

The Implementation of Constructivism Learning Theory In Open and Distance Learning Materials: An Innovative Idea

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Abstract

Distance learning university has unique characteristics. One of them is the amount of student which is usually larger than the conventional university. In order to serve its students better, both academic and administrative, the distance learning university usually applies a uniform approach in designing students' learning activities. The approach covers learning process and examination component. The reason of using this approach is mainly based on managerial factors. The uniform approach which is associated with behavioral learning theory limits the creativity of distance students to construct their knowledge. It is necessary for the distance learning students to have a broad spectrum of knowledge used in daily professional activities. The purpose of the present paper is to elaborate the possibilities of using other approach that will be able to enhance student knowledge. Instead of using uniform or behavioral approach, there are possibilities to apply constructivism learning theory in printed material to be used distance learning system.

Key Words: constructivism learning theory; printed learning material; open and distance learning.

Background

Distance learning system has been used to solve educational problems both in developing and developed countries. The use of the system is aimed to widen access for the society to improve its educational level. The system has been used as an alternative way for the citizen to enroll in available educational systems. Distance learning system has significant different with regular educational systems which really depend on the face – to – face interaction between student and instructor.

The use of technology and communication system is very important in conducting the distance learning system. There are various technology and communication system that can be used in delivering instructional content of the system. Those can be classified as electronic and non-electronic learning materials.

Most of the open and distance learning universities in the world – including Universitas Terbuka (UT) - use printed materials to deliver their instructional content to their students. UT uses printed materials as main delivery mode of its instructional content. The selection of the printed material as a delivery method is based on its low production cost and universally access by the students.

The instructional design applied in UT's printed materials is very tight structure in common. The content of those materials generally is very dense. In addition, the printed learning materials consist of instructional guide to be used by the students to achieve predetermined instructional objectives.

UT's students tends to used these printed - materials as the only sources to study the skill and knowledge. The design gives no chance for the students to use other learning resources to wide students' knowledge and skills. To solve this problem, it is necessary for UT to find an alternative approach of designing printed learning material that can be used to increase students' knowledge and skill.

Profile of UT

UT, considered as one of the mega universities in the world due to its student body, was founded in September 4th, 1984. Recently UT serves 522.960 active students who study in five available faculties such as:

- Mathematics and Natural Science Faculty

- Social and Political Science Faculty
- Economic Faculty
- Educational Faculty
- Faculty of graduate studies

Around 80 % of UT's student body is teacher who domiciles in outside of Jakarta. UT conducts 32 study programs and one postgraduate program. So far UT has around 670. 690 graduates or alumni who have worked in various areas in Indonesia.

The biggest challenge that UT has faced now is to improve the quality of the teacher in Indonesia. The operational cost of UT is less than IDR Six millions per student per year. With these limitations UT has to increase the quality of its learning system. One of the strategies to achieve this objectives is to improve the quality of its learning materials.

The role of learning materials in ODL system

Learning is considered to be an individual effort done to achieve competencies in certain area. In order to deliver the content, it is necessary for the ODL to use learning material. The use of learning materials in open and distant learning system must be designed to achieve the objective – to facilitate students' learning process. By using the material the student will be able to do an effective and efficient learning process.

The open and distance learning system has several characteristics that differ significantly from the conventional learning system. Michael G. Moore and Greg Kearsley (1996) state several characteristics of the ODL such as:

- Separation of teacher and student
- Influence of an educational organization
- Use of technical media
- Provision of two-way communication
- Possibility of occasional seminars
- Participation in the most industrial form of education (p.206)

The separation of teacher and student is one of the characteristics that force open and distant learning system to use technology and learning material in its operation. The use of learning material is very important in conducting open and distance learning system.

UT uses various types of learning material which includes printed and non-printed materials. Printed learning material is used as a main delivery system of the course content. Non-printed learning materials such as audio, video and computer based programs are used to deliver the content which is difficult to be learned in printed materials. In other words, the use of non-printed learning material is designed as an enrichment of course content delivered through printed learning material.

Sharon E. Smaldino, et.al, (1996) noted the specific role of learning material used in distance and open learning system which includes:

- Information presentation
- Student – teacher interaction
- Student – student interaction
- Access to learning resources. (p. 158).

