

The Role of Technology in Preservice Teachers' Images of Their Future Classroom

Theresa A. Cullen, Indiana University, tacullen@indiana.edu

Abstract: Participant drawings, descriptive essays, surveys, and interviews were used to assess how 160 beginning preservice teachers envisioned technology in future classrooms. Results were analyzed with the constant comparative method (Glaser & Strauss, 1967) and trait coding (Haney, Russel, & Bebell, 2004). Data demonstrated persistence of teacher-centered technology uses and inconsistencies between espoused views and participant drawings. Results could be used to design interventions for transfer through a better understanding of beginning beliefs of preservice teachers.

Introduction

Preservice teachers lack the context of teaching experiences by which to frame their experiences and make meaning of technology models and experiences. Past research has shown that preservice teachers often don't easily incorporate student-centered technology teaching strategies into their repertoire. For example Willis and Sujo de Montes (2002) found that preservice teachers often replicate teacher-centered technology uses. A study by Wang (2002) demonstrated that when preservice teachers observed expert teachers using technology, they did not view teacher-centered methods differently than student-centered methods. When these preservice teachers taught classes, they more often chose teacher-centered uses of technology based on their memories of being taught themselves. In classroom placements, preservice teachers have a tendency to use technology for their planning and administrative tasks, but often are not comfortable enough to implement student-centered technology activities (Dexter & Riedel, 2003). These preservice teachers are viewing technology differently than their inservice counterparts, these studies have documented how their actions differ, but little research has been done to document how preservice teachers think about technology's role in their classrooms. Understanding how these future teachers think about technology in their envisioned classrooms is vital to designing instruction and interventions to make technology a more integral part of how they plan to teach.

The purpose of this study was to look at the relationship between preservice teachers ideas about teaching and technology integration and how they envision their future classroom. This study investigated the following two research questions: What role do preservice teachers envision technology having in their future classrooms and teaching? and What is the relationship between student's beliefs about teaching and learning and their vision of future technology use?

Methodology

Elementary education students were asked to participate in a drawing task. Participants were nine classes of twenty-five students enrolled in their first methods block, during which they were engaged in science, mathematics and technology methods instruction. Each group of students was asked to draw their future classroom, without monetary limitation, designing the space and requesting materials so that they would promote student learning and good teaching practices. All participants were asked to write a short essay explaining their design to a community member and complete a short survey to share demographic information and their ideas about teaching and learning. Students also participated in a class debrief focused on learning environments for science based on the National Science Education Standards.

Data Analysis and Follow Up Interviews

The drawings were analyzed using trait coding to focus scoring on target aspects (technology representations and classroom arrangement) while allowing for incorporation of emerging themes (Haney, Russell, & Bebell, 2004) and eight students were asked to participate in follow-up interviews to explain their drawings and their ideas about teaching and learning. Students were purposely sampled in order to represent the diversity of responses.

The constant comparative method was used to identify emergent themes from the essays, survey responses, debrief transcripts and interview transcripts (Glaser & Strauss, 1967; Bogdan & Biklen, 1998). Characteristics present in the drawings, essays and survey results about teaching and technology beliefs were summarized to

understand the general attitudes of the class and to facilitate selecting diverse participants for interviews. The drawings, essays, surveys, and interviews triangulated student responses adding reliability to the findings along with member checks for validity and the use of multiple coders for inter rater reliability (Bogdan& Biklin, 1998).

Results and Discussion

Results show that when students draw their future classrooms, technology is not one of the main components they focus on, instead most classrooms focused on language arts. In fact, even after being prompted in an interview, one participant said, "I can see what you are going for, but really I don't think technology is necessary for me to be a good teacher." Additionally, students drew technology in very teacher-centered ways. The majority of students drew 6 to 10 computers placed in the periphery of the classroom. When asked in group debriefs about this, students stated, "That is all we have ever seen in a classroom." Other students would describe good teaching as being student centered, but many of these preservice teachers would design classroom learning spaces where desks were in rows or in a U shaped, with the teacher's desk as the focus of all activity. For example, the student drawing in figure 1 was accompanied by a characterization of a good teacher as "someone who is focused on the needs of the student." Some students did design collaborative learning environments such as Figure 2 where the future class was designed with collaborative pods of desk with laptops arranged around a group discussion area.

Drawings provide a special opportunity to explore students' conceptions of technology in the classroom. Student beliefs are not always consistent with their interview or written responses and a drawing can be quick way to illicit beliefs and emotions (Hancock & Gallard, 2004; Weber & Mitchell, 1996). Students had persistent teacher centered beliefs upon entering a teacher education program, these beliefs need to be discussed and addressed in order to promote reformed based teaching practices. Students did not see technology as a tool to assist students in everyday learning activities and collaborative learning designs utilizing technology were not prevalent.

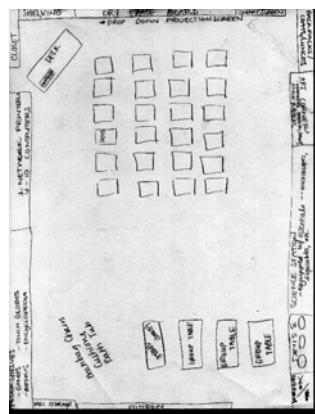


Figure 1: Traditional Design

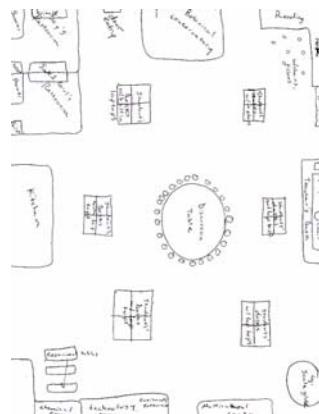


Figure 2: Collaborative Design

Significance of the Study

Since drawings help participants to discuss persistent ideas and reflect on how they impact their teaching, this activity could be useful in encouraging reflective practice in preservice teachers. By better understanding of beginning beliefs, interventions can be planned that focus on transfer, where activities can be designed to bridge from preservice beliefs to ideas that are more consistent with successful professional practice (Perkins & Solomon, 1988). The question persists, are the drawings artifacts of persistent teacher centered beliefs or a lack of student-centered or collaborative models and experiences? How can learning experiences be designed to encourage preservice teachers to overcome persistent images and develop new paradigms of environments for student learning that plan to use technology to cognitively assist students and make the use of computer assisted learning environments (Scardamalia & Bereiter, 1991) as a part of daily classroom practice. Also, the origin of these images (past learning, field experiences, etc.) may provide insight as to the reasons for why teachers do not plan for technology in their future classrooms.

References

Due to limited space – complete references available at:
<http://portfolio.iu.edu/tacullen/CullenICLSProceedings.pdf>