

CHAPTER II

THEORITICAL REVIEW

A. Theoretical Background

1. Technology

a. Definition of Technology

The word technology is often interpreted as an electronic device by society. According to Hornby (2010, 1375) technology is the application of science and of technical advances in industry, manufacturing, commerce, and the arts. However, by scientists and philosophers of science, it is interpreted as the work of science to solve practical problems. So, technology refers more to efforts to solve human problems. In the Oxford online dictionary, technology is the application of scientific knowledge for practical purposes, especially in industry. The term technology itself comes from a combination of two words, namely *techne* and *logos*. The word *techne* in Greek has the meaning of skill while *logos* means science. In short, the notion of technology means the study of skills.

b. Educational Technology

Barbara (1994) as cited by Nugroho (2013: 30) stated that educational technology has many definitions. He said, "First, the definition of AECT

(Association for Educational Communication and Technology) 1963. In this definition, it is explained that audiovisual communication is a branch of educational theory and practice that is primarily concerned with designing and using messages to control the learning process. Second, Definition of Learning Technology Commission 1970. In a more general sense, learning/education technology means that media are born as a result of a communication revolution that can be used for learning purposes besides teachers, textbooks, and blackboards. Third, the Silber Definition in 1970. Learning technology is the development (research, design, production, evaluation, supply-support, utilisation) of the learning system components (messages, people, materials, equipment, techniques and settings) and management of development efforts (organisations and personnel) systematically with the aim of solving learning problems.

Based on the above theory Educational technology is a theory and practice in the design, development, utilisation, management, and assessment of processes and sources for learning.

c. The Function and The Benefit from The Use of Technology in Teaching Learning Process

In its application, technology in education has several functions. According to Sutarno (2010), there are three functions of using technology in the teaching learning process, those are:

1. Supplement Function (additional)

It is said to function as a supplement (additional) if students have the freedom to choose, whether to use technology in the learning process or not. In this case, there is no obligation for students to access learning materials using technology. Although only optional, students who use it will have additional knowledge or insight. Although learning material through technology acts as a supplement, lecturers/teachers will certainly always encourage students to access learning materials through the tools provided.

2. Complement Function

It is said to function as a complement, if the learning material uses technology programmed to supplement the learning material received by students in the class. As a complement, it means learning material using technology is programmed to be an enrichment material or improvement for students in participating in normal learning activities.

3. Replacement Function (substitution)

Some universities in developed countries provide several alternative models of teaching and learning activities for their students. The aim is to help make it easier for students to manage their teaching and learning activities so students can adjust their time and other activities with their college activities.

Afterwards, there are many benefits to be gained from implementing E-learning as cited in Maria (2016), including:

1. Technology Helps Students to Learn

Implementing technology in the teaching and learning process will make students more interested in attending lessons. If students are interested in what the teacher is going to teach, then they do not need to ask students to learn seriously. Students will be more active and will not feel the boredom of learning.

2. Technology Creates Exciting Learning Activities

With the technology of the teacher can create an exciting learning atmosphere. This is very good for triggering students' understanding so that they quickly understand what the teacher is saying. Besides, students will not get bored quickly because they will be happy to learn by using interesting learning methods. This is very good because it can boost the value of students in some subjects which are usually considered difficult as mathematics, English, and others.

3. Facilitating Students to Find Learning Resources

Information technology especially the internet provides a variety of learning resources that can be accessed by students anytime and anywhere. They can get all the references they need for free. The more they learn from different sources, the smarter the student is.

4. Technology Makes Students Have Broad Knowledge

Students who use technology well and correctly will have deep insight. They can get information or the latest world developments quickly. They can even be active in international communication forums that can train themselves to be proactive students.

d. The Principles from The Use of Educational Technology in Teaching

Learning Process

Concerning the definition of perception, it has some principles. Abror (2013) in his blog said there are three basic principles in educational technology, those are:

1. The System Approaches

The implementation of education and learning requires steps such as problem identification, state analysis, objective identification, learning management, method determination, media determination, and learning evaluation.

2. The Orientation to The Students

The students are the centre of attention in learning by paying attention to the characteristics, interests, potential of students.

3. The Utilisation of Learning Resources

The students are asked to use learning resources to access the knowledge and skill they need. One more thing is that educational technology is a field that emphasises aspects of student learning.

