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Florida First Year Teachers' Perceptions Of Preparedness To Meet National Educational Technology Standards For Teachers (net

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FLORIDA FIRST YEAR TEACHERS' PERCEPTIONS OF PREPAREDNESS TO MEET NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS FOR TEACHERS (NETS-T)

by

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ABSTRACT

The purpose of this study was to determine if first year teachers in Florida perceived they were adequately prepared by their preservice education programs to meet the National Educational Technology Standards for Teachers (NETS-T). The study was designed to gather data about first year teacher perceptions of personal technology proficiency and self-reported technology integration practices. The data were measured using the First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T) survey instrument.

The sample (N=257) for this study was drawn from the population of Florida first year PreK-12 public classroom teachers from the 2005–2006 school year who were still teaching during the 2006-2007 school year. Demographic variables, perceptions of personal technology skills, and self-reported technology integration practices were collected on the sample. Descriptive and comparative statistics were used to identify relationships between the variables.

It was concluded that first year teachers in Florida who held a professional teaching certificate or graduated from a Florida public university's teacher education program perceived they were better prepared to meet national educational technology standards than first year teachers in Florida who did not. It was also determined that there was a statistically significant relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills, as well as between self-reported technology integration practices of first year teachers and their perceptions of their ability to integrate technology.

Two additional findings came to light during the study. The majority of first year teachers in Florida did not take the traditional university teacher preparation program as their path to certification. Additionally, the vast majority of first year teachers in Florida gave credit to independent learning in increasing their own personal technology skills.

This dissertation is dedicated to the memory of my parents, Jim and Judy Bedenbaugh (Proverbs 22:6) and the love of my life, my wife, Celeste (First Corinthians 11:11).

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Many equate the doctoral process to a journey. With that premise, I am reminded of the story of another journey, often referred to as *Footsteps in the Sand*. In this story a man dreams that he is walking on the beach with God. In the sky he sees scenes from his life and in each scene he notices two sets of footprints. However, when he looks closer, he sees that at the lowest and saddest points in his life there is only one set of footprints. He questions God as to why God would leave him when he needed God most. God responds that it was at those times that God carried him. As I reflect back upon my journey, I know there were times when God carried me. I also know that there were more than just our footsteps to be found along the path.

I am most grateful to my committee chair, Dr. Rosemarye Taylor. Her wisdom, support, encouragement, proddings, and effort on my behalf are more appreciated than mere words of gratitude can convey. My committee members, Dr. Glenda Gunter, Dr. Martha Hopkins, and Dr. Jess House, proved to be invaluable. Their expertise, questions, concerns, and suggestions have served me well in this endeavor.

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Throughout it all, however, one pair of footsteps were always there with me. Without the love, support, encouragement, understanding, and sacrifices of my wife, Celeste, I never would have been able to complete this journey. The next journey, we will take hand-in-hand.

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LIST OF ACRONYMS/ABBREVIATIONS

AECT	Association for Educational Communications and Technology
COE	College of Education
COSN	Consortium for School Networking
CLAST	College Level Academic Skills Test
EAS	Educator Assessment System
ECS	Education Commission of the States
EHS	Education and Human Services
EIAS	Education Information and Accountability Services
ESE	Exceptional Student Education
ETC	Educational Technology Center
FAMU	Florida A&M University
FAU	Florida Atlantic University
FEAP	Florida Educator Accomplished Practices
FGCU	Florida Gulf Coast University
FIU	Florida International University
FLDOE	Florida Department of Education
FSU	Florida State University
FTEC	Florida Teacher Certification Examination
IRB	Internal Review Board
ISTE	International Society for Technology in Education

ITEA/CTTE	International Technology Education Association/Council on Technology Teacher Education
NCATE	National Council for Accreditation of Teacher Education
NCEE	National Commission on Excellence in Education
NCES	National Center for Education Statistics
NCF	New College of Florida
NCLB	No Child Left Behind
NETS	National Educational Technology Standards
NETS-T	National Educational Technology Standards for Teachers
OER	Office of Evaluation and Reporting
OET	Office of Educational Technology
OIT	Office of Instructional Technology
OPEC	Organization of the Petroleum Exporting Countries
OPRI	Office of Policy Research and Improvement
OTA	Office of Technology Assessment
PEU	Professional Education Unit
PT3	Preparing Tomorrow's Teachers to Use Technology
SCANS	(U.S. Department of Labor) Secretary's Commission on Achieving Necessary Skills
SPSS	Statistical Package for Social Sciences
TDP	Teacher Development Portfolio
TTI	Teaching and Technology Initiative
UCF	University of Central Florida

UF	University of Florida
UNF	University of North Florida
USF	University of South Florida
UWF	University of West Florida
USDOE	United States Department of Education

CHAPTER ONE: INTRODUCTION

The U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) Report (1991) made this statement about personal computers:

> Two years later (1975), the first plans for an unheard of new product—a personal computer—appeared in a popular scientific magazine. That device has altered both the speed with which work is done and its very nature. It has configured the world of work as have [*sic*] perhaps no other invention since electricity or the assembly line. It has created not only a new industry; it has redefined the way thousands of different kinds of work are now carried out. (p. 2).

The report described that this new product, coupled with the 1973 Organization of the Petroleum Exporting Countries (OPEC) oil embargo, was a boundary line for the nation's economic future. The competencies and skills needed in the workplace were changing. What schools would need to do to train students to enter the work force would also have to change.

The SCANS Report identified five competencies (resources, interpersonal skills, information, systems, and technology) and a three-part foundation of intellectual skills and personal qualities (basic skills, thinking skills, and personal qualities), each a part of the five competencies that they labeled "workplace know-how" (p. ii). According to the report, the "SCANS competencies and skills are not intended for special tracks labeled 'general' or 'career' or 'vocational' education. All teachers, in all disciplines, are expected to incorporate them into their classwork" (p. 18).

In the 30 years since the early adoption of personal computers, such as the Apple II, into the classroom, technological access in schools has grown at an exponential rate. Student to computer ratios have increased steadily in the United States from 1:50 in 1985 to 1:20 in 1990 to an estimated 1:9 in 1997 to the current ratio of 1:4 (U.S. Census Bureau, 2006, p. 116). Internet access has also increased exponentially. In 1995, only about half of public schools in the United

States had Internet access, but within eight years that figure had grown to 100 percent (p. 165). In 2002, the ratio of students to instructional computers with Internet access in public schools was 4.8 to 1 (U.S. Department of Education, 2003). In Florida's public schools those numbers were above national norms. According to the Florida Department of Education's (FLDOE) Office of Educational Technology, in 2003 there were over 700,000 computers in instructional areas in Florida public schools. In 2005, the ratio of students to instructional computers stood at 3.5:1, and the ratio of students to high-speed Internet-connected computers was 3.6:1 (Education Week, 2006).

