovation relevant to the demands of the development of the industrial revolution 4.0 (Estuhono, et al., 2020).

Lately, we have entered an era of digitalization known as the industrial revolution 4.0. In this era, humans are faced with competition and challenges and must be able to turn all of those into opportunities. The industrial revolution 4.0 has become a major challenge for the fields of education to be able to create graduates who have the competencies needed while in the workforce (Wiyono & Zakiyah, 2019). Education needs to provide the best facilities so that the learning process is following the teacher's process standards so that later competent graduates will be produced, who are ready to compete in the global world (Widayanti, et al., 2019).

Physics is one of the subjects included in science that aims to prepare students to be able to deal with technological developments. Physics as a science that can explain theories based on phenomena that occur in nature that can be measured and observed. In its application, Physics is a very important subject to

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be understood by students because it is very useful in everyday life, especially in today's global era.

The development of technology has been widely used by most people in the educational environment. Students of the Department of Physics UNIMED that most large has device communication smartphones and laptops become a proponent of the use of the development of technology the Internet in learning. Data from a survey conducted by the *Asosiasi Penyelenggara Jaringan Internet Indonesia* (APJII) in 2016 showed that students in higher education are the biggest internet users in Indonesia with 89.7%, and second-placed is students with 69.8%, but the access to the pages of education is still very lacking. An issue that needs to be addressed by educators with direct student/participant learners to more use of the Internet in the realm of education (Saifuddin, 2017). One of the utilization of the development of technology in the world of education is the method of Blended Learning.

For the first time, blended learning appeared as a method in 1999 during the foundation called Interactive Learning Centers (computer skills certificate and software training program in Atlanta) which later turned to EPIC learning (Friesen, 2012 in (Kurt & Yıldırım, 2018)). This learning model combines the best elements of face-to-face and online learning and emerges as the predominant model of the future. Blended Learning, therefore, comes to the surface as a well-adapted learning model in using information and communication technology in teaching and learning processes (Ali & Sofa, 2018).

Blended learning is an integrated learning experience that is controlled and guided by the instructor whether in the form of face-to-face communication or his virtual presence. Technological innovation is expanding the range of possible solutions that can be brought to bear on teaching and learning. Whether we are primarily interested in creating more effective learning experiences, increasing access and flexibility, or reducing the cost of learning, our learning systems will likely provide a blend of face-to-face and computer-mediated experiences (Bryan

& Volchenkova, 2016). Blended learning is about teaching students how to make decisions, how to plan and organize their activities independently, how to handle the online learning platform, and how to search for, select and analyze the information. The e-learning component of blended learning can be put into practice by all manner of tools, including the social network (Krasnova & Shurygin, 2019).

The Blended Learning environments, no doubt, face problems that could be impediments to their further growth. Instructors of such courses state the administration of courses to be time-consuming while the students often experience frustration due to lack of communication and technological problems. All these results in high dropout rates (Shantakumari & Sajith, 2015). A persistent concern in teaching is the aim to achieve a better outcome and to reduce the number of students dropping out from the course, and it is recognized that achieving these goals might require a change in the teaching methods employed (Lopez-Perez, et al., 2011). In blended learning teachers/instructors are responsible to maintain good cooperation between students and customize methodologies usage for the respective classroom. Students are learning to work with their peers on projects, create shared abilities problem solving and collaborative skills strategies together (Listiana & Jaharadak, 2019).

The use of computers in teaching can improve students' understanding of concepts and the ability of individuals to obtain information in the community. (Husni, 2010 in (Hermawanto, et al., 2013)). Another advantage that most specific of blended learning is an opportunity to immediately build a sense of togetherness for students. In the class of blended learning, students generally meet the learning face-to-face and have the opportunity to communicate by way of open dialogue, to experience the debates critical, and at essentially participated in various forms of communication in the neighborhood " safe ". This Opportunity can facilitate reflection which is great on the content of the materials to college and expand the experience of learning the students (Hidayat & Andira, 2019).

The overall finding of the meta-analysis is that online learning (the combination of studies of purely online and of blended learning) on average produces stronger student learning outcomes than learning solely through face-to-face instruction (Means, et al., 2013). From the meta-analysis he did, Means et al. found that Blended Learning was more effective in improving learning outcomes than online and face-to-face learning conducted separately. Although Blended Learning provides great hope for improving the effectiveness of learning, the delivery strategy must be supported by the characteristics of students as described above. The effectiveness of Blended Learning is highly determined by the online learning environment that can be adapted to student learning styles and is gradually expected to encourage student learning independence (Kirna, et al., 2015).

At the State University of Medan in particular the Department of Physics has been applied method of Blended Learning in some courses. It is because learning with the scientific method becomes popular and is directed as the basis for learning in the classroom. This is aimed at the basic achievement of every graduate at the State University of Medan to have scientific competence. Blended Learning can be one of the various methods that are combined in learning to optimize the use of scientific methods in learning to achieve optimal graduate outcomes (Motlan, et al., 2018).

