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Signature pedagogy, implementation and evaluation of an online program that impacts educational practice

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ABSTRACT

This article describes the signature pedagogy, design, research, and redesign of the first to third iterations of an online doctoral program for educational technology leaders. The development of the online program over four years, based on mixed methods used in each iteration is presented with a focus on online teaching and learning, community-building, and transformational learning. The deep and implicit structure of signature pedagogy in the program endured but the surface structure changed based on feedback from students and faculty. Lessons learned and implications for designing online doctoral degrees and research in online programs are discussed.

1. Introduction

Educational technology leadership is critical in supporting faculty, administrators, and students in the adoption and integration of various technologies in the teaching and learning process (Albright & Nworie, 2007). The Carnegie Project on the Education Doctorate (CPED) distinguishes between the Ph.D. as a degree that prepares one to work in university and other research settings to discover and disseminate new knowledge, and the Ed.D. as a degree that prepares one to apply research in context to improve and advance practice (Perry & Imig, 2008). Faculty in the Educational Technology program at the University of Florida realized in 2006 that their Ph.D. program did not meet the needs of those doctoral students who wanted to earn terminal degrees in order to improve their local contexts through Educational Technology research. They had received inquiries from professionals in various states interested in earning a doctoral degree to improve their local contexts while maintaining full-time jobs. However, their on-campus Ph.D. program aimed to prepare students for academic and research contexts. The educational technology program had already successfully implemented an online Masters program and the college was participating in the CPED project, therefore faculty decided to offer an online doctoral degree designed to be rigorous but different from the Ph.D. to serve the needs of students interested in being both practitioners and scholars of educational technology. The Ed.D. in Educational Technology would prepare educational technology leaders who use research-based knowledge to "change the world" and improve practice in a variety of contexts (CPED, 2009).

The new Ed. D. program enrolled its first cohort of 26 full-time professionals in K–12, corporate, and higher education environments in fall 2008. This paper describes the design of the first iteration, research that informed the second iteration for fall 2010, and the research that contributed to the third iteration in fall 2012 of the online Ed.D. program in Educational Technology. Lessons learned from each iteration, and from the process of designing, implementing, and evaluating an online doctoral program are shared to inform others engaged in online and blended graduate education or in innovative programs for professional adults. The sharing of online program design and development is important because a majority of the research published on online education continues to focus on teaching and learning within individual courses, even a decade after Merisotis and Phipps (1999, p. 23) noted that "a major gap in the research is the lack of studies dedicated to measuring the effectiveness of total academic programs taught using distance learning".

2. Signature pedagogy for program design

Signature pedagogy is one of four components of the framework defined by the Carnegie Foundation for the Advancement of Teaching for the professional doctorate in education (CPED, 2007; Shulman, Golde, Conklin Bueschel, & Garabedian, 2006). Signature pedagogy reflects "the characteristic forms of teaching and learning…that organize the fundamental ways in which future practitioners are educated for their new professions" (Shulman, 2005, p. 52) and provides insight into "the cultures" and "professional values" of disciplines (Golde, 2007, p. 345). This section describes the signature pedagogy used to design the online professional doctorate in educational technology. Signature pedagogies have three dimensions: a deep structure or a set of beliefs about the acquisition of knowledge; an implicit structure or a

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set of beliefs about professional attitudes, values and dispositions; and a surface structure that reflects the ways in which teaching and learning occur (Shulman, 2005). The three dimensions of signature pedagogy in the program are described below.

2.1. Deep structure: situated and transformational adult learning

The professional doctorate aims to enculturate professional adults into a community of scholarly practice and to facilitate data-driven change in educational environments (Lave & Wenger, 1991; Perry & Imig, 2008). Deep structure in signature pedagogy reflects beliefs about knowledge acquisition. In the Ed.D. in Educational Technology, students are expected to develop foundational knowledge in the field as well as deep knowledge in a particular area or niche with the expressed goal of solving contextual problems and advancing practice. Foundational knowledge separates members of a field from non-members (Guha & Lenat, 1994) while the niche areas represent areas of specialization in the field. Participants in this program were working professionals and adult learners, making it important to consider situated and transformational adult learning theories for the acquisition of knowledge (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991; Mezirow, 2000). Situated learning that is embedded within and inseparable from the context, and that focuses on students' participation within the learning context was foundational to the design of interactions in courses and outside of courses in the program (Barab & Plucker, 2002; Brown et al., 1989; Lave & Wenger, 1991). The relevance of instructional content and its applicability to real-world environments is important to adult learners (Knowles, 1984), therefore students were required to connect academic content and assignments to their professional environments, identify problems of practice, and produce artifacts that were useful in those professional contexts (Brown et al., 1989). To facilitate transformational learning, flexibility was provided for students to negotiate their own purposes or values rather than work according to external or imposed purposes or values. The program was cohort-based so that students could engage in reflection and reflective discourse about theory, research and the implementation of program activities in their practice as a group (Mezirow, 2000).

