THE USE OF CONSTRUCTIVISM-BASED ONLINE LEARNING TO ENHANCE STUDENTS' LEARNING ACHIEVEMENT

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Abstract

The aim of this study is to elaborate the use of constructivism based on online learning program. The learners' interaction with learning resources intensively is believed as one of the factors that will facilitate them to attain the course learning goals. There are various online learning resources that can be used by the students to construct learned course substance. Universitas Terbuka (UT), a state higher education that implements open and distant learning system, has to find a better learning approach that can be used to increase students level of interaction with online learning resources. One of the learning approaches that has potential to enhance students learning interaction is constructivism learning theory. Constructivism is defined as a theory that says learners construct knowledge rather than just passively take in information. Learners experience the world and reflect upon those experiences. They build their own representations and incorporate new information into their pre- existing schemas. The use of constructivism learning has the following consequences: 1) Students learn best when engaged in learning experiences rather passively receiving information, 2) Learning is inherently a social process because it is embedded within a social context as students and teachers work together to build knowledge, 3) Because knowledge cannot be directly imparted to students, the goal of teaching is to provide experiences that facilitate the construction of knowledge. This present study involve 35 respondents and used the one group pre-test and post-test experimental design. The result of the study indicated that there was significant difference between pre and post-test scores of the respondents. The use of constructictivism learning theory improved students learning achievement in online learning.

Key Words: Constructivism learning theory, online learning, learning achievement.

1 INTRODUCTION

The advancement of computer and network technology provides a significant impact on the way people learn knowledge and skills. Today the process of learning is very different from the previous time. With the abundance of knowledge and information available on the web, people can easily get the required knowledge and information to achieve the predetermined learning competencies. The use of computer and network technology triggers some new modes of learning. The online and blended learning modes were used to deliver learning substances that can be learned by the students.

Universitas Terbuka (UT), a higher education that employs the open and distant learning mode, used an online learning system to support its student's learning process. UT conducts online learning, which is called online tutorials for all of the offered courses. The ultimate aim of this online tutorial is to facilitate the student's learning process to study the course content..

The students have to enroll in the online tutorial to interact actively with the tutor, the college students, and the course content. It is believed that the active learning interaction will enhance the students' comprehend the course content that is learned. Two ways of communication or learning interaction between the tutor and students, among the students, and between the students and the course content will provide a better chance for the students to internalize the course substances they learned.

Online tutorial mode which is used as the students learning support by UT provides better possibilities for the students to comprehend the substances of the course. The present article will elaborate on the use of constructivism learning theory as a base for conducting the online tutorial program of the Universitas Terbuka.

The study Purposes

The purpose of the study is to find the alternative approach or learning theory that can facilitate the open and distance learning students to attain the objective of the Research Methodology course – the students must be able to write a research proposal that is based on their study and research interest.

Research questions

This research and development study proposes the following research questions such as:

1   How do the students gain knowledge and skills to be learned through online learning?
2   Is the constructivism approach or learning theory integrated into online learning able to facilitate the students to attain the course learning objectives effectively?

2   METHODOLOGY

Thirty five respondents were engaged in quasi experimental research design. The one group pre and post-test design was implemented in this present study. The online quasi learning constructive-based program was uses as a treatment of their experimental research design.

Pre and post session were conducted to get information regarding the gain score result or the impact of the constructivism based-online learning. T test analysis was used to get information regarding the significant change of the program.

2.1 Literature Review

2.1.1 Online Learning.

Dwyer, Barbieri, and Doerr, (1995) noted that online and web-based learning provides significant new functionality in conveying knowledge and information to the student. In addition, online and web-based learning provides students with forums for exchanging information and knowledge. The web is revolutionizing some areas of study through increased possibilities for learning and alternative formats for gaining required knowledge and information.

The term online learning is used to describe the distance or correspondence courses that deliver the content through the Internet. Online learning program covers a wide range of subjects, audiences, and prices. This educational model is growing in popularity as a cost- effective method of providing access to education for a large population.

Universitas Terbuka provides wide access for the students to learn the course substances through online learning. All of the Universitas Terbuka courses are offered through the online learning program. Online learning is not the main learning activity for students. It is aimed as a learning support system that can facilitate the student's learning process to attain the course learning objectives.

By participating in an online learning program the student will interact with the online learning program offers a chance for the students to build and explore the content of the offered course. The learning interactions that occur in the online program enable the student to build and construct their knowledge and skills to achieve the predetermined competencies of the courses.

Aspilera (2010) noted the nine potential benefits of the online learning program as (1) schedule flexibility; (2) ease of accessibility; (3) range of options; (4) students control of study time; (5) chance for learning interaction; (6) online communications; (7) time to absorb material; (8) money saving option; (9) no more expensive textbooks. (https://www.worldwidelearn.com/education-articles/benefits-of-online learning.htm).

