Constructivist approach in virtual universities

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Abstract

With applying the constructivist approach in virtual university, learners can learn based on their learning style, information and skills to succeed in life and also in their job. Virtual universities foster constructivist learning and the strategies in constructivist learning can foster in-depth learning and practical application. Integration of communication and information technologies into design curricula offers significant potentials for design environment, through their capacity to facilitate designing in new learning environments, and advancing research and development in learning theories. Based on the main aspects of the constructivist approach, traditional universities and classroom cannot provide the conditions for learners to construct the knowledge for themselves completely, for this reason virtual university with applying the communication and information technologies (ICT) can implement constructivist strategies as well as in the process of teaching and learning. In virtual university, Constructivism fosters the learner's skills to solve real-life problems and practical problems.

Keywords: Virtual university, construtivist approach, communication and information technology;

1. Introduction

In new age the communication and information technologies can create new challenges and opportunities in design the programs in education. This means in design education we need consider of new pedagogical approaches with new strategy such as constructivism. An innovative approach to design education should include a demonstration of the impact of computer technologies on "new ways of designing" (Kvan et al., 2004). Bailey (1996) pointed out that new technologies, such as the use of multimedia, can afford rich opportunities for constructivist approaches in the field of education. Just what is constructivism? Simplified, it has been described as learning by assembling meaning from pieces of reality (D'Ignazio, 1992).

The constructivism theory is pioneered by Jerome Brunner in 1966. The main concept of this theory is that learning is an active process where students construct knowledge or new concepts based on their experiences. Students are said to construct knowledge by using their cognitive structure (Sharifuddin, 2009). Constructivists would creating agree that learning is constructed within the mind of the learner and that genuine transferable knowledge is more likely to occur when the emphasis is shifted from activities that teachers do to those that students should perform (Bailey, 1996).

Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own rules and mental models which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences. The purpose of learning is for an individual to construct his or her own meaning. Not just memorize the right answers and regurgitate someone else's meaning. This implies that the theory of constructivism stresses on active learning when the students' role is more important compared to those of the teachers'.

Students need to gain new knowledge based upon their current or past knowledge. Instructors should try their best to encourage their students in finding new principles on their own effort. In order to achieve the objectives, both

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the instructors and students must have an active dialogue. When delivering the learning materials to the students, always it must based on the current knowledge and understanding of the students. Then we should consider learning as a process that engages students in active learning and cause students construct their learning. Using the constructivism in designing instructional materials covers a broad spectrum. One of the famous models in constructivism is Laurillard conversational framework.

2. Laurillard's conversational framework

This framework can be considered both learning theory and a practical framework for designing educational environments. Higher education, according to Laurrillard conversational framework is much about acquiring "ways of seeing the world". Associated pedagogic strategy has to consider different forms of communication and associated mental activities: Discussion, adaptation, interaction, reflection (Sharifuddin, 2009).

2.1 Design of learning environments

Laurillard's framework includes four important components:

Teacher's concepts

Teacher's constructed learning environment

Student's concepts

Student's specific actions related to learning tasks (Laurillard, 1993).
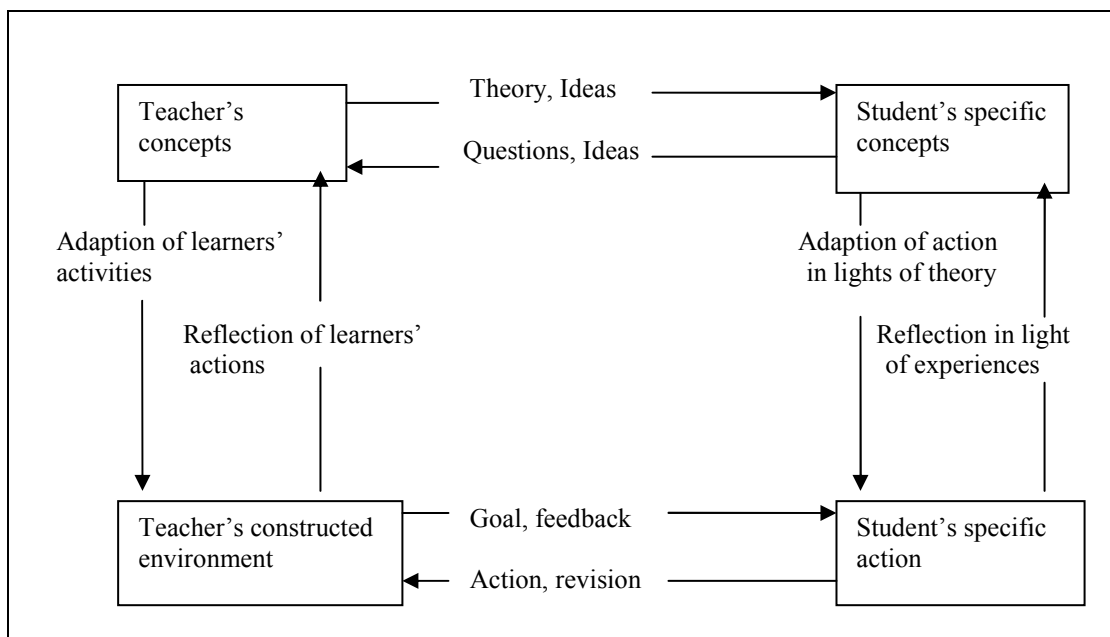

Figure 1. Laurrillard conversational framework

Each (larger) pedagogical scenario should include all four kinds of activities (communication forms) that happened in 8 kinds of "flows" in the model.

(1) Discussion between the teacher and the learner

- Teachers' and learners' conception should be mutually accessible
- Both should agree on learning objectives

(2) Adaptation of the learners' actions and of the teacher's constructed environment.