Although access to and types of technology are significantly different today, how that technology is being used is still evolving. In the preface to *VISIONS 2020: Transforming Education and Training Through Advanced Technologies*, U. S. Secretary of Education Rod Paige said:

> But to a large extent, schools have been an exception to this information revolution. Indeed, education is the only business still debating the usefulness of technology. Schools remain unchanged for the most part despite numerous reforms and increased investments in computers and networks. The way we organize schools and provide instruction is essentially the same as it was when our Founding Fathers went to school. Put another way, we still educate our students based on an agricultural timetable, in an industrial setting, yet tell students they live in a digital age. The problem is not that we have expected too much from technology in education—it is that we have settled for too little. Many schools have simply applied technology on top of traditional teaching practices rather than reinventing themselves around the possibilities technology allows. The result is marginal—if any improvement. (2002, p. 4).

The National Educational Technology Plan 2004 stated that "the problem is not necessarily lack of funds, but lack of adequate training and lack of understanding of how computers can be used to enrich the learning experience" (U.S. Department of Education, Office of Educational Technology, 2004, p. 22). The plan, entitled *Toward a New Golden Age in American Education: How the Internet, the Law, and Today's Students are Revolutionizing Expectations*, provides

seven major action steps with recommendations in order to bring improvement. The third step, "Improve Teaching Training," includes as a specific recommendation, "improve the preparation of new teachers in the use of technology" (p. 41).

The U. S. Department of Education's *Preparing Tomorrow's Teachers to Use Technology* (PT3) grant program was created to help solve the problem that "most teachers still feel uncomfortable using technology in their teaching" (2006). PT3 was "built on the premise that teachers should learn how to effectively integrate technology during their formal training" (Preparing Tomorrow's Teachers to Use Technology, 2005a). One of the initiatives funded by PT3 was for the International Society for Technology in Education (ISTE) to develop a national consensus document on what teachers should know and be able to do with technology. The document ISTE developed, the National Educational Technology Standards for Teachers (NETS-T), provides "models that teacher preparation programs can follow to ensure that teachers graduate with necessary knowledge and skills to use technology effectively for improved learning" (Preparing Tomorrow's Teachers to Use Technology, 2005b).

Purpose of the Study

The purpose of this study was to determine if first year teachers in Florida perceived they were adequately prepared by their preservice education programs to meet the National Educational Technology Standards for Teachers (NETS-T). Perceptions of preparedness to meet the NETS-T were determined by use of a survey completed by selected teachers who were first year teachers during the 2005-2006 school year. The researcher analyzed these data to determine the degree to which the selected teachers perceived they were prepared.

Statement of the Problem

The problem addressed in this study was: "How do first year teachers in Florida, as measured by the First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards For Teachers (NETS-T) survey (Appendix C), perceive they were prepared by their preservice education to meet the National Educational Technology Standards for Teachers (NETS-T)?"

Research Questions

The following research questions guided this study:

1. What is the relationship between perceived preparation to meet national educational technology standards during the first year of teaching and
   A. the college of education from which they graduated?
   B. their path to certification (traditional or alternative)?
   C. personal demographics (e.g., age, gender, major)?
   D. teaching responsibilities (e.g., level, subject)?
2. What is the relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills?
3. What is the relationship between self reported technology integration practices of first year teachers and their perceptions of their ability to integrate technology?

Definitions of Terms

Alternative certification—an alternative path (that does not require graduating from a Florida state-approved teacher preparation program) to satisfy professional preparation requirements for a five-year Florida Professional Educator's Certificate; typical path of someone that was not an education major as an undergraduate.

E-mail (Electronic mail)—text messages transmitted across networks and usually accessible only by the addressee.

First year teacher—a teacher whose initial teaching year was the 2005-2006 school year.

Florida professional certificate—Florida's highest Educator Certificate. It is valid for five years and is renewable. Requirements include: completing all application process requirements, holding at least a bachelor's degree, demonstrating Mastery of Subject Area Knowledge for a requested subject, demonstrating Mastery of General Knowledge, and demonstrating Mastery of Professional Preparation and Education Competence.

Florida temporary certificate—a temporary (valid for only three years and is nonrenewable) teaching certificate that allows an individual to teach full-time while completing all requirements for a Professional Certificate. Requirements include: completing all application process requirements, holding at least a bachelor's degree, and demonstrating Mastery of Subject Area Knowledge or meet Subject Specialization with a 2.5 GPA for a requested subject.

Mastery of general knowledge—demonstrated by one of the following: achievement of a passing score on the Florida General Knowledge Test, achievement of a passing score on the Florida College Level Academic Skills Test (CLAST) earned prior to July 1, 2002, a valid standard teaching certificate issued by a US state or territory, a valid certificate issued by the

National Board for Professional Teaching Standards or the American Board for Certification of Teacher Excellence, or completion of two semesters of full-time college teaching experience

Mastery of professional preparation and education competence—demonstrated by one of the following: completion of a state-approved teacher preparation program from a Florida institution and achievement of a passing score on the Florida Professional Education Test; completion of a teacher preparation program from an out-of-state accredited or approved institution and achievement of a passing score on the Florida Professional Education Test; completion of a Florida state-approved alternative certification program and achievement of a passing score on the Florida Professional Education Test; completion of an approved Florida Educator Preparation Institute program and achievement of a passing score on the Florida Professional Education Test; completion of specified education courses, completion of teaching experience requirement, completion of an approved professional education competence demonstration program, and achievement of a passing score on the Florida Professional Education Test; completion of an approved Florida College Professional Training Option for Content Majors, completion of teaching experience requirement, completion of an approved professional education competence demonstration program, and achievement of a passing score on the Florida Professional Education Test; a valid standard teaching certificate issued by a US state or territory; a valid certificate issued by the National Board for Professional Teaching Standards; a valid certificate issued by the American Board for Certification of Teacher Excellence and completion of an approved professional education competence demonstration program; or completion of two semesters of full-time college teaching experience.

Mastery of subject area knowledge—demonstrated by: (for Bachelor's degree level subjects) achievement of a passing score on the appropriate subject area examination earned

since July 1, 2002; (for Master's degree level subjects) completion of the required degree and content courses listed in State Board rule for the subject and achievement of a passing score on the appropriate Florida subject area examination; and, (for all subject areas) hold a valid standard certificate in the subject area applied for from a US state or territory (the certificate must be comparable to the Florida certificate in the same subject), or hold a valid certificate in the subject area applied for issued by the National Board for Professional Teaching Standards or the American Board for Certification of Teacher Excellence.

