Chapter 7
Best Practices in Project-Based Learning:
Applications Within Online Instructional Technology Courses

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ABSTRACT

Educators are increasingly challenged to offer students access to, and depth of instruction on, complex digital technologies in their degree offerings. Although these courses already exist, significant challenges remain for educators to offer cutting-edge online instruction in educational technology programs in ways that have real-life relevance for students. Students are often asked to turn to independent learning through online video tutorials and other resources to close the technology learning gaps that exist within these programs. This chapter explores how a curriculum that prioritizes significant learning through the application of project-based learning and design-based thinking can be used to teach online instructional technology courses. Included are examples from courses in mobile learning, game-based learning, and instructional systems design to illustrate these approaches. Complexities associated with this process are highlighted and strategies are suggested to help instructors create learning experiences that are challenging and professionally relevant to students.

INTRODUCTION

This chapter offers an overview of the research in digital media production within online environments and suggests best practices in designing technical courses in online instructional technology programs. A taxonomy of significant learning and a model of design thinking are proposed as strategies to design project-based courses for online programs. Finally, best practices in the design and implementation of online technology skills courses are given to guide the design of significant learning outcomes, course infrastructure, and management of course logistics to ensure a smooth and engaging online course. The objectives of this chapter are to:

DOI: 10.4018/978-1-5225-9261-7.ch007

1. Introduce readers to student-centered design models,
2. Illustrate successful examples of project-based learning approaches to teach technical online courses,
3. Offer faculty design strategies to help design similar courses,
4. Offer best practices in the construction of online course outcomes, infrastructure and logistics management, and
5. Suggest opportunities for future research in this area.

BACKGROUND

Online programs in higher education that teach online courses with significant technical components are common. In a 2019 search of the 1800 schools ranked by the US News and World report, there were 154 digital communication and media program, 67 digital arts programs, 253 radio, TV and digital communication programs, 54 web and digital multimedia programs, 46 programs in games, interactive media and game design, 48 programs in animation and interactive technology, and 34 undergraduate programs in instructional technology alone. A search on gradschools.com (Education, Technology & Online Learning, n.d.) revealed a more comprehensive count of instructional technology programs, with a total of 313 programs, including certificate, masters and doctoral programs. Out of this total, 133 of these schools offered programs online. While it is less possible to tally the proportion of those programs that include courses that require learning new online technologies, it is likely not a stretch to assume that a substantial number of online courses require acquisition of skills in software and hardware usage. Courses with significant technical requirements exist not only within digital media programs, but also in instructional technology programs within schools of education. This is certainly true for the instructional technology program in which I recently taught, at a mid-size private university in the northeast. Research is scant on the efficacy of formal online curricula by which student learn these skills. A 2007 study by researchers at Kent State, Yantai University, and Ohio University found that teacher attitudes for a technology skills course were consistently positive in both face-to-face and online environments. Unsurprisingly, acquisition of technologies skills in the online environment required that students rely more upon use of self-guided tutorials and independent instruction, as opposed to individualized interaction with instructors (Kuo, Song, Smith, & Franklin, 2007). It is also not surprising that online courses and their hybrid counterparts varied greatly in the ways in which they require students to learn online course components, and the degree to which learners had control over their learning progress (Wayer, Crippin, & Dawson, 2015).

Certainly, a degree of self-sufficiency is needed in order to acquire technical skills within an online learning environment. Singh and Holt (2013) examined the habits of learners within open-source software communities. These communities include people who have self-selected to acquire often highly technical skills and who exhibit practices that set themselves up for success. Such "newcomer best practices" include reaching out to the open source online community within a community forum, conducting research on the question, posting thoughtful questions and seeking a mentor. Likewise, community roles for corresponding "user best practices" also include norms in which more experienced users reach out to "help the newbie," "be friendly," and "share tips and tricks" (p. 100). While learner self-motivation is no doubt essential to gain entry into open source communities, these online communities share important norms that enable students to be successfully self-sufficient within online environments in which experts are at arms-length and often only indirectly reachable. Such findings are consistent with those presented by