- Teacher must adapt objectives with regards to existing conceptions
- Learners must integrate feedback and link it to his own conceptions

(3) Interaction between the learner and the environment defined by the teacher

- Teacher must "adapt to world", i.e. create an environment adapted to the learning task given to the learner
- Teacher must focus on support for task and give appropriate feedback to the learner.

(4) Reflection of the learner's performance by both teacher and learner

- Teacher should support the learner to revise his conceptions and to adapt the task to learning needs
- Learners should reflect with all stages of the learning process such as: initial concepts, tasks, objectives, feedback (Laurillard, 2002).

Based on Laurillard's conversational framework, designers can investigate the relationship between lecturers and students at virtual universities and indicate that establishing empathetic relationship with students is a pre-requisite to successful interaction with them. Also designer can provide kinds of activities and communication forms (discussion, adaptation, interaction, and reflection) at the process of teaching and learning at virtual universities. Using this strategy in virtual universities is new pedagogy with unique relationship between teachers and learners.

3. Why constructivist approach in virtual university?

Based on various possibilities made available by the modern technologies in virtual universities, and considering demands of the present age, it is necessary that teachers and students become familiar with the new approaches and strategies and the procedure of employing them. In fact the educational elements including universities are committed to try to train teachers and students with information literacy. That is, individuals who can, instruct and learn use new course programs, along with desirable use of types of' equipment, possibilities and opportunities of the future world, and in that new world be the source of positive changes and developments as well (Abdoli Sejzi, 2012). In virtual university, constructivism is an approach that can be adopt with purposes that mentioned above. According to constructivist approach designers can provide strategies in the process of teaching and learning that facilitate the use of modern technology in virtual university. Constructivism characterizes how individuals construct

their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences (Mahoney, 2004 & Huitt, 2003).

The constructivism approach relies on an understanding of how students interact with courseware; the assumption is that, knowledge is constructed by the students themselves, not through the delivered of the courseware (Winn, 1993). In this constructivist view, the knowledge is constructed, not transmitted and the students actively learn (Jonassen, 1999). In learning as constructivist activity, the role of teachers is "to help and guide the student in the conceptual organization of certain areas of experience" (Glasersfeld, 1983). Communication technologies must do more than enhance the private learning process. Interactive communication does more than merely convey information (Garrison, 1993). Constructivist can create environments where learners are required to examine thinking and learning processes; collect, record, and analyze data; reflect on previous understandings; and construct their own meaning (Crotty, 1994). According to constructivist approach like complexity, diversity is one of the characteristics of life which is to be reflected into the constructivist learning environments. General principles and single models do not always apply to all situations and cases in life. People differ in their social backgrounds thus their perceptions about the matters they encounter may be multiple. Multiple perspectives are widely accepted among constructivists (Duffy and Cunningham, 1996; Honebein, 1996).

By applying the constructivist approach in virtual university can provide the opportunities for exploration and manipulation in the virtual environments, and provide opportunities for discourse between students and other users" of the environment as well as providing opportunities to actively build skills and knowledge in relation to their interest. Focusing on what participants want is very important to designing any type of learning environment, so researchers should study the personality characteristics of users who find virtual university of value.

4. The main aspects of the constructivist approach

Here we only summarize the main aspects of the constructivist approach which can be used as guidelines for designing the virtual classroom: (Pigliapoco and et al., 2008).

1- Active learning: Knowledge is actively constructed rather than passively acquired by the individual (Duffy, and Cunningham, 1996; Schroeder, and Spannagel, 2006).
2- Context-specific learning: Knowledge construction is an adaptive process affected by the specific context and by the environment (Jonassen, 1994; Lesgold, 2004).
3- Social learning: Knowledge is rooted not only on biological and neurological mechanisms, but also on social and cultural interactions among people who agree on a common perception of a given subject (Heylighen, 1993; Gardner, 2005; Vygotsky, 1978).
4- Formative evaluation: While summative evaluation is performed at the end of the learning process with the only purpose of verifying that teaching objectives are met, formative evaluation is carried out during courses and it is integral part of the learning process (Screven, 1967; Yorke, 2003).

Constructivist approach in learning is one of the characteristic of education in new age. With the rapid developments in technology and availability, there is a need for a generation of people who can analysis and reason in this age of technological growth.

With adapting the constructivist approach into the virtual university and online learning, students will earn the opportunities to construct their own knowledge by using their different cognitive abilities to learn and interact with others.

Also with considering the constructivist approach in virtual university, we employ information and communication technologies in teaching, allow students to design and collaborate within learning, and teaching and learning need to be consistent with meeting students' future needs. Also students can develop some capabilities including: self managed learning ability, critical thinking, analytical skills, and communication skills. And students can understand fundamental concepts, relevance, challenging beliefs, active learning, and flexibility in the process of teaching and learning (Abdoli Sejzi, 2012).

5. Conclusion

Constructivist approach provides support for formative evaluation and active, context-specific, and social learning. Based on constructivist theory, learners actively construct meaning for themselves in the process of teaching and learning. Employing information and communication technologies in virtual universities, create hypermedia' designs for learning, applying Laurillard's Conversational framework, using the learning management system (LMS) and learning content management system (LCMS), and using virtual learning applications like computer-conferencing and videoconferencing can provide constructivist conditions for learning, that has the potential of changes in the online teaching and learning. Virtual university with applying constructivist approach and constructivist learning principles can be promising at promoting learners' knowledge and communicative skills as well as at fostering their autonomy. And constructivist approach fosters a belief that high quality in teaching and learning can happen anywhere and anytime.

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