Multimedia—the use of a computer to produce any combination of text, full color images and graphics, video, animation, and sound.

Preservice teacher—a future teacher that has not yet completed his/her college coursework.

Self-contained classroom teacher—teaches all or most academic subjects to the same group of students all or most of the day.

Special education—usually includes students that have been classified with a specific disability or gifted; in Florida, the term used is Exceptional Student Education (ESE).

Technology integration—the combination of all technology parts, such as hardware and software, together with each subject-related area of curriculum to enhance learning.

Technology literacy—the ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge and skills in the 21st century.

Traditional certification—the traditional path (requires graduating from a Florida state-approved teacher preparation program and have passing all three portions of the Florida Teacher

Certification Examination [FTCE]) to satisfy professional preparation requirements for a five-year Florida Professional Educator's Certificate; typical path of someone that was an education major as an undergraduate.

Assumptions

The following assumptions are acknowledged for this study:

1. Participants will thoughtfully and honestly complete the online survey.
2. First year teachers that elect to participate in this study will be representative of all Florida first year teachers.
3. The survey questions will accurately measure the teacher perceptions related to technology integration.

Study Design

Study Population and Sample

The study population consisted of Florida first year PreK-12 public classroom teachers from the 2005-2006 school year who were still teaching during the 2006-2007 school year. A database obtained from the Florida Department of Education (K. Smith, personal communication, October 14, 2006) listed over 23,000 individuals that were classified by their district as being first year classroom teachers during the 2005-2006 school year. Because the targeted population was public PreK-12 classroom teachers, approximately 3,500 names were

removed as potential contacts. Those eliminated had titles that included: administrator, specialist, clerk, coordinator, substitute teacher, teacher on special assignment, adult education, school librarian/media specialist, nurse, therapist, school psychologist, and social worker. Each of Florida's 67 county school districts was contacted requesting permission to contact teachers within the district to ask them (the teachers) to participate in the study.

The tolerance of sampling error determined the sample size needed from the total population of 19,500. A sample size calculator, available online from Creative Research Systems (2003), indicated that a sample of 377 was needed to provide a 95% confidence level with a 5% confidence interval. Realizing that less than half of the contacted teachers would probably complete the online survey, a random sampling of 1,300 teachers was targeted to complete the survey instrument.

Data Instrumentation

The data were collected using a researcher developed instrument (Appendix C). This instrument pulled from the indicators developed by Florida Department of Education's Office of Instructional Technology (FLDOE-OIT) (2005) for use in its *Inventory of Teacher Technology Skills*, from the International Society for Technology in Education's *National Educational Technology Standards for Teachers* (ISTE NETS-T): *Student Teaching/Internship Performance Profile* (2002b, p. 14), and from the *Public School Teachers Use of Computers and the Internet* survey developed by the U.S. Department of Education, National Center for Education Statistics for its 2000 report, *Teachers' Tools for the 21st Century: A Report on Teachers' Use of Technology*. The instrument also included demographic elements. A group of school district

technology contacts and university professors (statistics and educational technology) was enlisted to assist the researcher in refining the instrument.

The instrument pilot was conducted with a sample of 25 technology leaders from the local area (e.g., Seminole, Volusia, and Orange Counties in Florida). Using feedback from these participants, several modifications were incorporated into the final survey instrument. These modifications included rearranging the order of some questions, changing the scale description, adding highlighting to alternating rows, and modifying some of the question phrasing.

The final survey instrument consisted of 83 questions. Questions 1.01-1.14 were used to collect demographic data. Questions 2.01-2.35 focused on personal technology proficiency, and Questions 3.01-3.34 related to technology integration practices.

Data Collection and Analysis

Participants targeted for inclusion in this study were contacted by email, either directly by the researcher or forwarded through the participant's district office (at the discretion of the district). The email included a description of the study, informed consent information, and an invitation to participate, along with the Web address and password for the online survey.

The survey was administered using a password protected Web page with responses forwarded to the University of Central Florida's Form Manager Web site. The data were exported into a Microsoft Excel spreadsheet and then analyzed using the statistical software Statistical Package for Social Sciences (SPSS) Graduate Pack 13.0 for Windows.

The dependent variables were the rankings on the perception questionnaire. The independent variables were the type of institution (public or private), location of institution

(Florida or non-Florida), path to certification (traditional or alternative), type of program (elementary or secondary), and level of personal technology proficiency, age, gender, and major. See Table 1 for the alignment of the research questions and the survey instrument items.

Table 1
Alignment of Research Questions and Instrument Items

Research Questions	Related Instrument Items
1A. What is the relationship between first year teacher perceptions for preparedness for technology integration and the college of education from which they graduated?	1.01, 2.01-2.35, 3.01-3.34
1B. What is the relationship between first year teacher perceptions for preparedness for technology integration and their path to certification (traditional or alternative)?	1.05-1.08, 2.01-2.35, 3.01-3.34
1C. What is the relationship between first year teacher perceptions for preparedness for technology integration and personal demographics (e.g., age, gender, major)?	1. 02-1.04, 1.13-1.14, 2.01-2.35, 3.01-3.34
1D. What is the relationship between first year teacher perceptions for preparedness for technology integration and their teaching responsibilities (e.g., level, subject)?	1.09-1.12, 2.01-2.35, 3.01-3.34
2. What is the relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills?	2.01-2.35
3. What is the relationship between self reported technology integration practices of first year teachers and their perceptions for preparedness for technology integration?	3.01-3.34

Limitations

The participants in the research survey only included Florida public school teachers that were first year teachers during the 2005-2006 school year which may have limited the ability to generalize results to teachers in other states. The potential population sample was reduced by the number of first year teachers from 2005-2006 that did not return to the same district for the 2006-2007 school year, which may have limited the randomness of the sample used. The scope of this survey was limited to the number of first year teachers in the sample willing to participate in completing the survey. Participants may have attended a variety of institutes of higher education, however only their degree granting institution was identified in this study.

Significance of the Study

According to TQ Source, a Web site that provides a number of resources relating to preservice education, "hundreds of books and articles about teacher preparation have been written" (2005, ¶ 45). However, this preponderance of information is not necessarily based upon scientific research. Michigan State University, in a 2001report for the U.S. Department of Education, had this to say about the key issues in teacher preparation research: "Overall, the research base concerning teacher preparation is relatively thin" (Wilson, Floden, & Ferrini-Mundy, 2001, p. i). The Education Commission of the States (ECS) in its summary of the findings from its 2003 report, *Eight Questions on Teacher Preparation: What Does the Research Say*?, also concluded that "the research on teacher preparation is limited…" (p. 7).

This study was designed to add to the body of scientific research. The results could assist colleges of education, school administrators, and future students in identifying programs that graduates felt were exemplarily in preparing future teachers to meet national education technology standards.