In general, the open and distance learning institutions in the world use printed learning material as a main device to deliver its instructional content. There are several considerations of using printed material as a major delivery system of the instructional content of distance and learning institutions

such as: familiarity to its user; low production cost; random access; and high adaptability. (Keegan, 1990).

The printed learning material used in open and distance learning institutions should be well designed to achieve a specific need of its students. Moore and Kearsley (1996) state several principles of an effective and efficient open and distance learning printed material which includes:

- Good structure
- Clear objectives
- Small units
- Complete
- Repetition
- Synthesis
- Stimulation
- Variety
- Open-ended
- Feedback
- Continuous evaluation (p.122-123)

UT uses learning material with a very specific approach. The printed material, which is also called learning modules, represents a course of the study. The course of study is divided into several sections or units. A course with two credit semester value for example consists of six learning sections while a three credit semester course consists of nine sections. Each section covers several learning topics and activities.

The purpose of this very tight structure design is to create systematic learning process of the students. In addition, each section of printed learning material covers complete course content. UT is also implement “self-learning” approach in its printed learning material. The purpose of using this approach is to facilitate students’ learning process.

The students of UT are highly dependent on printed learning material. Since its covers a complete course content, the students tend to use the printed material as the only learning resources to achieve predetermined learning objectives or competencies.

The very tight structure and complete coverage of course content will create a negative impact to students learning habits. They have lack of efforts to widen their horizons - knowledge and skill. Students are very dependent of using available of printed learning material. They usually have no skill to develop and to construct their own knowledge.

Learning result will be better if the student uses various kind of learning materials while conducting learning process. Interacting and comparing various learning material will contribute students’ effort to construct their own knowledge and skills. It is necessary for UT to find an alternative approach to design an effective and efficient learning materials that can be used to widen students’ skills and knowledge.

Constructive learning theory

In general there are three types of learning theories which are widely known. Those are: behaviorist; cognitive; and humanistic. Each of these theories has different perspective on how learning happens to human being. The behaviorist learning theory focuses its attention to how external factors influences learning process. The cognitive learning theory describes the mental function of human learning. Humanistic learning theory explains the role of motivation in individual development.

Constructivism is considered part of the cognitive learning theory which is closely related to other learning concepts such as discovery and meaningful learning. The use of constructivism approach in

learning activities is aimed to maximize students' comprehension. (Cruickshank, 2006, p. 255). Anita Woolfolk defines constructivism as: "...view that emphasizes the active role of the learner in building understanding and making sense of information. (p. 323). Constructivism approach view learning as a process of building knowledge and skills of the students. To build their own knowledge and skills, it is necessary for the students to interact with various type of learning materials which are relevant to the instructional objectives.

Donald R. Cruickshank (2006) states several learning activities that are considered necessary in implementing constructivism approach such as:

- Collaboratively formulating questions
- Explaining phenomenon
- Addressing complex issues
- Resolving problems (p. 255)

One of the important factors that should be considered in implementing constructivism approach is the student support and assistance in form of the following methods:

- Prompts or clues
- Explanations
- Demonstration
- Coaching
- Adding learning resources (Donald R. Cruickshank, 2006, p.80)

The objective of implementing constructivism approach in learning activities is to provide students with the specific abilities in searching, understanding, and applying knowledge and skill. Cruickshank (2006) notes several characteristics of the the constructivism approach to learning such as: (a) Active learning; (b) Learner should engage in authentic and contextua activities; (c) Learning activities should be interesting and challenging; (d) Bridging; (e) Learner should think about what is being learned; (f) Learning takes place best in communities of learners; (g) Teacher facilitate the acquisition process of information; (h) Teachers must provide learners with assistance or scaffolding.

Students has to be an active person in constructing the meaning of the concepts. They have to interact with other students and also the teacher to explore the concepts. In addition. they must involve in contextual situation to apply the concepts. Learning events should be designed related to students' learning needs. Learning process should provide a chance for students to solve the problems. Bridging – connecting old and new learned concepts – is necessary to facilitate students learning process. Students will learn better if they know waht has been learned. Interaction among the students is required to provide chances for them to share and build meaningful knowledge. Scaffolding – providing systematic help to students during their learning process – is necessary in implementing constructivism approach. Teachers in this matter has a significant as a facilitator.