2.2. Implicit structure: development of habits of mind

In the Ed.D. program, the development of expert knowledge within a community of practice (Wenger, 1998) includes the development of scholarly habits of mind (Costa & Kallick, 2008), data-driven decision making and research application skills. The implicit structure of the program reflects the attitudes, values and dispositions of the contexts that students work in, highlighting the importance of developing teaching, scholarship and leadership skills (Boyer, 1990). Doctoral graduates of Educational Technology hold leadership positions in curriculum development, teaching, online education, technology integration, professional development and faculty or trainer development in K–12, higher education, corporate and non-profit contexts. Authentic learning experiences, peer interactions, composite mentoring, and expert modeling were integrated in both course assignments and non-course activities to facilitate student development of implicit skills early in the program (Kumar & Dawson, 2012a). Students were provided with multiple opportunities and formats to interact with each other, multiple faculty, and experts in the field to build a strong professional community that supported them during their doctoral program and would help them moving forward.

2.3. Surface structure: a community of inquiry

Surface structure in signature pedagogy operationalizes deep structure and implicit structure. The Community of Inquiry (COI) framework for online learning was adopted for this purpose because the professional doctoral program was offered mainly online (Garrison, Anderson, & Archer, 2000). The COI framework comprises a) teaching presence or "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson, Rourke, Garrison, & Archer, 2001, p. 5), b) social presence or the ways in which online learners portray themselves online, and c) cognitive presence or the construction and application of meaning by students using sustained reflection and discourse (Garrison et al., 2000). Extrapolating from the COI framework for online courses, faculty structured a combination of required online coursework, asynchronous and synchronous interactions, and a blended summer seminar to facilitate teaching, social and cognitive presence during the first two years in the program (Kumar, Dawson, Black, Cavanaugh & Sessums, 2011). All the faculty members in the program had prior online instructional design and teaching experience, therefore activities were designed to include multiple forms of interaction, frequent opportunities for reflection (Ainsworth & Loizou, 2003; Moore & Kearsley, 1996), various formats for assessment. Students took their qualifying exams after the first two years of coursework and then worked on their dissertations. Individual faculty mentors advised students online using asynchronous and synchronous communication technologies.

Based on the deep and implicit structure of the online program, teaching, social and cognitive presence in the surface structure were defined in the following ways — teaching presence in the program comprised online teaching, mentoring, and the structuring of support structures for learners. Social presence was focused around the facilitation of peer interactions for community-building among students. Grounded in situated and transformational learning, cognitive presence was defined as the development of scholarly habits of mind, and the application of knowledge and skills as well as new approaches to change educational practice (Kumar et al., 2011). While the deep structure and implicit structure of the program did not change through the three iterations described in this paper, the surface structure changed based on student feedback and faculty experiences.

3. Iteration 1: first design of surface structure

This section describes the first design of the surface structure of the program — online teaching, mentoring, & learning support; community building; and application of learning to practice.

3.1. Online teaching, mentoring and learner support

All Educational Technology faculty had prior experience with instructional design and online teaching, therefore online courses in the program were based on current theory related to designing and delivering online content using multiple forms of interaction (Moore, 2007) multimedia resources and new technologies (Moreno & Valdez, 2005), and multiple assessment formats (McTighe & O'Connor, 2005). Administrative and technical support for students is crucial to student satisfaction in online programs (Bourne & Moore, 2004). In the first program design, three faculty members interacted with students to answer their questions and concerns and two faculty members helped them with their programs of study and credit transfers. A technical help forum was provided within all online courses and supported by The Office of Distance Education that managed courses in Moodle, the learning management system used. Information literacy support was provided by a librarian who conducted a synchronous session introducing students to the library and library resources in one of their first courses in the program. Program faculty met weekly to discuss the program and the students during the first two years. During the second year in the program, students were assigned faculty mentors with whom they worked on their dissertations.