

FORMATION OF TEACHER MENTAL MODELS REGARDING TECHNOLOGY
CONFIGURATIONS, THE FACTORS INFLUENCING THEIR FORMATION,
AND TEACHER RECEPTIVITY TO ADOPTING ALTERNATIVE
CONFIGURATIONS

A Dissertation

By

JUDITH THOMAS RAY

Submitted to the Graduate School

Appalachian State University

in partial fulfillment of the requirements of the degree

DOCTOR OF EDUCATION

May 2008

Doctoral Program in Educational Leadership
Reich College of Education

FORMATION OF TEACHER MENTAL MODELS REGARDING TECHNOLOGY
CONFIGURATIONS, THE FACTORS INFLUENCING THEIR FORMATION,
AND TEACHER RECEPTIVITY TO ADOPTING ALTERNATIVE
CONFIGURATIONS

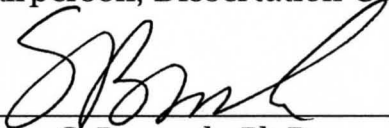
JUDITH THOMAS RAY

May 2008

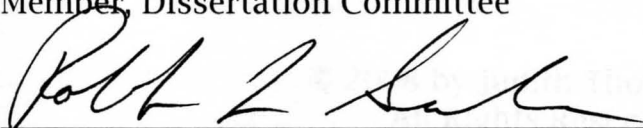
Approved by:



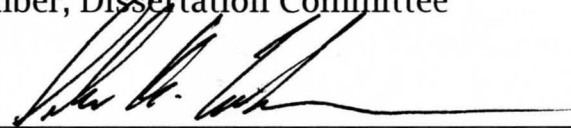
Richard E. Riedl, Ph.D.
Chairperson, Dissertation Committee



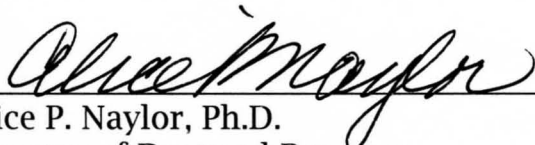
Steven C. Bronack, Ph.D.
Member, Dissertation Committee



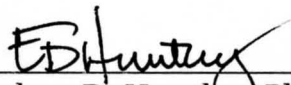
Robert L. Sanders, Ed.D.
Member, Dissertation Committee



John H. Tashner, Ph.D.
Member Dissertation Committee



Alice P. Naylor, Ph.D.
Director of Doctoral Program



Edelma D. Huntley, Ph.D.
Dean, Research and Graduate Studies

ABSTRACT

FORMATION OF TEACHER MENTAL MODELS REGARDING TECHNOLOGY
CONFIGURATIONS, THE FACTORS INFLUENCING THEIR FORMATION,
AND TEACHER RECEPTIVITY TO ADOPTING ALTERNATIVE
CONFIGURATIONS (MAY, 2008)

Judith Thomas Ray, B.A. The University of North Carolina at Chapel Hill
M.L.S. Appalachian State University
Ed.S. Appalachian State University

Dissertation Chairperson: Richard E. Riedl, Ph.D.

When visiting K-12 campuses, one will view multiple configurations in computer deployment. School buildings may be configured with one computer in each classroom and a computer lab where teachers can take students for large group instruction. Some schools have installed multiple computers in classrooms and retained the computer lab. Others have positioned most of the computers in the classrooms and media center and have dissolved fixed computer lab space. Additionally, schools with one computer in the classroom may use mobile wireless labs to serve groups of students. With myriad configurations available, it is pertinent to examine how teachers form their mental models of how computer configurations are supposed to

look and whether these mental models affect teacher receptivity to adopting newly introduced configurations. This study was undertaken with a mixed methods approach incorporating survey data of technology leaders and teachers as well as a compressed ethnographic case study of computer use by six teachers in a western North Carolina school system. Prior to the introduction of a wireless mobile lab, none of the teachers had used computers in any configuration other than lab settings. Results showed that past experience with a particular computer configuration did not seem to be the factor that most influenced teacher preferences and receptivity. Several teachers, although unfamiliar with the wireless lab, were amenable to the mobile lab configuration, suggesting that configuration mental models may be more directly influenced by teacher pedagogical beliefs than their past experience. The study, while limited to six teachers in a high school setting, indicates that mental models of a particular technology configuration do not appear to be rigid, but may be fluid as teachers gain additional exposure and experience. In addition, configuration mental models may be more aligned with pedagogical beliefs than with past exposure.