According to the constructivists, learning is viewed as an active process. The students have to search a meaningful knowledge and information to be applied in contextual situation. The students are not passive learning object. They must be able to construct knowledge by connecting the instructional content to previous learned concepts. Learning is an active process of finding, understanding, and implementing knowledge to solve contextual problems. Open and distanced learning students, in this matter, must be able to construct their own knowledge and skills. They must be highly competent in gaining new comprehension of their learning experiences.

Implementing constructive learning theory in ODL system

The aim of implementing constructivism approach in open and distance learning printed materials is to provide UT's students with skill that can be used to search, to explore, and to connect knowledge and information related to individual needs. It is done by integrating principles and important

characteristics of the constructivism approach into design and development UT's printed learning materials.

Several important concepts of constructivism such as: explanations; prompts or clues; demonstration; coaching; and adding learning resources should be integrated into the content of the UT's printed materials. Printed learning materials of UT should provide explanation of the content designed completely and systematically to facilitate students' comprehension. Prompts and clues are provided to direct students' attention to study the important concepts. Demonstrations and examples of how to implement concepts into contextual situations should be given to widen students skill in using the concepts. Coaching has to be given to facilitate students to understand some difficult concepts. Informations regarding the other learning resources appropriate to the concepts should be provided to give students which chances to explore the concepts.

This can be shown in following diagram.

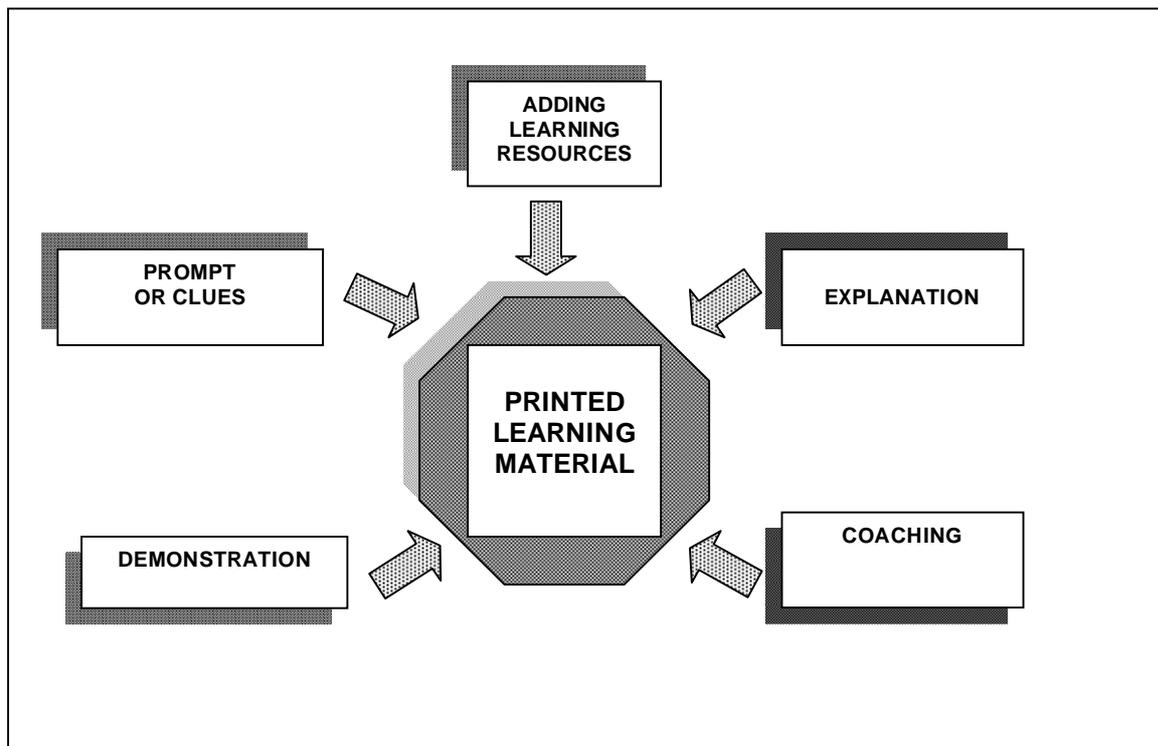


Diagram 1. Integrating constructivism into distance learning material

Integrating principles of constructivism into UT's printed learning materials requires several considerations such as:

- Students has to be an active person in constructing the meaning of the concepts to be learned. Learning materials should provide content that provide a chance for the students to explore the knowledge and skills.
- The student have to interact with other students and also the tutor to explore the concepts in learning materials;
- The students must involve in the contextual situation to apply the concepts. Learning should
- Learning events in learning materials should be designed related to the students' learning needs;
- Learning process should provide a chance for students to solve the problems;
- Bridging – connecting old and new learned concepts – is necessary to facilitate the students' learning process.
- Students will learn better if they know what has been learned. Interaction among the students is required to provide chances for them to share and build meaningful knowledge. Learning

materials should consist a chance for students to express knowledge and skills that has been learned;

- Learning materials have to provide scaffolding by facilitating students to understand difficult concepts. Concepts explained in the learning materials should include several contextual examples to enhanced students comprehension.

The explanation of courses content in printed learning material of UT should integrate the important role of teacher which includes: guiding; motivating; intriguing; expounding; explaining; provoking; reminding; asking questions; discussing alternative answers; appraising each learner's progress, giving appropriate remedial or enrichment. UT's learning materials should consist of some above instructional strategies so it can involve the students in learning activities that make them understand the concepts.

The team of instructional development who responsible to design and to develop distance learning materials of UT has to insure that students must be able to construct their own knowledge by exploring and finding the meaning of the concepts to be learned. This can be achieved by connecting new learned concept with the previous one. In addition, the students must have a chance to explore and to implement the knowledge to be studied by adding relevant learning resources.

Summary

UT is one of the state universities in Indonesia which conducts its learning process through open and distance learning system. Printed learning material is the ultimate delivery system used to communicate course contents to its students. The design of UT learning material is highly structured and self contained. The students of UT are very dependent on printed learning materials. They frequently viewed that printed material is the only learning resources to be studied in order to achieve predetermined competencies. This will limit the students' horizon in acquiring knowledge and skills.

In general, they will have no adequate skills to apply learning how to learn. In addition, they also have no chances to construct their knowledge since they only used modules as the only one learning resources. Constructivism approach offers an alternative way to provide a chance for UT students to enhance their knowledge and skills. This can be achieved by integrating principles and important characteristics of constructivism learning theory in designing and producing UT's printed learning materials.

References

- Cruikshank, Donald R. Deborah B. Jenkin, & Kim K Metcalf. (2006) *The Act of Teaching*. New York : Mc Graw Hill.
- Dick, Walter. Lou Carey & James O. Carey (2005). *The Systematic Design of Instruction*. New York: Pearson.2005
- Dryden, J. dan Vos, J. (2000) *Revolusi Cara Belajar*. Bandung : Kaifa.
- Gagnon, G.W. dan Collay, M. (2001). *Designing for Learning: Six Elements in Constructivist Classrooms*. California: Corwin Press, Inc.
- Jonassen, David H. Ed. (1996) *Handbook of Research for Educational Communication and Technology*. New York : Macmillan Library Reference. 1996
- Keegan, D. (1990) *Foundation of Distance Education*. New York: Routledge.
- Moore. Michael .G, & Greg Kearsley. (1996) *Distance Education: A System View*. Belmont: Wadsworth Publishing co.
- Miarso, Yusufhadi (2004). *Menyemai Benih Teknologi Pendidikan*. Jakarta: Penerbit Kencana,
- Newby, Timothy J, Donald R. Stepich, James D. Lehman & James D. Russel. (2000) *Instructional Technology for Teaching and Learning : Designing Instruction, Integrating Computers and Using Media*. New Jersey : Prentice Hall Inc.

- Race, Phill (1999). *2000 Tips for Lecturers*. USA : Kogan Page.
- Reiser, R.A. dan Dempsey, J.V. (2002.). *Trends and Issues in Instructional Design and Technology*. Ohio: Merrill - Prentice Hall.
- Rowntree, Derek. (1990). *Teaching Through Self-Instruction : How to Develop Open Learning Materials*. New York : Kogan Page.
- Smaldino, E.S, Lowther, D.L., Russel, J.D. (2008). *Instructional Technology and media for Learning*. Pearson: USA