CHAPTER TWO: LITERATURE REVIEW

If, as Secretary of Education Paige stated (2002), that teachers need to be able to reinvent themselves to effectively integrate technology into their curriculum, then the teachers will require new skills. Two questions arise from this statement—what skills and how do they acquire them? In answer to the former, several national and state initiatives describe the skills teachers need to have.

Required Technology Skills

The *Enhancing Education Through Technology Act of 2001, Title II, Part D*, of the No Child Left Behind Act of 2001 includes the following goals: improve student academic achievement through the use of technology in K-12 schools; assist all students in crossing the digital divide by ensuring that every student is technologically literate by the end of the eighth grade; and encourage the effective integration of technology resources and systems through teacher training, curriculum development, and by incorporating successful research-based instructional methods that can be widely implemented as best practices (USDOE, 2001).

The National Educational Technology Standards (NETS) Project, an ongoing initiative of the International Society for Technology in Education (ISTE), is working to define standards for students, integrating curriculum technology, technology support, and standards for student assessment and evaluation of technology use (ISTE, 2002a). The National Educational Technology Standards for Teachers (NETS-T) focuses on preservice teacher education and defines the fundamental concepts, knowledge, skills, and attitudes for applying technology in educational settings (ISTE, 2002b, p. 8). More than 90% of U.S. states (including Florida) have

adopted, adapted, or referenced the ISTE NETS-T in state department of education documents (ISTE, 2004).

The six standard areas for NETS-T are: (a) technology operations and concepts, (b) planning and designing learning environments and experiences, (c) teaching, learning, and the curriculum, (d) assessment and evaluation, (e) productivity and professional practice, and (f) legal and human issues (ISTE, 2002a). The NETS-T identifies specific performance indicators (23 total) for each of the areas (Table 2).

Table 2
International Society for Technology in Education (ISTE)
National Educational Technology Standards for Teachers (NETS-T)

Standard Area	Specific Performance Indicator
I. Technology Operations and Concept	A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students) B. demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies
II. Planning and Designing Learning Environments and Experiences	A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners. B. apply current research on teaching and learning with technology when planning learning environments and experiences. C. identify and locate technology resources and evaluate them for accuracy and suitability D. plan for the management of technology resources within the context of learning activities. E. manage student learning activities in a technology-enhanced environment
III. Teaching, Learning, and the Curriculum	A. facilitate technology-enhanced experiences that address content standards and student technology standards. B. use technology to support learner-centered strategies that address the diverse needs of students.

Standard Area	Specific Performance Indicator
IV. Assessment and Evaluation	A. apply technology to develop students' higher order skills and creativity. B. manage student learning activities in a technology-enhanced environment. C. apply technology in assessing student learning of subject matter using a variety of assessment techniques. D. use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning. E. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.
V. Productivity and Professional Practice	A. use technology resources to engage in ongoing professional development and lifelong learning. B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning. C. apply technology to increase productivity.
V. Productivity and Professional Practice	D. use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.
VI. Social, Ethical, Legal, and Human Issue	A. model and teach legal and ethical practice related to technology use. B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities. C. identify and use technology resources that affirm diversity D. promote safe and healthy use of technology resources. E. facilitate equitable access to technology resources for all students.

Note. (ISTE, 2002, p. 9)

The Florida Legislative Statute for Approving Programs of Teacher Education and State Board of Education Administrative Rule 6A-5.065–The Educator Accomplished Practices defines twelve essential practices of effective teaching. There are three levels for each of the

essential practices: 1) accomplished, 2), professional, and 3) preprofessional. The preprofessional level of Practice Twelve–Technology states: "The preprofessional teacher uses technology as available at the school site and as appropriate to the learner. She/he provides students with opportunities to actively use technology and facilitates access to the use of electronic resources. The teacher also uses technology to manage, evaluate, and improve instruction" (FLDOE, State Board of Education, 2003, 6A-5.065[12][c]).

The Florida Department of Education's Office of Instructional Technology (FLDOE-OIT) created an *Inventory of Teacher Technology Skills* to offer "educators the opportunity to identify the basic skills and/or knowledge" they need as they "strive to meet the NCLB goal for full integration of technology in the curriculum" (2005). This inventory is built around a framework with specific key indicators for each of the six areas of basic technology skills (Table 3).

Table 3
Florida Department of Education's Office of Instructional Technology (FLDOE-OIT) *Inventory of Teacher Technology Skills*

Basic Technology Skill	Specific Key Indicator
1. Basic Operations & Concepts	A. Locate and open a file B. Adjust the volume on the computer C. Save a file to a specific location D. Save a file under a new name using "Save As" E. "Print preview" a document F. Print a file to a specific printer G. Locate and open applications H. Quit applications I. Create and name folders J. Organize files and folders K. Rename files and folders L. Check cables for proper attachment to computer and peripherals M. Recover from a software failure

Basic Technology Skill	Specific Key Indicator
2. Productivity	A. Word Processing 1. Recognize a word processing program 2. Create a new document 3. Enter and format text (fonts, size, emphasis) 4. Cut, copy, and paste text B. Spreadsheets 1. Recognize a spreadsheet program 2. Identify elements of a spreadsheet 3. Create a spreadsheet 4. Enter data into a spreadsheet 5. Edit data in an existing spreadsheet 6. Create a chart (graph) with the data in a spreadsheet C. Databases 1. Recognize a database program 2. Enter data into an existing database 3. Edit data in an existing database 4. Graphics 5. Recognize a graphics program 6. Recognize graphics file formats 7. Resize graphical objects in a document 8. Identify tools of graphics software 9. Add a graphic (i.e. pictures, photos or clip art) to a document
3. Communications	A. Email 1. Compose and send an email message 2. Reply to an email message (reply to sender; reply to all) 3. Open an email attachment 4. Attach a file to an email message 5. Recognize an email program B. Video 1. Play a video clip on a computer C. Presentations 1. Recognize a slide show presentation 2. Open and play an existing slide show presentation 3. Add text to a slide within a presentation

Basic Technology Skill	Specific Key Indicator
4. Research	A. Research Skills 1. Search online databases and reference software 2. Recognize search strategies 3. Identify appropriate search strategies 4. Evaluate search results 5. Evaluate the accuracy and credibility of information obtained through the internet B. Browser Use 1. Recognize a browser 2. Identify the elements of a browser 3. Identify the elements of a web page 4. Type a URL into the address bar 5. Bookmark a site (using bookmark or Favorite) 6. Recognize links on a web page 7. Open a new browser window
5. Planning, Management, & Instruction	A. Planning and Management 1. Identify basic uses of word processing programs 2. Identify basic uses of spreadsheet programs 3. Identify basic uses of database programs 4. Identify basic uses of graphics programs 5. Identify basic uses of communication tools B. Instruction 1. Identify basic instructional uses of word processing programs 2. Identify basic instructional uses of spreadsheet programs 3. Identify basic instructional uses of database programs 4. Identify basic instructional uses of graphics programs 5. Identify basic instructional uses of communication tools 6. Identify basic instructional uses of concept mapping programs

