

# Chapter 5

## The Transference between Elementary Preservice Teachers' Courses and Technology Use in Teaching

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### ABSTRACT

*This mixed-method study explored a cohort of 18 preservice elementary teachers' perceptions of technology and their abilities to integrate technology in their teaching. Data sources included blog postings, a confidence survey, lessons plans and observations. Results showed a disconnect between the blog postings and confidence survey (their perceptions) and their lessons plans and observations (their abilities). Five case studies were examined, using the TPACK framework, to determine where the disconnect was occurring. Although Technical Knowledge seemed to be an issue for some, the majority of the preservice teachers struggled with Pedagogical Knowledge. Suggestions for how to address this issue are included. Implications for teacher education are discussed.*

### INTRODUCTION

There are many barriers that prevent teachers from using technology. Those often identified in the literature include lack of access to technology (Bhalla, 2012), lack of models for integrating technology, and lack of technology skills (Ertmer, 1999). What happens when these barriers are addressed in the teacher preparation courses? Are

preservice teachers able to integrate technology in their lesson plans and in their teaching? Or does the institutional context they are placed in prevent them from being able to integrate technology (Clausen, 2007)?

In this chapter, we take a critical stance towards evaluating the transference between teacher education courses and classroom practice. This mixed-methods study examines a cohort of 18

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preservice elementary teachers in a graduate school education program and their perceptions of technology integration. Guiding this study are the following research questions: 1) How do preservice teachers discuss and demonstrate their technology integration in the classroom? 2) In what ways do preservice teachers integrate technology in their planning and teaching field placements? 3) How do preservice teachers address barriers to integrating technology in the classroom? In order to answer these questions, participants' confidence in technology integration, understanding of the use of technology, planning of a lesson that integrated technology, and execution of a lesson during their independent teaching were assessed. Findings indicate overall dissonance between what the participants self-reported, discussed via blogs, planned, and taught. Implications for both preservice teacher education and further inquiry are presented.

## **BACKGROUND**

The review of literature for this study focuses on two main concepts: Technological Pedagogical Content Knowledge (TPACK) Framework and technology transference. These terms are discussed in terms of preservice teacher education.

### **TPACK Framework**

Learning to be an effective teacher is a complicated process. Preservice teachers need to develop expertise in not only content knowledge (what we teach), but also in pedagogy (how we teach) (Shulman, 1986, 1987). They need to be able to apply this knowledge to multiple situations; situations that are constantly changing due to the demands of high stakes testing and increasingly diverse classrooms. Thus preservice teachers are required to constantly develop new understandings on "student thinking and learning, knowledge of

subject matter, and increasingly, knowledge of technology" (Koehler & Mishra, 2009, p. 61).

Stand-alone technology courses have often failed to help preservice teachers develop the confidence and knowledge to effectively integrate technology into their lessons (Adamy & Boulemetis, 2005; Ottenbreit-Leftwich, Glazewski, & Newby, 2010). Although these courses can improve self-efficacy (Albion, 2001; Gunter, 2001) and help preservice teachers develop an overview of technology and its potential in the classroom (McRobbie, Ginns, & Stein, 2000), stand-alone courses often do not provide enough information to learn about technology plus ways to use it in teaching (Kay, 2006). These courses often focus on the development of technology skills in isolation (Gunter, 2001). As a result, preservice teachers often see a disconnect between what they learned in their methods courses and what they learned in the technology course. With this model, technology is often seen as an add-on, treated as a separate subject instead of integrated into the curriculum (Kay). Therefore, the interaction between content knowledge, pedagogy, and technology is not developed well enough to enable preservice teachers to have the confidence to integrate technology effectively.

In 1999, in response to a growing concern about teachers' lack of preparation to use technology, the United State's Department of Education issued its first call for proposals for the Preparing Tomorrow's Teachers for Technology (PT3) program. This program called for an infusion of technology throughout the preservice education program and provided funding to enable Colleges of Education to achieve this goal. The technology infusion model allowed preservice teachers to spend more time exploring the use of technology and to see technology modeled within the content area (Gillingham & Topper, 1999). The disadvantages to this model included "inconsistent implementation; inability to calculate faculty load, provide faculty instruction, or faculty support; and the invisibility of technology knowledge on

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