

Chapter 31

Three Instructional Models to Integrate Technology and Build 21st Century Literacy Skills

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ABSTRACT

Does using technology as a supplemental resource in today's classroom sufficiently complement current practices or can technology form an integral component of instruction and learning? Traditionally, the American education system consisted of classroom learning with the teacher as the primary source of content delivery and textbooks as the chief resource. Presently, technology influences instruction, and its impact will only increase. Many students have constant access to technology via the Internet at home and mobile devices. Therefore, today's learners must develop information literacy and media literacy skills to communicate by way of 21st Century tools. Whereas the availability of technology in the classroom varies among states and districts, instructional strategies, such as problem-based learning, can frame technology as an integral component of education. This chapter will focus on project-based learning, problem-based learning, and challenge-based learning as pedagogies that readily integrate technology to promote new literacies.

INTRODUCTION

According to the National Middle School Association (NSMA), also known as the Association for Middle Level Education (AMLE), a fundamental belief is that teachers and students should actively engage in learning. Teaching and learning should also represent multiple approaches to respond to diversity

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(NSMA, 2010). Today's student must master life and career skills, content knowledge, process skills, and new literacies. Teachers must help students foster creativity while developing skills in communication, collaboration, and critical thinking (Partnership for 21st Century Skills, 2009).

Student-centered instruction via multiple approaches to build 21st Century skills does not happen automatically. Simply adding technology to the classroom does not improve learning. As technologies are becoming more powerful and affordable, they are more commonplace in the classroom. However, "these technologies must be used in new, creative ways in combination with proven instructional approaches and practices and not simply to mimic or emulate existing, more traditional approaches to instruction" (Blanchard & Farstrup, 2011, p. 306). Teachers must structure learning opportunities for students to engage the curriculum while using technology as a tool for research or collaboration.

Literacy entails far more than reading and writing. They are deemed literacies in their own merits, with additional types to consider for current pedagogical purposes. New literacy encompasses information literacy, media literacy, financial literacy, civic literacy, health literacy, and environmental literacy (Partnerships for 21st Century Skills, 2009; Macklin, 2001). New technologies often require users to navigate non-linear text, to evaluate online resources, and to communicate in online environments. These digital texts require new ways of thinking about reading, writing and communicating while developing media literacy. Therefore, the nature of literacy and learning is rapidly changing and transforming as new technologies emerge (Coiro, Knobel, Lankshear, & Leu, 2008).

Internet activities tend to use an inquiry-based model of learning, where problem solving plays an important role in the learning process (Leu, Leu, & Coiro, 2004). Karchmer-Klein and Shinas (2012) suggested that skills needed for successful online activities differed from those needed for traditional reading and comprehension activities. For example, students must be able to problem solve and identify the topic under investigation in order to use search engines to locate appropriate content efficiently and effectively. Once content is located, students must then navigate complex online text in order to derive meaning (Karchmer-Klein & Shinas, 2012). Such skills are necessary to be successful in the 21st Century, as there is a discrepancy between the way educators teach and the manner in which students learn. Educators need to focus on "what and how they teach to match what people need to know and how they learn" (U.S. Department of Education, 2010a, p. 1).

Technology and new concepts of what it means to be literate lend themselves to the pedagogy discussed in this chapter. Best practices include active, student-centered learning. In a recent study, Dixon (2010) suggested that students who participate in active learning, such as group discussion forums, group projects, and current event assignments in online courses were more engaged than students who participated in passive learning activities such as viewing PowerPoint presentations and taking quizzes. Hence, teachers should act more like a facilitator of student learning by focusing on course design, developing assignments, and asking challenging questions. Teachers faced additional challenges when incorporating technology into the curriculum. Technology-rich environments, including online courses, should engage students by using many of the same techniques used in face-to-face classrooms. Elements of instruction in technology-rich environments should foster 21st Century literacies. In this chapter, we review three models of learning that are inquiry based, conducive to a technology-rich environment, and empower students as they work through the processes of learning. The instructional models described are project-based learning, problem-based learning, and challenge-based learning.

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