Chapter 2
Lessons from the ITS Program:
Five Design Strategies on Which to Build Technology-Rich Teacher Education

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ABSTRACT

Educators concerned with building technology-rich preservice teacher education seek inspiration in many places. Looking to successful graduate programs might serve to inform those who seek a foundation on which to build successful programs. With years of experience experimenting and studying teacher education at the graduate, inservice level have led to a set of design strategies the authors recommend as guides to making robust decisions about technology-rich preservice teacher education. This chapter is divided into three sections. The first section presents a brief discussion of preservice teacher technology education and the Integration of Technology in Schools (ITS) advanced studies graduate program. The second presents five guiding design strategies to inform the continuous process of technology-rich teacher education. The chapter concludes with a third section that discusses the implications of those design strategies for preservice teacher education.

THE STATE OF PRESERVICE TECHNOLOGY TEACHER EDUCATION

Concerns about the inclusion of technology considerations in preservice teacher education and the role that technology might play in teacher preparation are long standing. "Extensive time and money has been spent developing strategies and programs to help preservice teachers use technology effectively" (Kay, 2006, p. 392). This is evidenced by the more than 400 demonstration projects funded between 1999 and 2003 by the federal government's Preparing Tomorrow's Teachers to Use Technology (PT3) initiative authorized under Title II of the *No Child Left Behind Act* (NCLB; U.S. Congress, 2001). Over $750 million was allocated under Part B/

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Section 221 to develop new methods for preparing "prospective teachers to use advanced technology to prepare all students to meet challenging state and local academic content and student academic achievement standards; and to improve the ability of institutions of higher education to carry out such programs."

In their review and analysis of over 100 preservice programs, Ottenbreit-Leftwich, Glazewski, and Newby (2010) identified six basic approaches to preservice technology teacher education, similar to those in previous reviews (Kay, 2006; Mims, Polly, Sheppard, & Inan, 2006). These approaches included information delivery of technology integration content, hands-on technology skill building, practice with technology integration in the field, technology integration observation or modeling sessions, authentic technology integration experiences, and technology integration reflections. They concurred with Kay (2006) that technology integration within teacher education programs should incorporate multiple approaches and added that "formats and levels of emphasis placed on these different approaches can vary depending on program restraints and opportunities. . ." (Ottenbreit-Leftwich et al., 2010, p. 28).

As the stated purpose of the Ottenbreit-Leftwich et al. (2010) study was to develop a conceptual design process guide for preservice teacher technology experiences, the authors recommended a four step process. The first step is analysis of the broader context to include curricular and instructional formats, resources, and skill sets. The second step recommends clear articulation of technology content goals to be followed by the third step which matches one of the six approaches with each technology content goal. The final and fourth step in their model focuses on creating a sequence of activities where appropriate tools, assignments, and student activities are selected. They concluded, "it is important to consistently reevaluate technology content goals and select appropriate approaches to best prepare teachers to use technology in their classrooms" (p. 28).

While we understand the need and value of consistent re-evaluation of goals and approaches, the design model suggested by Ottenbreit-Leftwich et al. (2010) seems incomplete. It does not present guidance in deciding what curricular or instructional formats are appropriate (Step 1), what technology content goals are necessary and desirable (Step 2), what principles might guide the process of matching approach with goal (Step 3), or how to select or sequence appropriate activities (Step 4). In our work with the Integration of Technology in Schools (ITS) advanced studies graduate program, we have come to understand these concerns are addressed when we recognize that our most important role as teacher educators is as designer. We may, at times, be directors, facilitators, guides, evaluators, counselors, or mentors. But through it all, we are designers, crafting learning opportunities for teacher-learners. By inventing or appropriating design principles and processes, identifying design patterns, and integrating them with programmatic, curricular, and instructional decisions, we have been able to engage in an iterative program of development and decision making within a stable and continuous program structure.

The ITS Program

Our design playground is the ITS program, an advanced studies graduate program for practicing teachers. During the fifteen years since its inception, we have added additional tools-oriented courses, additional research practicum experiences, and a teacher leadership and technology course. The program was originally structured to be completed in four semesters. Increased attention to additional and emerging technologies, design-based research, and technology teacher leadership, however, suggested the need to spread the density of concepts and practices over more time. Today, the ITS curriculum is five semesters and includes investigation of curriculum and learning theory as well as technology affordances and applications.