Basic Technology Skill	Specific Key Indicator
6. Social, Ethical, Legal, and Human Issues	A. Evaluate teacher use of technology in the classroom with regard to an Acceptable Use Policy for employees B. Evaluate student use of technology in the classroom with regard to an Acceptable Use Policy for students C. Judge appropriateness of posting student information on the Internet D. Identify safety and security issues with regard to technology and the Internet E. Identify fair use practices/copyright policy F. Properly cite digital resources

Note. (FLDOE-OIT, 2005)

Between the ISTE NETS-T and the FLDOE-OIT, the prerequisite technology skills that all Florida public school teachers should have are clearly delineated. Then the question of how preservice teachers are to acquire these skills should be answered by the standards required of colleges of education and, thusly, the training these prospective teachers receive during their preservice education.

College of Education Accreditation

The National Council for Accreditation of Teacher Education (NCATE), a professional accrediting body for teacher preparation, clearly defines expectations for knowledge and use of technology. NCATE's *Professional Standard 1: Candidate Knowledge, Skills, and Dispositions—Pedagogical Content Knowledge for Teacher Candidates* has a target that "teacher candidates…integrate technology appropriately" (2006b, p. 15). Technology use is targeted in most of the other standards, including: *Standard 3: Field Experiences and Clinical Practice–*

Design, Implementation, and Evaluation of Field Experiences and Clinical Practice: "Field experiences (that) allow candidates … (to be) involved in a variety of school-based activities directed at the improvement of teaching and learning, including the use of information technology" (p. 26); *Standard 5: Faculty Qualifications, Performance, and Development–Modeling Best Professional Practices in Teaching*: "Teaching by the professional education faculty reflects the unit's conceptual framework(s), incorporates appropriate performance assessments, and integrates diversity and technology throughout coursework, field experiences, and clinical practices" (p. 34); and *Standard 6: Unit Governance and Resources–Unit Resources including Technology*: "Facilities support the most recent developments in technology that allow faculty to model the use of technology and candidates to practice its use for instructional purposes" (p. 40).

In addition to these professional standards, NCATE recognizes three sets of technology standards for use in accredited institutions: the ISTE standards, the standards of the Association for Educational Communications and Technology (AECT), and the International Technology Education Association/Council on Technology Teacher Education (ITEA/CTTE) (NCATE, 2001). As to which is preferred, this statement appeared in NCATE's report, *Technology and the New Professional Teacher: Preparing for the 21st Century Classroom*, the culmination of a year of deliberations by an NCATE Task Force on Technology and Teacher Education: "…teacher education programs should pay careful attention to the National Standards for Technology in Teacher Preparation, developed by the International Society for Technology in Education (ISTE)" (1997, ¶ 45).

Florida Public Universities

In 2002-2003 Florida produced approximately 6.7% of the nation's teachers, trailing only New York, California, and Texas (USDOE, 2005, p. 26). Although this figure also includes private universities and alternative certification (Florida has approved the Teacher Education Programs at 32 colleges/universities in the state and 77 district add-on programs [FLDOE, Educator Recruitment, Development, and Retention, 2005a]), many of these teachers receiving initial certification graduated from one of the state public universities colleges of education. Florida is served by 11 public state universities: Florida A&M University (FAMU), Florida Atlantic University (FAU), Florida Gulf Coast University (FGCU), Florida International University (FIU), Florida State University (FSU), New College of Florida (NCF), University of Central Florida (UCF), University of Florida (UF), University of North Florida (UNF), University of South Florida (USF), and the University of West Florida (UWF). The National Council for Accreditation of Teacher Education (NCATE) (2006a) currently accredits 9 of the 11 (FGCU's College of Education is in the process of accreditation by NCATE and NCF does not award education degrees).

Florida's Standards for Initial Teacher Education Program Approval (Revised 2004) (FLDOE, Educator Recruitment, Development, and Retention, 2005b) lists 19 standards that serve as the decision-making points for initial program approval. Standard 3 requires that all undergraduate education students complete the general requirements for all Teacher Education Majors as specified in Rule 6A-5.066(3)(b). Out of the 36 required semester hours listed in Rule 6A-5.066(3)(b), none are technology focused (nine semester hours each in English, science, and mathematics, twelve semester hours in social sciences, and six semester hours in humanities; p.

4). However, Standard 4 states that "…curricular offerings provide sufficient opportunity to learn and practice appropriate theories, concepts, and strategies required of all Florida educators, as defined by the Florida Educator Accomplished Practices." Also, *Rule 6A-5.066(3)(d)—Instruction Related to Instructional Strategies, Assessment of Student Learning, Technology, and ESOL* states that courses and school–based experiences for students "…must include instruction, observation, practice, and competency demonstration in…appropriate use of technology in instruction and recordkeeping" (p. 6).

As a group, the colleges of education at Florida's public universities require only a single course in instructional/educational technology; this is also true nationally (Hargrave & Hsu, 2000; Moursund & Bielefeldt, 1999). In Florida, this course (i.e., EME 2040—most often labeled: Introduction to Educational Technology) is typically taken before entry into the teacher preparation program. The focus of this course is for students to develop personal proficiency and be introduced to the use of technology in an educational setting, although each university uses slightly different phrasing (Table 4).

Table 4
Florida Public University Course Descriptions of EME 2040

University	Course Description
Florida A&M University (FAMU)	To enable students to use computers and related technology as tools both in their own work and in work they will do as teachers; and to make them aware of the educational technology resources available (FAMU, 2006).

University	Course Description
Florida Atlantic University (FAU)	An introduction and analysis of educational technologies available to prospective classroom teachers for use in the development and delivery of improved instruction. The technologies and accompanying materials will be demonstrated and used in a wide variety of subjects (FAU, 2006, p. 404).
Florida Gulf Coast University (FGCU)	Introduction to computers and technologies, and their function in the classroom to augment the teaching and learning processes (FGCU, 2006, p. 219).
Florida International University (FIU)	Introduction to the use of educational technology. Examination of productivity tools, interactive multimedia, communications, educational software, instructional applications and ethical, legal, social, and professional issues (FIU, 2006, p. 359).
Florida State University (FSU)	An introduction to the use of educational technology in teaching and learning. Students will learn to use personal computers and other technology for communication, presentations, and resource acquisition (FSU, 2006, p. 207).