2. E-learning

a. Definition of E-learning

E-learning or electronic learning began in the 1970s (Waller and Wilson, 2001). Many terms are used to express opinions/ideas about electronic learning, among others: Online Educational Delivery Applications (OEDA), Virtual Learning Environments (VLE), Web Learning Environments (WLE), Managed Learning Environments (MLE) or Network Learning Environments (NLE) (Anggoro, 2005).

Today, E-learning is rife in Indonesia. E-learning is learning electronically by utilising information and communication technology. E-learning has a comprehensive definition, even a portal that provides information on a topic can be included in the scope of E-learning, for example, *the ilmukomputer.com portal*. However, the term E-learning is more appropriately intended as an attempt to make a transformation of teaching and learning processes in schools or campuses into digital forms that utilise facilities from information technology, namely the internet (Anggoro, 2005).

The role of the internet cannot be separated from the use of E-learning. According to William (1999) as cited by Muzid and Munir (2005), the Internet is an extensive collection of computers that can share their vast resources. So, the Internet is a collection of information available on computers that can be accessed because of the network available on the computer.

This matter is following the opinion of Kamarga (2002) which essentially emphasises the use of the internet in education as the essence of E-learning. Even Onno W. Purbo (2002) explains that the term "e" or shortness of electronic in E-learning is used as a term for all technologies used to support teaching efforts through internet technology.

E-learning facilitates interaction between students and learning materials — likewise, the interaction between students and lecturers and among fellow students. Students can share information or opinions on various matters relating to lessons and other needs for student self-development. Lecturers can place teaching materials online that can be downloaded by students and assign assignments to students and collect them via email. Interaction can also be carried out directly between students and lecturers or with fellow students through discussion forums (e.g. mailing lists, discussion forums).

Why are E-learning activities more democratic than learning activities in conventional education? Because students have freedom and do not feel

worried or hesitant or even afraid, both to ask questions and express opinions/responses to fellow students and lecturers. Loftus (2001) as cited in Muzid and Munir (2005) explained this is because no other student physically observes and is likely to comment, belittle or flout his/her questions or statements. Seeing the conditions on the field today, many students who are not brave or embarrassed express what they want to know or extend about a material given in a conventional class. This is very different when using discussion media through discussion forums that do not rely directly on physical contact between discussion participants. The further effect is that the material delivered will be more easily absorbed by students.

b. The Function and Benefit from The Use of E-learning

In its application, E-learning has several application functions. According to Siahaan (2001), there are three functions of E-learning for learning activities in the classroom, one of which is as a complement to conventional learning.

Besides functioning as a complement, E-learning also functions as a supplement (addition) and substitution (substitute). It is said to function as a complement (support) if electronic learning material is programmed to complement the learning material that students receive in lecture forums (Lewis, 2002). That is, if there are students who have difficulty understanding the subject matter presented by lecturers face-to-face in class,

they are given the opportunity to utilise electronic learning material. The goal is for students to more easily understand the subject matter presented by lecturers in the class.

Afterwards, there are many benefits to be gained from implementing E-learning, including:

1. Facilitate and increase the interaction time between students and learning materials and interactions between students and lecturers and among fellow students.
2. It is possible for students to be able to study even if they are not physically present in the classroom. Learning activities become very flexible because they can be adjusted to the time availability of students. So that learning interactions occur from where and at any time.
3. Allows students and lecturers to share information or opinions on lecture material so that they can optimise available face-to-face time to concentrate on the material.
4. Improving the quality and performance of lecturers by developing better learning models and learning materials that are more easily understood and learned by students.
5. Reducing the digital divide between lecturers and students by implementing an integrated and integrated internet technology system.
6. Facilitates the improvement and storage of learning materials.

c. Advantages and Disadvantages of E-learning

From various experiences and various information available in the literature, it provides clues about the benefits of internet use, especially in open and long-distance education (Soekartawi, 2002), among others as follows:

1. The availability of e-moderating facilities where lecturers and students can communicate easily through internet facilities regularly or whenever communication activities are carried out without being limited by distance, place and time.
2. The lecturers and the students can use instructional materials or structured and scheduled learning instructions through the internet so that both can assess each other to what extent the teaching material is learned.
3. The students can study or repeat teaching materials at any time and anywhere if needed, considering teaching materials are stored on the computer.
4. If the students need additional information related to the material they are studying, they can access the internet more efficiently.
5. Both lecturers and students can hold discussions through the internet which can be followed by many participants, thus increasing knowledge and broader insights.
6. Changes in the role of students from usually passive to active.

