Chapter 4
Instructional Design for the Technological Learning Environment

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ABSTRACT

Education is constantly changing to not only meet the ever changing needs of the global business environment, but to also meet the needs of the students. The needs of the students are constantly changing because of technology and increasingly diverse backgrounds and cultures that change the ways education occurs. Studies have shown that the demands continue to grow for education to continue to transform to meet the needs of today's diverse technological learners. Faculty, teachers, and instructional designers must adapt to the evolution of the learning environment. The purpose of this chapter is to aid faculty and teachers in the design of curriculum for tomorrow's students, by adding them with the trial and error of the development phase. The two objectives are to aid in the development of instructional design along with further meeting the needs of our students and to help remove some of the trial and error in the development process.

INTRODUCTION

Instructional design is the intangible manuscript used to develop instruction. The design usually includes analysis, development, implementation, and evaluation (Magliaro & Shambaugh, 2006). Kennedy (1994) explained that teachers and instructional designers in the classroom tend to view instructional design differently. Research has shown that instructional design is a key intellectual process that influences the development and design of effective learning settings in the field of instructional technology (Nelson, Magliaro & Sherman, 1987; Magliaro & Shambaugh, 2006). Instructional design models that describe the process have been used by teachers and designers in the development of technological products and instruction (Branch & Gustafson, 2002; Magliaro & Shambaugh, 2006). The way in which the instructor presents the instructional design process can have a positive or negative effect on the student. The initial presentation of the instructional

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design process can have a powerful influence on understanding for students and help to determine if the student will use the design. Norman (1983) labeled this theoretical representation as the conceptual model. Norman (1983) stated "as teachers, it is our duty to develop conceptual models that will aid the learner to develop adequate and appropriate mental models" (p. 14). These mental models should help the students to make possible connections between new and old content, and to aid the teachers in the development of new methods to deliver the curriculum.

Education is constantly changing to not only meet the ever changing needs of the global business environment, but also to meet the needs of the students. The needs of the students are constantly changing because of technology and increasingly diverse backgrounds and cultures that change the way in which education occurs. Studies have shown that the demands continue to grow for education to continue to transform to meet the needs of today's diverse technological learners (Aykin, 2005; Edmundson, 2007a; Young, 2008). Faculty, teachers, and instructional designers must adapt to the evolution of the learning environment. Patel (2010) stated "instructional systems design programs must adapt to the evolution in the ways that learning is designed, developed, implemented, and delivered" (2010, p 42). Implementation for today's learners should be developed and designed around today's learner. Educators need to find new ways of implementation for the curriculum that would be more appealing to the technological learner. Young (2008) stated " models of culture have traditionally been constructed to explain humanity and our planetary existence, explore diverse learners and learning, and provide a frame work for cross-cultural analysis, research, and design" (2008, p.107). Educators need to take the steps now to develop new ways of designing curriculum for tomorrow's students.

The primary purpose of this chapter is to aid faculty and teachers in the design of curriculum for tomorrow's students. The two objectives are to aid in the development of instructional design along with further meeting the needs of our students and to help remove some of the trial and error in the development process. As a former K-12 teacher I have always been challenged with the task of designing and implementing new curriculum that would use more technology to meet the needs of my students. I developed and implemented the curriculum without any direction. This chapter should give some of the direction that I looked for during my time in the K-12 system.

LAYING THE GROUND WORK

Instructional design is the practice of design instruction, delivering the curriculum, and evaluating student knowledge (Skowron, 2006). Educators must remove themselves from the mind-state of the classroom walls when developing strategies for instructional design. Ryder (2010) defines instructional design models as an optical representation or framework of the process. Studies have shown that instructional design is taught in more of a procedural manner during teacher preparation; however, in actual practice instructional design aligns more with a form of complex problem solving for the designer (Hardre, & Thomas, 2006; Jonassen, 2000; Perez, & Emery, 1995; Silber, 2007). Instructional design and technology tend to take more of a constructivist perspective in American education (Fox, 2006). Observing knowledge not as "something we acquire but something that we produce," (Mautner, 1996, p.83), constructivists have dared the field to scrutinize more carefully its philosophical and epistemological assumptions (Fox, 2006). The instructional design model should show us how the students learn; it is the guide for the instructional designer to develop instruction (Gustafson, & Branch, 2002). Models support us in the understanding of a practice or system, placing complex real world circumstances into easy steps that are mobile in application (Gharbaghi, Hamdani &Sharifuddin, 2011).