University	Course Description
University of Central Florida (UCF)	Introduction to technology for educators, including classroom management tools, multimedia, communication networks, interactivity, educational software and legal, ethical and social issues (UCF, 2006, p. 342).
University of Florida (UF)	An introduction to computer productivity (word processing, data base, spread sheet, painting, drawing, layout presentations); multi-media (media design, digital video, presentation); communications (Internet, ERIC); educational software (computer-aided instruction, public domain software); interactive media (linked environments, one-to-many, presentations using electronic tools); reference (electronic encyclopedia, atlases, clip art, libraries, Internet); instructional applications (techniques); ethical, legal and social issues (UF, Office of the University Registrar, 2006).
University of North Florida (UNF)	An introduction to the classroom applications of educational technologies. The course includes a survey of educational hardware and software. Topics include multimedia, interactive media, ethics and legal issues, and the Internet (UNF, 2006, p. 271).

University	Course Description
University of South Florida (USF)	Designed as an introduction to computer technology and its role in teaching and learning processes. Topics include educational software, ethical and social issues, hardware, interactive multimedia, models for integrating technology into instruction, productivity tools and telecommunications (USF, 206, pp. 352-353).
University of West Florida (UWF)	Assists educators in developing skills and competencies which are essential to the integration of technology into the delivery of classroom instruction. Students will survey a wide variety of instructional technology materials and systems. They will also learn to use these tools in a classroom environment (UWF, 2006).

Note. New College of Florida (NCF) does not offer EME 2040.

Florida Public University Offerings

A review of the college of education's Web site at each of Florida's 11 public universities provides varying insight into how the universities intend to ensure a graduate would gather the prerequisite skills and be able to meet the previously described standards.

The Florida A & M University College of Education (FAMU COE) handbook lists "provide students opportunities to become technologically astute" as part of "A Planned

Sequence in Professional Education" (FAMU COE, 2005, p. 122). The FAMU COE describes the conceptual framework of the Professional Education Unit (PEU) as an "integrated approach to providing educational experiences that result in exemplary professional educators" (2004, p. 7). Educational experiences include courses, clinical experiences, and support services, all of which are interrelated and integrated and have several strands or emphases that pervade them. The integrated approach of the PEU's conceptual framework is comprised of the component activities and cross-curricular themes including *educational technology*. Although the planned sequence is not described in detail, a professional education unit electronic portfolio "to assist students in meeting the twelve standards described as the Florida Accomplished Practices" (p. 28) is discussed. Every preservice teacher must document their development against these competencies over a three and a half year period.

The Florida Atlantic University Department of Teacher Education Mission Statement states that the teacher education faculty and students are committed to "integrating technology to maximize learning" (FAU, 2006b). The FAU Student Teaching Handbook describes the requirements for the creation of lesson plans and thematic units that must include a technology integration component. Students are also required to complete a preprofessional portfolio that must include a section devoted to technology (FAU, 2006a). This seems to be a continuation of the findings of the 2000 NCATE Board of Examiners Report for Florida Atlantic University which stated, "Technology is integrated into every program. Alumni, students, and faculty report that technology is a valued and important part of their collection of teaching techniques. Candidates learn to integrate what they have learned in their field experiences which are carefully planned and sequenced" (FAU, 2000).

Although Florida Gulf Coast University is not NCATE accredited, it is accredited by the Southern Association of Colleges and Schools. The FGCU College of Education's (FGCU COE) mission statement includes "faculty and students reflect upon and engage in the applications of theory, research, and emerging technologies" as a commitment (FGCU COE, 2004a). The FGCU undergraduate handbook provides a more detailed technology statement: "The College of Education does not treat the variety of technologies used in the education process as a separate subject or content. Instead, technology is merely one additional means of facilitating the educational process within the college and within the educational communities our programs serve. Because of this philosophy, we expect all learners to become proficient with education related technologies" (FGCU, 2006, p. 111). The opportunity to integrate this personal proficiency into classroom experiences is implied as part of the integrated field and final internship experiences. Students are required to include work products that are measured against the Florida Educator Accomplished Practices in a Teacher Effectiveness Portfolio. A rating of Proficient is required on all portfolio criteria or the student will not graduate (FGCU COE, 2004b).

Neither Florida International University College of Education's (FIU COE) conceptual framework nor mission statement/goals includes the direct mention of technology, although there is reference to state and national standards (FIU COE, 2006a). The FIU COE does provide a mechanism, the eFolio system, for students to document and track mastery of the state standards. Students are required to create sets of artifacts from their coursework and store them within the eFolio system. Each required content course includes a designated eFolio performance task or assignment. By the time the students are ready for their student teaching, they will have

demonstrated competency at least twice in each Florida Educator Accomplished Practice (FIU COE, 2006b).

The Florida State University Teacher Education Unit Conceptual Framework, Preparing Educational Leaders, has five core dimensions, the first of which is technology literacy: "…Educational Leaders … must use appropriate technology to manage, evaluate and improve student learning. … Further, Educational Leaders must be comfortable utilizing emerging technologies as problem-solving tools for teaching and learning" (FSU COE, 2006b, p. 1). The Handbook for Student Teaching for the Florida State University College of Education (FSU COE) makes various mentions of technology use. Student teachers are expected to observe "…use of technology in instruction and classroom administration" (2006a, p. 8) and while creating lesson plans to remember that "classroom activities should make use of appropriate technology" (p. 11). The bi-weekly student teacher evaluation form also rates the student teachers in the 12 areas of the Florida Educator Accomplished Practices.

As part of the University of Central Florida College of Education's (UCF COE) Conceptual Framework, the foundation is represented by "five broad orientations," one of which is the Technical/Scientific Orientation. This orientation "seeks to use research from the behavioral and social sciences to inform practice and evaluate effectiveness of practice. By teaching practices that are research-based, many faculty and classes seek to displace less effective practices and systematically improve the quality of learning, including the appropriate use of educational technologies" (UCF COE, 2004). In UCF's 2005 institutional report to NCATE the college's commitment to technology is spelled out:

> "Learning technologies are integrated throughout our programs, providing many opportunities for educators and practitioners to practice their appropriate use to enhance learning outcomes.... Not only do our programs and classes seek to ensure that candidates

> are able to use technology to help meet their goals, the PEU [Professional Education Unit] seeks to model the appropriate use of information technology integrated throughout the curricula, instruction, field and clinical experiences, and assessment and evaluation" (2000, p. 14).

In addition to requiring the use of portfolios as part of "The Facilitating Reflective Practitioner" and as evidence in meeting the FEAP, the UCF COE also requires that supervising teachers demonstrate "strategies for incorporating technology into classroom instruction and record keeping" (2004, p. 22).

