

CHAPTER I

PRELIMINARY

1.1 Background of Research

Changes in the world of education in the current industrial era 4.0 make the using of technology as one of the factors that support the creation of effective teaching and learning activities. Integrating more current technologies will make the instructors more creative in designing their lessons, thus making the learning more interesting. (Hussin, 2018). Technology in education has its own strength and weakness, but proper implementation might help keep drawbacks to minimum. Students have more opportunities and chances to explore science because learning can be done anytime and anywhere, making them one step ahead of students who are still learning to follow the conventional system. The teaching and learning pattern will not only be merely based on exams, but also focusing the practical and experiential learning-based projects or field work that is suited for future employment (Lawrence *et al.*, 2019). According to Sharma (2019), the development of technology in a large reach now makes the generation familiar with smartphones and electronic applications that change views through the motto “by inventing new things that are unthinkable and creating new ways that are unimaginable”. This motto proves that teaching and learning activities in classrooms which are considered the most effective sooner or later will be replaced by more dominant online activities.

Learning activities in the industrial revolution 4.0 eras, it is hoped that there will be a change of view that the purpose of learning is not smart but fast. Fast in this case includes the connectedness of the response to the theme of discussion, ambitious, specific, and transparent. It is important to do things quickly and be open to challenge and change (Salmon, 2019). The role of educators to be more creative and innovative is honed. The ability of educators to be technology literate is a major requirement for the achievement of teaching and

learning activities that remain effective under any circumstances. (Sagita & Khairunnisa, 2020). So the most important thing that the educators should do is to use variety of strategies to improve online learning. (Yulia, 2020).

As long as it is known that each method, model, technique, or strategy was used by an educator will certainly bring a different response to each student. This response can be in the form of learning outcomes obtained as well as motivation and learning behavior during the learning process. Manurung (2017) stated that motivation and learning behavior affect student learning outcomes. Abdullah (2018) also explained that learning motivation supported by the use of technology will also have a positive impact on student learning behavior. Charness & Boot (2016) mentioned the existence of Technology Acceptance Model (TAM) is able to describe the behavior of its users; this also applies to user behavior towards the learning process using information technology. These behaviors then gave rise to a new, simpler term, namely perception. The TAM concept predicts a correlation between the user's perception of a technology and the user's behavior while using the related technology. This is also in line with Theory Reasoned Action which interprets behavior as the end result of normative subjects prevailing in the environment and one's attitude.

The speed of Covid-19 pandemic spread influences all aspects of life without exception. Whether like or not educators must change their way of teaching from face to face in the class to online learning activities to balance the responses which will be gotten. (Yulia, 2020). Covid-19 pandemic made us realize the importance of online learning for students. Nowadays on pandemic, the online teaching and learning is feasible, cheap and must be made a part of students beyond the prevailing lockdown. (Agarwal & Kaushik, 2020). Student morals are built based on the situations and conditions encountered during the pandemic which is the beginning of the creation of various student learning behaviors and their perceptions towards the learning process. These learning behavior direct students to the attitudes with actions that will be displayed while participating in online learning activities, allowing for the creation of different learning outcomes based on each learning behavior. Meanwhile, the students' perception is all view

and opinion student faced during online learning with all those technology stuff. (Mustafa *et al.*, 2018).

The effectiveness of online learning is mainly determined by the platform used. Through a more sophisticated platform that allows more activity from students during the learning process. Online learning shows the influence of the learning process. It is emphasized that the more familiar students are with matters relating to blended learning activities, the higher the value of the learning process itself will increase. Ricoida & Pibriana (2016) explained that subjective attitudes and norms in online learning affect student interest in learning. Student learning interest will then influence student learning behavior and brings positive perceptions later.

Learning using the help of information technology platforms in general will lead to perceptions regarding the usefulness, convenience and activity of users. Sari *et al.* (2020) explained that student's positive perceptions of online learning will be shown if the platform used is efficient and effective and can cover at least half of the activities that can usually be done in offline learning. Fletcher & Silverman (2017) added that the perception and behavior of a student are two sociocognitive forms that may show similar characteristics and factors, but in fact the emergence of one another is not simultaneously, both are independent things. On an event, the emergence of behavior first appears before finally being formulated to be shorter and denser in the form of perception.

