Chapter 115
Technology Expanding Horizons in Teacher Education: Transformative Learning Experiences

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ABSTRACT
The purpose of this exploratory action research study was to examine how the modeling by instructors of technology integration would affect the quality of the lessons that elementary teacher-education students designed and taught in their field placements. The research was conducted across two consecutive semesters with two different cohorts of methods students placed at a local elementary school that had received new interactive whiteboards, SMART boards, in every classroom at the beginning of the previous school year. Based upon field-supervisor/instructor observations, reflections, and oral and written feedback from host-teachers and students, an analysis was conducted to determine the effectiveness of the intervention. Findings suggest that teacher education students’ level of engagement increased regarding the integration of technology, and children were more engaged and actively involved during the teaching of methods students’ mathematics and science lessons.

INTRODUCTION
The integration of technology continues to inform the ways that tomorrow’s teachers are being prepared in teacher education classrooms today. Computers, laptops, LCD projectors, digital cameras and interactive whiteboards, computer software, and access to the World Wide Web are now commonly found implements of information technology used in schools. According to a recent report on educational technology in public school districts by the National Center for Education Statistics (NCES, 2008), which surveyed the technology access of approximately 1600 public school districts in the 50 states and the District of Columbia, over 90 percent of those surveyed with a district network reported having access to the Internet.
Such was the case for the Riverbank School District, which currently serves a predominantly lower-socioeconomic, white, rural population of students. In 2010, the Riverbank Elementary School received a state technology grant that placed brand new interactive whiteboards (IWBs), SMART boards, into every classroom the previous year, complete with Internet access available. Ironically, when the first cohort of Keene State College (KSC) Methods 2 (M2) students entered their host classrooms in Riverbank at the start of the 2010 fall semester, the majority of host teachers held an assumption that their younger M2-student counterparts would be more adept than the teachers themselves were at using the SMART boards to teach.

However, upon further investigation, the instructor-field supervisor (I-FS) in Riverbank discovered that most of the M2 students from KSC had very little experience in working with and teaching using interactive whiteboards. This discovery motivated the M2 faculty instructional team to immediately secure some very basic IWBs training for the M2 students on campus. But it raised a deeper pedagogical question for the M2 I-FS in Riverbank in knowing that quality professional development regarding technology use should leave one in the position to move beyond the basics of knowing how to turn technological tools on and off—in this case quality professional development should lead to a deepening of engagement and exploration of the technological tool in question. This led to an immediate additional enhancement of the M2 course curriculum via the incorporation of a collaboratively designed learning experience for the students. This learning experience was to inspire the M2 students to engage themselves as educators so that they would, in turn, engage the children they would be teaching mathematics and science lessons to in the field, explore and integrate technology effectively, and experience, first-hand, the impact of a culturally responsive, well-planned, thematically designed, interactive learning experience can have on the actual teaching and learning that can occur in any classroom and at any grade level.

**BACKGROUND**

**Technology in the Classroom**

In today’s public school classrooms there are a range of technology tools (computers, laptops, counters, interactive whiteboards, etc) that are being employed in an effort to engage students and to enhance achievement outcomes and the learning environment (U.S. Department of Education, 2010). Research has suggested that the interactive nature of IWBs may have a positive correlation to
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