The University of Florida's College of Education (UF COE) is "committed to providing its students with the skills, knowledge, and dispositions they need to use academic technology in their own learning and to advance the learning of all students in their charge" (UF COE, 2003). This commitment is evidenced via UF's Teaching and Technology Initiative (UFTTI) in which field experiences were "designed to give preservice teachers firsthand experience integrating technology in K-12 classrooms" (2005). The Teaching and Technology Initiative was developed as part of a USDOE PT3 grant, *Preparing Tomorrow's Teachers to Use Technology.* In 2004, the UF COE implemented the Educator Assessment System (EAS) which allows teacher-candidates to track their performance on each of Florida's Educator Accomplished Practices (FEAPs) (2006).

The University of North Florida College of Education and Human Services' (UNF COEHS) Web site refers to the Florida Educator Accomplished Practices and makes a cursory mention of technology. However, it does not provide any details on how students will meet the standards. Information is provided about the Educational Technology Center that "provides individualized assistance and group instruction on technological tools and the integration of these tools in the teaching and learning processes" and notes that "each semester more professors

incorporate technology into their own teaching methods and require students to produce assignments using a variety of multimedia, computers and scanners" (UNF COEHS, 2006).

The University of South Florida's College of Education's (USF COE) Conceptual Framework for P-12 Educator Preparation Programs' unit goals states that "USF graduates will be technology proficient and literate professionals" (USF, 2006, p. 5). USF COE faculty have made a professional commitment to "to be on the cutting edge in the use of technologies in teaching and learning, and to that end, to engage in professional development activities to develop our [faculty] skills in integrating 21st century technology into the classroom" and "to model effective use of technology in their [faculty] teaching in an effort to provide meaningful, accessible, and realistic learning opportunities for candidates" (p. 9). Because of this emphasis on technology, the USF COE has identified barriers (e.g., lack of equipment, time, skills, knowledge, and perceived value) and explored ways to develop the use of technology in instruction (i.e., generating electronic portfolios that document each student's demonstration of a learning outcome) (p. 17).

The Handbook for Teacher Education from the University of West Florida's College of Professional Studies Division of Teacher Education states, "unprecedented changes in technology necessitate the continuous development of instructional technological competencies and skills" (UWF, 2005, p. 2). The Division of Teacher Education requires all undergraduate students to create a Teacher Development Portfolio (TDP) organized around the Professional Educator Twelve Accomplished Practices. One of the uses of the portfolio is for the students to "demonstrate competency with a wide range of computer-based and multimedia technologies" (p. 22). One of the suggested reflection questions is, "How can you enhance instruction through the use of technology?" (2003, p. 20).

Overall, the Colleges of Education at Florida public universities appear to rely upon a single course in instructional/educational technology and then propose to model integration techniques throughout other content courses taken by the preservice teacher. Additionally, some of the universities require portfolio documentation of the preservice teacher's mastery of Florida Educator Accomplished Practices (at the preprofessional level). All the universities require demonstration during the preservice teacher's student teaching experience.

Additional Findings

In 1981 the U.S. Department of Education created the National Commission on Excellence in Education (USDOE–NCEE) to examine the quality of education in the United States. Two years later the commission published the report, *A Nation at Risk*, as an open letter to the American people. The report was alarming, saying that "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people" (1983a). One of the commission's key findings regarding teaching was that the "teacher preparation curriculum is weighted heavily with courses in 'educational methods' at the expense of courses in subjects to be taught" (1983b). At the time, the commission was most focused on persons preparing to teach to be able to "demonstrate competence in an academic discipline" (1983c). In time similar consternations arose as to whether or not teacher preservice programs were adequately preparing graduates to be able to teach with technology.

Five years later the U.S. Congress Office of Technology Assessment's (OTA) report, *Power On! New Tools for Teaching and Learning,* included the finding that of education majors "less than one-third (29 percent) perceived themselves ready to teach with computers" (1988, p.

18). The primary reason cited was that most teacher education programs did not have the adequate resources, "up-to-date equipment and faculty with expertise in technology" (p. 18), to provide more than the basic introductory computer courses. The OTA's next assessment in 1995 found some progress being made in preservice education, but still concluded that "technology is not central to the teacher preparation experience in most colleges of education" (p. 165) and found that "the overall teacher education programs in the United States do not prepare graduates to use technology as a teaching tool" (p. 184). A contributing factor continued to be limited technology resources for colleges of education (p. 206).

In 1996 the National Commission on Teaching and America's Future described major flaws in traditional teacher preparation programs. Long standing problems included the programs being fragmented, superficial, and unconnected to real classroom experiences (pp. 31-32). Their report, *What Matters Most: Teaching for America's Future*, stated that "most prospective teachers learn to work in isolation, rather than in teams, and to master chalkboards and textbooks instead of computers and CD-ROMs" (p. 32). They went on to say that until the flaws are corrected, teacher preparation programs "will continue re-creating generations of teachers who re-create generations of students who are not prepared for the technological society we are becoming" (p. 32).

Willis and Mehlinger (1996) conducted a literature review on information technology and teacher education and concluded:

> Most preservice teachers know very little about effective use of technology in education and leaders believe there is a pressing need to increase substantially the amount and quality of instruction teachers receive about technology. The idea may be expressed aggressively, assertively, or in subtle forms, but the virtually universal conclusion is that teacher education, particularly preservice, is not preparing educators to work in a technology-enriched classroom (p. 978).

The President's Committee of Advisors on Science and Technology (1997) claimed that "new teachers typically graduate with no experience in using computers to teach, and little knowledge of available software and content." That same year the National Council for Accreditation of Teacher Education (NCATE) Task Force on Technology and Teacher Education released their report, *Technology and the New Professional Teacher: Preparing for the 21st Century Classroom*. The report, the culmination of a year of deliberations, included this specific challenge to teacher education:

> To what degree are higher education institutions meeting their responsibility for preparing tomorrow's classroom teachers? Bluntly, a majority of teacher preparation programs are falling far short of what needs to be done. Not using technology much in their own research and teaching, teacher education faculty have insufficient understanding of the demands on classroom teachers to incorporate technology into their teaching. Many do not fully appreciate the impact technology is having on the way work is accomplished. They undervalue the significance of technology and treat it as merely another topic about which teachers should be informed. As a result, colleges and universities are making the same mistake that was made by P–12 schools; they treat 'technology' as a special addition to the teacher education curriculum—requiring specially prepared faculty and specially equipped classrooms—but not a topic that needs to be incorporated across the entire teacher education program. Consequently, teachers-in-training are provided instruction in 'computer literacy' and are shown examples of computer software, but they rarely are required to apply technology in their courses and are denied role models of faculty employing technology in their own work (1997, ¶ 34).