It is online learning's big moment and education is about to be revamped just as much the industries that are going to remove work due to the novel coronavirus. The Covid-19 pandemic has forced school and universities to close and send students home. This reality has forced a crash course for online learning plans and technology for students and faculty.

Universitas Negeri Medan as one of the tertiary institutions in North Sumatera has contributed to implementing online learning activities, starting from March 2020. It is known that there are various types of platform used in online teaching and learning activities. The author has collected data related to the name of the lecturers, the courses, the platforms used, and the number of participant in

each class. Based on the data, the platforms used during the Covid-19 pandemic by Universitas Negeri Medan students are WhatsApp, Zoom, WebEx, Google Classroom, and SIPDA as official learning website from this university, but most used platform are WhatsApp, Zoom, and SIPDA. Each of these platforms has its own advantages and disadvantages to the online learning activities, these points are the highlight of this research due to effect of using different platforms towards students' perception and learning behavior and how the correlation between perception and learning behavior of students during using these platforms on online learning.

1.2 Identification of Problem

1. Disruption of normal class teaching and learning activities due to the Covid-19 pandemic has forced most of the learning process to be conducted using online learning activities.
2. This online teaching-learning process might probably have caused many problems both to the students as well as to the lecturers. The problems could be originated from the lecturer's lack of experience on online teaching or could also be due to the low student's learning motivation, learning disciplines, and probably could be cheating problem.
3. There are a number of platforms used by the lecturers to deliver the teaching materials to the students including SIPDA (specially developed in Universitas Negeri Medan), Zoom or just as simple as WhatsApp. Until today no one knows yet the effects of the online learning activities on the student's learning behavior and how their perceptions towards the platforms used.

1.3 Scope of Problem

Looking at that identified problems related to the sudden change in teaching-learning activities from traditional to online platforms which also may affect student's learning process; author would like to focus this research on student's perception towards platform used on online learning and its effect to their learning behavior.

1.4 Formulation of Problem

1. How the effect of using different online learning platforms in Cell Biology, Ecology and Genetics course on student's perceptions towards?
2. How the effect of using different online learning platforms in Cell Biology, Ecology and Genetics course on student's learning behavior?
3. How the correlation between student's perception and student's learning behavior on using different online learning platforms in Cell Biology, Ecology and Genetics course?

1.5 Limitation of Problem

1. This research has no other variables besides the use of e-learning (in the form of WhatsApp, Zoom and SIPDA), students' perception and learning behavior in the subjects of Genetics, Cell Biology and Ecology.
2. Measuring students' perceptions of the platforms will be carried out using questionnaires, as well as student's learning behavior, in which each questionnaire will be arranged based on the lattice obtained from previous research.
3. The object of research is limited only to the third year students of the Department of Biology Education, academic year 2020-2021.

1.6 Research Objectives

1. To identify the effect of using different online learning platforms in Cell Biology, Ecology and Genetics course on student's perceptions.

2. To identify the effect of using different online learning platforms in Cell Biology, Ecology and Genetics course on student's learning behavior.
3. To identify the correlation between student's perception and student's learning behavior on using different online learning platforms in Cell Biology, Ecology and Genetics course.

1.7 Research Benefit

1. Theoretically

This research is expected to provide information about the strength and weakness of online teaching to the students learning effectiveness.

2. Practically

- a. For students, this research helps to pay more attention to matters related to the formation of positive perception and learning behaviour in order to get the desired learning outcomes.
- b. For lectures, this research helps in determining methods, models, techniques, and strategies of learning that will more effective on online learning.
- c. For researcher, this research helps in terms of delivering information and developing theories that was collaborated in order to produce a conclusion that is useful in the world of education.

1.8 Operational Definition

Operational definitions are scientific information that will help other researchers who want to conduct research using the same variables. The operational definitions in this study are as follows.

1. The concept of perception leads to students' opinions towards platforms which used, namely perceived ease of use; perceived usefulness; distraction in use; information quality; and convenience of accessibility.
2. Learning behavior is defined as a broad range of individual activities, involving their habits to face online learning, namely habits of following

and repeating lessons, habits of doing assignments, habits of study and face difficulties in lessons, habits of facing exams; and habits of identify learning sources.

3. Platforms refer to the electronic media that serve tools and materials to support the online learning activities. In this research the related platforms are WhatsApp, Zoom and SIPDA that was chosen because these platforms are the most-used platforms during the Covid-19 pandemic.