In addition, Heap (2017) stated the following learning advantages for the students who participate in an online learning environment:

1   Studying online gives the students more flexibility in learning;
2   The students experience a flexible schedule and environment;
3   The students pay the financial cost of studying;
4   The students implement self-discipline and responsibility;

5   The students can focus on the learned subject and substance.

Besides providing some advantages for the students participating in online learning also provides some of the following disadvantages. Hutt (2017) noted some disadvantages of online learning such as:

1   Online education requires immense self-discipline;

2   Lack of direct interaction with the instructor;

3   Lack of company from other students;

4   The workload is bigger than in traditional education;

5   The online learning institution might not be accredited.

To implement the online learning program effectively, the Universitas Terbuka must design and develop a program that uses the appropriate theory and approach that enables the students to construct knowledge and skills.

2.2   Constructivism approach

Constructivism is an approach to teaching and learning which is based on the view that cognition or learning is considered the result of "mental construction." In this matter, the students learn by integrating new knowledge and information with the knowledge and information they already know. Constructivists believe that learning is caused by the context in which the knowledge and skills are taught as well as by students' beliefs and attitudes.

Constructivism learning theory explains how people might acquire knowledge and learn. This theory, therefore, has direct application to education. The constructivism learning theory suggests that humans construct knowledge and meaning from their experiences. It is not a specific pedagogy. Piaget's noted that Constructivist learning has had a wide-ranging impact on learning and teaching activities. It is considered an education reform movement.

Constructivism is a theory that is based on observation and scientific study, about how people learn. Bereiter (1994) says that people construct their understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we have to reconcile it with our previous ideas and experience, maybe changing what we believe, or maybe discarding the new information as irrelevant. In any case, we are active creators of our knowledge.

To create new knowledge and skill, the learner must ask questions, explore, and assess what they know. In the classroom, the constructivist view of learning can point toward several different

teaching practices. In the most general sense, it usually means encouraging students to use active techniques (experiments, real-world problem solving) to create more knowledge and then to reflect on and talk about what they are doing and how their understanding is changing. The teacher and instructor have to make sure he/she understands the students' pre- existing conceptions and guides the activity to address them and then build on them (Oliver, 2000).

Constructivism as a paradigm or worldview proposes that learning is an active, and constructive process. The learner is an information constructor. They actively construct or create their subjective representations of objective reality. The new information is linked to the prior knowledge to build new comprehension of the concepts or knowledge.

3   FINDINGS AND DISCUSSION

The use of the constructivism learning approach in online learning of the research methodology course encourages the students to elaborate on the course content. Besides, the constructivism-based online learning program also enhances the knowledge and students' learning achievement in the research methodology course.

The characteristics of the constructivism learning theory such as active learning, scaffolding, too-way-learning interaction, and spiral curriculum, were implemented to produce a constructivism-based online tutorial program that aimed not only to increase the student's learning achievement but also their learning motivation.

The formative evaluation of the program which employed the three evaluation stages of the program indicated the positive results of the study. The result of the one-to-one evaluation step of the program showed that the students as the respondents enjoy online learning with the constructivism theory-based used as the instructional strategy.

The small group evaluation with the eight students or respondents indicated that the use of the constructivism approach in online tutorials provides the students to actively interact with tutors, colleagues, and course materials.

At the field try-out session, the revised program which implemented the constructivism approach showed a significant impact on students' learning achievement in the research methodology course.

The one group pre-and post test design was used in the program field try out a fre -test was conducted before the respondents received treatment-learning with constructivism-based oline learning. I was found that the program of constructivism online learning has a significant impact

on respondents learning achievement. The students learned better with constructivism based online learning The result of the study can be shown in Table 1.

Table 1. The formative evaluation results of the study.

Formative evaluation step	Data gathering method	Evaluation results
One-to-one evaluation stage	Focus group discussion with three students who use the constructivism-based online learning program	The students as the respondents enjoy learning with the program of constructivism theory-based online learning.
Small group evaluation stage	Program try out with 8 respondents who use the constructivism-based online learning program	The use of the constructivism-based online learning program enhances students' learning motivation. They enjoy learning interactively with tutors, colleagues, and course content in both synchronous and asynchronous modes.
Field try out	Program try out with 32 respondents who use the constructivism-based online learning program	The constructivism-based online learning program significantly gave a significant impact on the student's learning achievement. The students were able to achieve the predetermined learning objectives.

4   CONCLUSION

Implementing the constructivism learning approach to an online tutorial program enhances the student's learning achievement in the research methodology course. The use of the constructivism approach in online learning enables distant learners to elaborate on course content actively. In addition, by actively participating in the constructivism online learning program the students will do interactive learning with the tutor, colleagues, and the course substances. The learning interaction between the students and tutor and among the students is done both synchronously and asynchronously.

The constructivism approach used in online tutorials provides some benefits for the student in studying the research methodology course. It gives the students more flexibility in learning, the students experience the flexible schedule and environment, the students implement self-discipline and responsibility in learning, and it can focus the students on the learned subject and substance.

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