7. Relatively more efficient. For example, for those who live far from a college or current school, for those who are busy working, for those who are on duty, abroad.

Notwithstanding there are many benefits and advantages, the application of E-learning is also inseparable from various shortcomings. Various criticisms (Bullen, 2001), include the following:

1. Lack of interaction between lecturers and students or even between students themselves. This lack of interaction can slow the formation of values in the learning and teaching process.
2. The tendency to ignore the academic or social aspects and vice versa encourage the growth of business / commercial aspects.
3. The process of learning and teaching tends towards training rather than education.
4. Changing the role of lecturers from those who previously mastered conventional learning techniques, is now also required to know the learning techniques that use ICT (Information Communication Technology).
5. Students who do not have high learning motivation tend to fail.
6. Not all internet facilities are available (this may be related to problems with the availability of electricity, internet, telephone or computer).

However, from some of the shortcomings that have been described, these deficiencies can be overcome using E-learning as a support system

rather than as a substitute system. With these shortcomings, it is expected to be a reference to improve the quality of education and individuals both students and lecturers.

d. The Principles from The Use of E-learning in Teaching Learning Process

Based on research conducted by Richard Mayer at the University of California, Ruth Clark (2002), proposes six principles that can be used as guidelines for developing E-learning, namely:

1. Multimedia Principle

The use of graphs that are appropriate to the text and learning objectives can enhance learning. For example, to display a process of spreading viruses more effectively using animation than static graphics.

2. Principle of Relationship

Text placement must be close to the graph. For much text, it is arranged so that the text and graphics are not separate (for example using the right combination of scrolling). The use of long text so that illustrations far below it will make it difficult for users.

3. Principle of Modality

The use of audio can improve learning specially to explain an animation or visualisation of complex and unfamiliar material.

4. Principle of Redundancy

Explanation of graphics through audio and text that is excessive can be detrimental to learning. For example, a graph is sufficiently equipped with text. Giving narration can disturb the user's comfort while observing the graph.

5. Principle of Coherence

The inappropriate use of visual, text and sound display can be detrimental to learning.

6. Personalisation Principles

Daily use of language and other resource persons can improve learning. For example, a learning CD will be more interesting if an everyday language is used and accompanied by narratives from the resource person.

3. Perception

a. Definition of Perception

Perception is the way people notice a thing, especially with the senses. Also, perception is an idea, a belief or an image people have as a result of how to see or understand (Hornby, 2010: 1709). According to Schmitz (2012), perception is the process of selecting, organising and interpreting information. Perception constitutes the process used by people to manage and interpret the impression of their sense to give meaning to their environment. People that have a perception of an object can be positive or

negative ways. Through the perception, people can create a relationship with the environment. This relationship is done through their five senses. Those are vision, hearing, taste, smell and touch.

Koentjaningrat as cited in Sahal (2010: 7) explained that perception is the realisation of the human brain process and it appears as a view about the phenomenon. In this process, many factors such as feelings, needs, motivations, educational backgrounds, and experiences are involved. Then the process is followed by a process by which a persons' brain arrives at a meaningful interpretation of stimuli. After defining the term of perception, it can be concluded that perception is a process of human thinking about specific phenomenon after they get the sensation from the environment through the sense of organ. This study, perception means giving the opinion or message about something happened.

b. Process of Perception

Perception consists of a specific process. It is started by accepting the stimulation from an object through the sense of organ and then continues with the registers of stimuli nervous system which is called as a sensation. Furthermore, this process is ended by thinking, analysing and interpreting in order to achieve the meeting of an object, concerning the process of perception. Walgito (2004: 90) explained that perception is a complex process, those are, as follows:

1. Physical Process

It is the process when an object is used stimuli caught by receptor, and it is called as a sensation.

2. Physiological Process

It is the process of sending stimuli to the brain by sensing organs.

3. Psychological Process

It is the process of changing the stimuli in the human brain to get the meaningful interpretation of stimuli.

c. Kinds of Perception

There are two kinds of perception. External perception is perception due to the stimulation that comes from outside individual and self-perception is perception whose stimulation is from within an individual. By perception, an individual can aware and can understand the situation of the environment around of it or even the condition of the self-individual condition (Walgito, 2004: 24).

