

# Chapter 3

## Implementing an Online Educational Technology Course in a Teacher Preparation Program: Challenges and Solutions

**Heejung An**

*William Paterson University, USA*

**Hilary Wilder**

*William Paterson University, USA*

### ABSTRACT

*To positively foster teacher knowledge, skills and beliefs regarding technology integration, a teacher preparation program at a university in New Jersey, USA carried out the process of revising a face-to-face technology skill based course into a fully online one in which the focus changed to “teaching with technology.” This chapter provides a detailed account of how the course was revised, and describes the challenges the authors faced. The solutions that came to the fore during this process are also provided. The chapter concludes with recommendations for other teacher educators who might be offering online educational technology courses to candidates of a similar population.*

### INTRODUCTION

In order to support teacher candidates in becoming practitioners capable of understanding and applying technology integration in their future classrooms, research suggests that pre-service teachers should be prepared to teach *with* technology, rather than just learning *about* technology (Glazewski & et. al.,

2001; Doolittle & Hicks, 2003; Mason et al., 2000; Mishra & Koelher, 2008; Wenglinsky, 2005). To address this pedagogical issue, the teacher preparation program at William Paterson University, New Jersey, USA, revised its technology course requirement, moving it from one focusing on only the acquisition of technology skills to one in which elementary school teacher candidates were encouraged to use a range of Information and Communication Technologies (ICT) to teach various types of subject matter

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content, while also promoting student-centered technology integration to ensure their future K-12 students meet state and/or federal mandates for technological literacy. This is clearly important in the U.S. since the National Educational Technology Standards for Teachers (ISTE, 2008) exemplify uses of technology to maximize teaching effectiveness as well as to advance students' technological literacy. It is also important to note that teachers need to know how to use assistive technologies to maximize the effectiveness of the instructional experiences for all students.

The objectives of this chapter are three-fold. The first is to describe the rationale and theoretical underpinnings for developing an online educational technology course that addressed these aims, along with the collaborative strategies employed to successfully implement the online educational technology course. In describing this, we address the challenges encountered and how we attempted to solve them in order to bring the plan to fruition. The second objective is to report our findings, in order to show the effectiveness of this endeavor. Lastly, we will provide some lessons learned that might be applicable to other teacher preparation programs with similar student populations.

## **THEORETICAL BACKGROUND**

### **Teaching about Technology and with Technology**

In the United States, there has been a strong push to integrate technology into teacher preparation programs. Yet, even though the student to computer ratio has been raised up to 3.8:1, numerous research studies have indicated that technology is not being integrated into school curricula successfully (Wells & Lewis, 2006). For instance, Brown and Warschauer (2006) have reported that "... even with the latest emphasis on technology, many public school districts are faced with an unwelcome surprise. After spending millions of

dollars to connect their schools and their students to the Internet, their newly installed computers often sit unused" (p. 600). Furthermore, even when technology is incorporated into the curriculum, it is often used for efficiency oriented tasks, such as word processing, rather than more educative purposes (Cuban, 2001).

This problem is partly due to the way in which educational technology courses are taught in teacher education programs. Research has shown that many programs tend to offer a single educational technology course focusing only on basic technology skills training (Kay, 2006), rather than technology across the curriculum to promote higher-order thinking and problem-solving skills. As a result, many students feel unprepared to enter classrooms ready to use technology in meaningful ways (Brown & Warschauer, 2006). That being said, there has been little clarity regarding what knowledge teachers need to know to effectively integrate technology into their teaching practice. To address this concern about how to best focus on technology integration in teacher preparation programs as a way of thinking about the knowledge teachers should obtain in order to integrate technology into their teaching effectively, Mishra and Koehler (2006) introduced the Technological Pedagogical Content Knowledge (TPACK) framework. This conception is not entirely new, rather it has been extended from Shulman's (1986) work describing pedagogical content knowledge, emphasizing the importance of "the central role of content and pedagogy in uses of educational technology" (Bull et al., 2007). In this conception, Mishra and Koehler (2008) stressed that an analysis of teaching and learning with technology requires an understanding of the complex set of interrelationships among pedagogy, content, and technical knowledge. Thus, instead of seeing these as three distinct knowledge bases, - Technological Knowledge (TK), Pedagogical Knowledge (PK), and Technology (TK) - they emphasized the interactions between and among these three forms of knowledge. That is, there are interactions

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