Chapter 5
Supporting Technology Integration in Higher Education:
The Role of Professional Development

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ABSTRACT

As access to technology becomes prevalent in institutions of higher education, it is critical to find effective ways to support university faculty in the process of integrating technology into their classroom. This chapter surveys the literature on professional development, identifying successful characteristics in higher education. Next, the authors describe two cases in which university faculty have supported their colleagues' attempt to integrate technology into university courses. Finally, promises and challenges of various professional development efforts are also shared.

INTRODUCTION

Technology's Role in Higher Education

As we continue in the 21st Century, access to educational technologies in institutions of higher education is at an all-time high (Bates & Poole, 2003). From previous studies, it is evident that university-level students prefer learning in ways that are supported through technology (e.g., Abrami et al., 2008; Lowerison, Sclater, Schmid, & Abrami, 2006; Milliken & Barnes, 2002). While technology use in university-level courses is appealing to students, technology most effectively supports learning when it is used in ways that support learners' higher-level thinking (e.g., Bransford, Brown, & Cocking, 2000; Mims, Polly, & Grant, 2009; Schacter, 1999). Our views of technology integration speak to these instances

in which technology is used during instruction to support higher-order thinking processes, such as creating artifacts of knowledge, justifying ideas, and evaluating information.

As institutions of higher education increase access and support the use of educational technologies, there is a need to examine how to best support faculty's integration of technology into their courses. In this chapter we discuss findings and issues related to supporting faculty's integration of technology in university-level courses. We share data from two cases: a university-wide faculty professional development project and a professional development center designed to focus on supporting faculty's integration of technology. Lastly, we provide implications related to faculty professional development.

Professional Development in Higher Education

Faculty development in higher education has been considered through a number of lenses. Caffarella and Zinn (1999) characterize a continuum of professional development over the career of a faculty member. They propose (a) self-directed learning experiences, where "we plan, implement, and evaluate" (p. 243) our learning experiences, (b) formal professional development programs, such as those offered through professional organizations and on-campus teaching centers, and (c) organizational development programs, which are systematic implementations of professional development, usually administratively driven, to impact institutional (i.e., department, college/unit, school, or university) changes.

In contrast, Diaz et al. (2009) consider professional development for faculty based on where and how it occurs. For example, they suggest that faculty professional development is bifurcated: a centralized service and a distributed service. As a centralized service, professional development is driven by an institution-wide unit specific for teaching or faculty development. In the distributed model, services for professional development are organized and offered primarily at the department or college level. In fact, Diaz et al. suggest that as the size of the institution and the geographic distribution of institution increase, the likelihood that professional development will become distributed also increases.

The Technological Pedagogical and Content Knowledge (TPACK) framework has advanced the idea that the effective integration of technology is associated with deep knowledge and skills related to technology (e.g., hardware and software programs), pedagogy, content and the intersections of the three components of knowledge (Mishra & Koehler, 2006; Neiss, 2005). For example, a faculty member in engineering would have to know the content they will teach, pedagogies that best support students' learning of the content, and technologies that most effectively support both the pedagogies and the content. Professional development to support technology integration, through the lens of TPACK, should be connected to both content and pedagogy, and allow faculty to deepen their own knowledge of technology, pedagogy, content, and the intersections of each (Polly & Brantley-Dias, 2009).

Components of Effective Professional Development

Research on the effectiveness of professional development has flourished since the mid 1990s with numerous researchers (e.g., Garet et al., 2001; Penuel et al., 2007; Putnam & Borko, 2000) working to advance what we know about how educators construct knowledge in professional learning opportunities and then enact their new knowledge and skills in their classroom. While the components of professional development are semantically different in various papers, generally all empirically-based lists recommend that professional development include:

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