Walgito (2004: 75) divides factors that affect one's perception into two, those are:

1. Internal Factors

Internal factors are factors which come from an individual; depend on a psychological factor such as thoughts, feelings, willingness, needs,

sex, motivation and attention. Every human being has individuals' family and environment also shape different characteristic and behaviour.

2. External Factors

External factors are factors which come from the outside individual. These factors are affected by someone's perception. The process of stimulus will through the sense organ or receptor such as sighting, hearing and feeling. It can be concluded that an individual's sense organs are a connector between individual the object and their mind in the world.

d. Principles of Perception

Concerning the definition of perception, it has some principles. Slameto, (2010: 103-105) divided the principles of perception into four, those are:

1. Perception is relative, not absolute

About the relative perception, the first stimulus will give a more significant impact than the next one.

2. Perception is selective

A person's ability to catch a stimulus is restrictive, since the human brain only catches the stimulus based on the thing that has the most attractive.

3. Perception has arrangement

Perception has the arrangement in that people receive the stimulus in the form of related groups.

4. People's perception may be different although in the same condition

Their knowledge and experiences cause the different perceptions of people.

e. Students' Perception

Students are the main and most important part of the teaching and learning process. Students' perception is needed in teaching and learning situations, and this occurs when the teacher interprets the meanings given to stimulate their classroom environment or in the behaviour of students in the classroom (Ahmad, 2009). Some previous studies have shown that thinking or perception plays an important role in teaching. Centra (2005) states that students' perceptions of learning are highly correlated with their overall ranking about the effectiveness of teaching in the teaching and learning process. Therefore, it can be concluded that the effectiveness of the teaching and learning process can be done not only through assessment tests but also through knowing student perceptions.

4. UMP Online Class

a. Definition of UMP Online Class

UMP Online Class or can be called OnClass is one of the new learning and teaching media at Universitas Muhammadiyah Purwokerto. This media was launched and can be accessed by lecturers and students since February 1, 2018. Mufida Nofiana, the E-learning instructor, said that E-Learning is very important for lecturers because it facilitates lecturers in the academic process, so even though it is implemented at different times the essence of material delivered the same.

UMP OnClass is an online learning application initially developed by the Institute for Quality Assurance and Instructional Activity Improvement (LPMPAI) in Universitas Muhammadiyah Purwokerto. This application is very friendly and ready to use. UMP lecturers and students are registered in the system and ready to use this application anytime and anywhere. They do not need to register like other E-learning applications. However, they are required to change their e-mail after they log in to make it easier to forget the password.

b. The Basic Operation and Features of UMP Online Class

UMP E-learning is named *OnClass*. *OnClass* has an extension of *Online Class*, according to its function as online learning through an internet

connection accessed via the address (URL) <http://onclass.ump.ac.id>. Figure 2.1 below shows the appearance of the *UMP OnClass* home page.

