

## Chapter 9

# Implementing Technology and Designed-Based Solutions to Create an Online Learning Environment

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### ABSTRACT

*Technology has radically altered not only access but also how instruction is delivered. Modern learning management systems (LMS) improve access to instruction by removing the barriers of time and of location. Students can literally go to school anywhere at any time. The use of learning technologies online has become a ubiquitous practice as a result of the spread of the internet. Even though the quality and value of technology-based instruction has rapidly increased, the use of e-learning technologies does not automatically guarantee good instruction. Even though the quality and value of technology-based instruction has rapidly increased, the use of e-learning technologies does not automatically guarantee good instruction. This chapter is about the choices and the design decisions that impact the delivery and deployment of technology-based instruction. Each of these choices requires an understanding of the trade-offs that the decision makers need to consider.*

### INTRODUCTION

Technology has altered the delivery of instruction. The online experience transcends the traditional brick and mortar classroom using innovative technologies such as social media, video or even 3D virtual reality. Modern technologies have also improved access to instruction by removing the barriers of time and of location. Students can almost go to school anywhere at any time.

This technology has evolved so dramatically that the notion of online learning and teaching has moved from the periphery of the university to the “center of university life... The use of learning technologies online has become a ubiquitous practice as a result of the spread of the Internet” (Larreamendy-Joerns

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& Leonhardt (2006) p. 570). Consequently, students, including students on campus, are commonly taking online courses. According to College Scholarships (2017), the number of students who take a combination of in-person and online classes has almost doubled from 23 percent to 45 percent over the last five years (no para.).

Though the quality and value of technology-based instruction has rapidly increased, the use of e-learning technologies does not automatically guarantee good instruction. Bates (2005) observes that the “technology is neither good nor bad in itself but it is in the way it is used that matters (p. 2). This chapter is about the integration of learning technologies with administrative and instructional design strategies so that content may be deployed in ways that are both appropriate and effective.

## **Learning Environments**

Instruction happens in context. During the past two decades the notion of where and when instruction happens has undergone a radical transformation. The teacher and the student, individually or collectively, are no longer constrained by time and space. Instruction can happen anywhere at any time. A better understanding of how learning occurs has led to a shift in the design of learning environments.

Historically instruction was, as Jonassen and Land (2012) point out, “a process of conveying ideas to students” (p. vii). Good instruction was simply a product of good communication. All that a good teacher had to do was to effectively communicate to students. By adding feedback to the communication (transmission - reception) model, behaviorists were able to equate learning with changes in behavior. However, Jonassen and Land (2012) note that we have “entered into a new age in learning theory”(vii). The new learning models emphasize, in contrast to the transmissive model, that “learning is willful, intentional, active, conscious, constructive practice that include reciprocal intention-action-reflection activities(ix). From this view learning is more “meaning making” than simply a behavioral change. The student is an equal partner in the delivery of instruction and good instruction emphasizes a more integrative approach. Instead of merely talking at the student the new emphasis is talking with the student, thereby engaging the learner.

This emphasis has led to the development of new instructional designs that are focused on student engagement and integration. For example, a student’s prior knowledge and experience is not ignored but is assessed and incorporated into the instruction. Land, Hannafin and Oliver (2012) note “that prior knowledge and experience form the conceptual referent from which new knowledge is organized and experienced ...” (p.12)

Typically, this shift is difficult in the more traditional classroom environment. However, in the technology rich environment of the modern online classroom, student-centered learning environments emphasize constructing personal meaning by relating new knowledge to existing conceptions and understandings; “technology promotes access to resources and tools that facilitate construction”. (Hannafin & Land, 1997, 170)

The explosion of educational technologies has led to a development of better instructional design that “promotes access to resources and tools that facilitate construction of learning” (Hannafin and Land p. 170). For example, Ahern (2016) demonstrates how social media can be effectively designed for instruction. With attendant understanding of learning theory, he suggests that “social network media can be used as an appropriate tool if it is matched with a clear understanding of what we want our students to know or do. This requires students to engage in an activity, which should lead to a re-examination of their prior understanding so that they can accept, reject, or accommodate the new information. (p. 335). As,

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