

## Chapter 2.4

# A Description of Online Instructors Use of Design Theory

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### ABSTRACT

In a recent dissertation study, research was conducted to evaluate online instructors' characteristics and preferences concerning the use of a telementor, or online instructor's assistant, as a part on an online course. Those who participated in the anonymous survey came from a sample of two thousand online instructors from colleges and universities located across the United States. Of those contacted, 323 online instructors responded to the survey. Results presented in this article were produced using data from nine of the questions included in the survey. These Likert Scale questions specifically asked the instructors about their use of theory of multiple representation, Gagne's conditions of learning, instructional transaction theory, cognitive flexibility theory, three form theory, dual-coding theory, elaboration theory, theory of transactional distance, and theory of

immediacy and social presence. Outcomes showed that a larger number of online instructors applied design theory when creating a course compared to the instructors who indicated that they did not apply design theory. Descriptive results presented illustrate how often the participants said that they utilized each of the different theories.

### INTRODUCTION

Distance education has become an alternative when taking a course or earning a degree (Chu & Hinton, 2001). Researchers stated that taking an online course is one example of distance education through which students participate at different times from different locations (Simonson, Smaldino, Albright, & Zvacek, 2000). Colleges and universities that offer online courses have chosen to use course management systems because

of the alternatives and flexibility options that they provide (Course-Management Systems, 2005).

One feature of a course management system often used by students and instructors is the asynchronous board feature, or venue for written discussion. Studies on the use of the asynchronous board tool showed that there are advantages and disadvantages to using the tool (Makrakis, 1998; Collins & Berge, 1996; Prestera & Moller, 2001). Providing instructors and students with a telementor, or online instructor's assistant, was one possible solution to reducing the disadvantages experienced during asynchronous discussions. A dissertation study was conducted to identify online instructors' characteristics and preferences concerning the utilization of a telementor. To help identify the instructors' characteristics, participants were asked how often they utilized nine specific design theories when developing an online course (Cicciarelli, 2006, 2007).

## **REVIEW OF LITERATURE**

Research showed that when online instructors design a course, they can use theory to guide the development process. Theories used by instructors tended to come from the three schools of psychology known as Behaviorism, Cognitivism, and Humanism. Behavior theories have made use of the environment to influence actions. Theories that are cognitive-based have focused on meaningful ways of learning that included authentic learning experiences, and tasks that are declarative and procedural. Humanistic theories, which attended to students' affective needs, concentrated on students' feelings, emotions, values, and attitudes. The nine theories presented in this article are a part of the three schools of psychology (Cicciarelli, 2006, 2007).

## **Theory of Multiple Representations**

The theory of multiple representations, a cognitive-based theory, held that the learner can take information and make it more meaningful by connecting multiple representations to the content. There are researchers who supported the use of this theory, and there are those who cautioned against its use during instruction (Gfeller, Niess, & Lederman, 1999; Huang & Liaw, 2004). Gfeller, et al. (1999) studied the perceptions of preservice teachers. They looked at their understanding of mathematical concepts and their ability to develop different representations of concepts that they would eventually teach in the classroom. The results showed that the teachers who had a mathematical background were better able to develop a number of representations which would make it easier for them to understand their future students' different views of the subject matter when compared to the preservice teachers with a scientific background.

## **Cognitive Flexibility Theory**

Researchers studied the process of thinking and learning as children developed. Cognitive theory has been used to guide the interaction between students, the instructor, and the content. When this theory has been applied, students take their conceptual knowledge about a situation and relate it to new situations. This helps their understanding of a concept so they can move from a more basic understanding to one that is more complex (Huang & Liaw, 2004). Jonassen (2003) explained that when students have been presented with a problem, the problems have tended to be presented in a structured way. He indicated that real life problems are not structured, and since it has been recognized that transferring problem-solving skills to real life situations was

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