Based on the experience of researchers during their lectures, the method of learning that still dominates is face to face, whereas e-learning is only held at certain times according to the agreement between students and lecturers. However, recently Unimed implemented a Blended Learning process using SIPDA, this was done mainly because of conditions that made it impossible to apply face-to-face learning in class during the Covid-19 pandemic. Following up on these activities, of course we have to know whether a learning process is effective or not, especially Blended learning is a method that has recently been applied at Unimed.

One of the students' successes in education is shown by their academic achievements. The effort to educate the nation to improve the quality of human beings which basically can be realized through educational activities including the teaching and learning process in schools (Motlan, et al., 2019). Other than that, the learning process will run well if students like the lesson, the environment, the way of delivering the material, and the perception of ongoing learning (Fitriana, et al., 2016). Pareek (1996) suggests that perception is the process of receiving, selecting, organizing, interpreting, testing and reacting to sensory stimuli or data. Perception is closely related to the five senses because perception occurs after the object in question has seen, heard or felt something and has organized and interpreted it so that perception arises (in Fitriana, et al., 2016).

Student perceptions are an important determinant of student behavior and an understanding of these perceptions can be more useful in explaining their behavior than the well-intentioned inferences sometimes made by teachers or lectures. Students' perceptions will provide a better understanding of factors and issues to be considered when adopting blended learning (Ying & Yang, 2016). The most important factor for the success of Blended Learning is Students' satisfaction. Insufficient student satisfaction is the impedes successful implementation of blended courses (Shantakumari & Sajith, 2015). Evaluation of the success of Blended Learning courses largely relies on students' attitudes, expectations, and finally their satisfaction (Akkoyunlu & Soylu, 2008). Because of it, the perception of students is very necessary as a matter of evaluation for lecturers in the implementation of the Blended Learning method.

A person's willingness to use technology products is strongly influenced by perception. Perception is a process that is preceded by sense, ie a stimulus was received by individuals through means of receptors that sense. The sense of media is the link between the individual and the outside world. Perception is a stimulus that is sensed by individuals, organized then interpreted so that people realize and understand what is sensed. In other words, perception is a process that involves the entry of messages or information into the human brain. Perception is an

integrated state of the individual to the stimulus it receives. Anything that is in self individual, thoughts, feelings, experiences of individuals will participate actively effected in the process of perception (Nugroho, 2012). Students play a prominent and central role in the context of education, and their perceptions of the teaching materials or a learning program can directly influence or be reflected in their learning outcomes (Hung & Wu, 2018).

The feedback of students who are among the key stakeholders is essential to ensure the successful implementation of any teaching-learning methodology. This study was conducted to determine students' perception of Blended Learning to ensure that prompt corrections can be made to the entire system. This will go a long way to enhance student's learning.

Based on the conditions, researchers will assess the extent to know the knowledge of students' Department of Physics UNIMED about the perception they have on the use of Blended Learning in Physics. Because of that, researchers are encouraged to research with the title "The Analyze of Students' Perceptions of Blended Learning and Physics Achievements on Physics Undergraduate Program".

1.2. Problem Identification

Based on the background of the problem, several problems can be identified, namely:

1. Lack of using the Internet in accessing education pages by students.
2. Lack of using technology during the teaching and learning process.
3. Face-to-face learning activities still dominate.
4. Blended learning is a method that has recently been applied at Unimed
5. The lack of feedback from the perception of students toward Blended Learning.

1.3.   **Problem Limitation**

Based on the background description of the problem and the identification of the problem above, it is necessary to hold the problem limitation to focus attention on the object of research so that the problem assessment can be assessed clearly. In summary, this research focuses only to examine students' perceptions of Blended Learning and their relation to the learning outcomes in Physics.

1.4.   **Problem Formulation**

Based on the background above, the researchers formulated the research problem as follows:

1. What is the students' perception of Blended Learning in Physics Learning?
2. How is the correlation between students' perceptions and students' achievements in physics learning?

1.5.   **Research Objectives**

Based on the formulation of the existing problems, the purpose of this research is :

1. To determine the student's perception of Blended Learning in Physics Learning.
2. To see the correlation between students' perceptions and students' achievements in physics learning.

1.6.   **Research Benefits**

This research is expected to provide benefits including:

1. Gaining experience as well as learning tools for writers in conducting research with scientific methods and adding insight from the Blended Learning method.

2. Provide an opportunity for students to give their perception of learning-based Blended Learning.

3. Can be used as a material evaluation to increase the use of the Blended Learning method both from the terms of quality and facilities are needed.

4. Can be used as references as further research material.

1.7. Operational Definitions

1. Perception is a stimulus received by someone and then organized and interpreted, to obtain an impression or meaning of the stimulus received

2. Blended Learning is the use of traditional classroom teaching methods together with the use of online learning for the same students studying the same content in the same course.

3. Ease of Use is refers to the degree to which students perceived that being involved in blended learning would be free from effort and easy to operate.