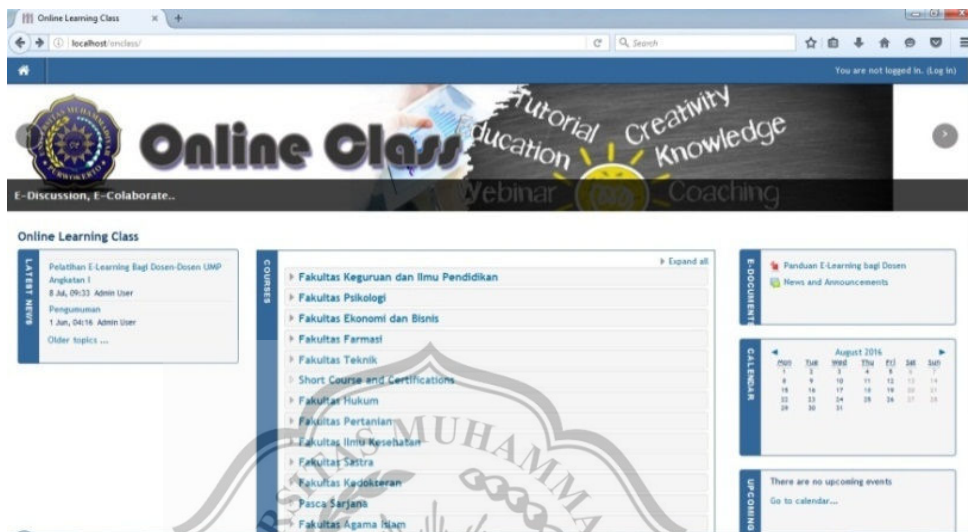


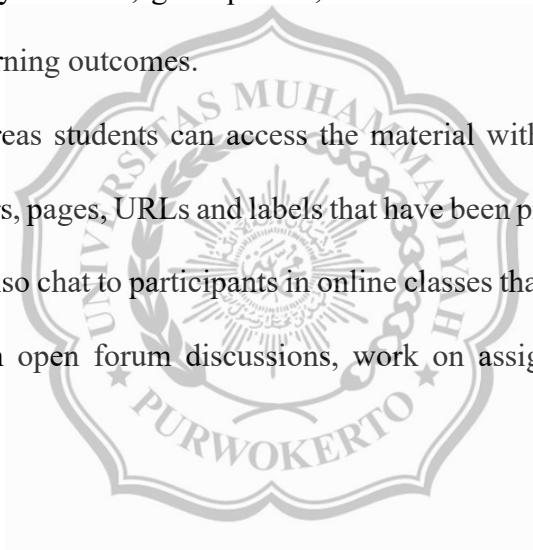
Figure 2.1 UMP E-learning Home page

The system is easy to use because the menus and submenus inside display the design and only because of this, users can easily navigate all the facilities available on the system. To start using the *OnClass*, both lecturers and students need an account (username and password). For lecturers' username and password, no information is given in the *OnClass* guide, only for students, there are Username uses NIM, and the default password is User-1234. After successfully logging in using each E-learning account, the lecturer will be directed to the lecturer's E-learning page. On the page, there are features of the subject matter, lecturer profile and account settings. While for each student, they will be directed to the E-learning page of the course.

On the page, there are features of subject matter, student profile and account settings.

For lecturers given access to manage and add teaching resources in the form of book, file, folder, page, URL and label formats. They can also make chat activities, create discussion activity forums, provide assignments, provide feedback on assignments, provide assessments of assignments collected by students, give quizzes, make CBT-based exams and manage student learning outcomes.

Whereas students can access the material with the format of books, files, folders, pages, URLs and labels that have been provided by the lecturer. They can also chat to participants in online classes that are followed, express opinions in open forum discussions, work on assignments given and do quizzes.



B. Previous Study

Here, the researcher reviews the other study which related to this study, as follow:

- 1. Students Perception Towards the Use of Quipper School as E-learning Media (A Survey on the Tenth Grade Science Class Students of SMA Negeri Ajibarang in the Academic Year 2016/2017) by Galih Wuri Ekawati (2017).**

This research was aimed to investigate the students' perception towards the use of Quipper School as E-learning media on Tenth Grade of Science Class Students of State Senior Secondary School of Ajibarang. The researcher said that the technology used as learning media could be used to bring a new atmosphere to students in learning English is E-learning. The use of media in the teaching and learning process is needed to attract students' attention and make teaching and learning activities more exciting and useful.

This research used survey through random sampling technique with the students in tenth grade of science class *SMA Negeri Ajibarang* as the population. The techniques for collecting data used were questionnaire and interview. The result of this research-based triangulation showed that students have positive perception about using Quipper School as E-learning media.

The similarity between current research and previous research is about using E-learning in the teaching and learning process. However, the purpose of the two studies is slightly different, where the current research is to investigate students' perceptions of the use of E-learning and the previous research to investigate students' perceptions of the use of Quipper School as an E-learning media. Moreover, the research methodology used in both researches both used surveys.

C. Basic Assumptions

In this modern era, technology has helped many sectors. Starting from the economy to education. Technology in the field of education makes many changes in terms of creating a new atmosphere in the teaching and learning process. One of them is the presence of E-learning, which creates a new style in the teaching and learning process, namely by teaching and learning outside the classroom and outside of class hours. Now, students are more interested in learning by involving many available technologies. An example is the use of E-learning, where lecturers can provide material outside the classroom and students can study it wherever and whenever.

Universitas Muhammadiyah Purwokerto, one of the private universities in Indonesia, has also begun to apply the E-learning technology. *UMP E-learning* or commonly referred to as *Online Class* or abbreviated as *OnClass* has begun to be practised by several lecturers to assist in the provision of material, even for the foreseeable future all lecturers and students are required to use E-learning in the teaching and learning process.

This research aimed to know the students' perception of the use of E-learning in learning English. By knowing this, the perception to be given by the students can be in positive or negative. Since the use of E-learning is convenient and simply used in the teaching and learning process, then, the researcher assumed that the students' perception will be positive.