In 1998 the National Center for Educational Statistics (NCES) reported that less than one in four (24%) teachers nationally with three or fewer years teaching felt very well prepared to integrate educational technology (USDOE, 1999, p. 50). In a follow-up survey conducted two years later, that figure actually dropped to 23% (USDOE, 2001, p. 35).

In a 1999 research study by the International Society for Technology in Education (ISTE), commissioned by and in partnership with the Milken Exchange on Education Technology, Moursund and Bielefeldt found that "teacher-training programs do not provide

future teachers with the kinds of experiences necessary to prepare them to use technology effectively in their classrooms" (p. i). They reported that most students training to become teachers did not routinely use technology while in the field and did not work under supervising teachers who could advise them on using technology in the classroom. This position was reiterated by the American Council on Education Presidents' Task Force on Teacher Education in their 1999 report, *To Touch the Future: Transforming the Way Teachers are Taught*, "Teachers are inadequately prepared to understand and apply technology to teaching" (p. 9).

Chief technology officers surveyed for the 2000 Campus Computing Project ranked colleges of education faculty among the least technologically prepared among departments. Education departments were given low marks in the use of technology for instruction and about average marks in developing students' personal technology skills (George Lucas Education Foundation, 2001).

Sandholtz (2001) found that although most teacher education programs offer educational technology courses, the typical content was limited. Sandholtz discussed how "few programs are actively exploring integrating technology into methods and student-teaching activities" (p. 350) and "most student teachers do not routinely use technology during their field experiences and do not work with master teachers and supervisors who can advise them in technology use" (pp. 350-351).

In response to these shortcomings, the 2005 National Education Technology Plan laid out a framework for transforming education and provided seven action steps to help states and districts work towards this goal. The third step, Improve Teacher Training, states that teachers have not received sufficient training in the effective use of education to enhance learning (U.S. Department of Education, Office of Educational Technology, 2004).

In a study for the non-partisan Education Schools Project, Levine (2006) surveyed 1,800 principals (with a 41% response rate) and reported that "less than half [46%] of all principals surveyed thought schools of education were preparing their students very or moderately well in integrating technology into their teaching" (p. 31) and teacher education alumni (5,469 surveyed, 34% response rate) rated their schools of education even lower (41%).

Summary

Beattie (2001) stated, "The question of integrating technology in the classroom is the dominant issue presently concerning technology in education. In the final analysis, a school cannot benefit from technology if technology is not applied, no matter how efficiently or brilliantly that technology is maintained" (¶ 19). For the preservice teacher the knowledge of how to apply the technology should be mastered during their undergraduate studies. According to Gunter (2001), "Colleges of education must provide pre-service teachers with supportive educational experiences in the successful use of technology" (p. 19).

The review of literature sheds doubt that one required class and general statements that other core courses should incorporate technology integration skills, have adequately prepared beginning teachers (at least on a national level) to comfortably be able to integrate technology into their curriculum. One of the recommendations made by the USDOE–NCEE in *Nation at Risk* was, "Persons preparing to teach should be required to meet high educational standards, to demonstrate an aptitude for teaching, and to demonstrate competence in an academic discipline. Colleges and universities offering teacher preparation programs should be judged by how well

their graduates meet these criteria" (1983c). If one criterion is for graduates to meet the ISTE NETS-T, how do the graduates perceive they were prepared?

CHAPTER THREE: METHODOLOGY

Introduction

This chapter describes the methods and procedures used in the study and has been arranged into the following sections: Statement of the Problem, Population and Sample, Instrumentation, Instrument Reliability and Validity, Data Collection, and Data Analysis. Practice Twelve of Florida's Educator Accomplished Practices mandates that teachers be able to use technology to manage, evaluate, and improve instruction. This study was designed to investigate whether or not first year teachers in Florida perceived they were prepared by their preservice education to meet this Florida legislative requirement. Survey research was chosen as the investigative tool because it lends itself to being able to generate quantitative data that can be examined using scientific statistical analysis. The study commenced during the fall semester 2006. Data analysis using crosstabulation comparisons, Chi-square Test of Independence and Pearson Correlation occurred during the spring semester 2007.

Statement of the Problem

The problem addressed in this study was: "How do first year teachers in Florida, as measured by the First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards For Teachers (NETS-T) survey (Appendix C), perceive they were prepared by their preservice education to meet the National Educational Technology Standards for Teachers (NETS-T)?"

Population and Sample

In 2006 the Florida Department of Education (FLDOE) recognized 75 school districts, consisting of the 67 county districts and the Deaf & Blind School, Dozier/Okeechobee, Eckerd Youth, Florida Virtual School, and the Lab Schools at FAMU, FAU, FSU, and UF (FLDOE, 2006). Each year these school districts identified to the FLDOE the newly-hired teachers in their district. In April, 2006, the FLDOE's Office of Evaluation and Reporting (OER) reported that the school districts had hired 21,919 new teachers during fall 2005 (FLDOE OER, 2006). However, a database secured from the FLDOE in October 2006 (K. Smith, personal communication, October 14, 2006), listed over 23,000 individuals that were classified by their district as being newly hired teachers during the 2005-2006 school year. The information reported included teacher name, position, and school assignment.

Because the targeted population was public first-year PreK-12 classroom teachers, approximately 3,500 names were eliminated from the database. Those removed had titles that included: administrator, specialist, clerk, coordinator, substitute teacher, teacher on special assignment, adult education, school librarian/media specialist, nurse, therapist, school psychologist, and social worker. The remaining population of 19,500 consisted of Florida newly hired PreK-12 public classroom teachers from the 2005-2006 school year. There were no indicators in the database to indicate prior teaching experience, meaning the label "newly hired" did not necessarily equate to being a first-year teacher, thus it was unknown what percentage of the 19,500 could be classified as a first-year teacher. In 2003 the Florida Department of Education's Office of Policy Research and Improvement (FLDOE OPRI) estimated that 19% of all new hires taught the prior school year in another Florida school district and an additional

estimated 62 percent were returning after longer absences or transferring from nonpublic schools or schools out of state (FLDOE OPRI, 2003). If this trend continued and the remaining population of 19,500 was reduced by this approximate 80%, the population sample would be reduced to 3,900.

The tolerance of sampling error determines the sample size needed from a total population. A sample size calculator, available online from Creative Research Systems (2003), indicated that a random sample of 377 would be needed to provide a 95% confidence level with a 5% confidence interval using the total population of 19,500. However, if the total population was reduced to 3,900, then a random sample of 350 would be needed to provide a 95% confidence level with a 5% confidence interval. The response rate for completing Web-based surveys averages from 20% to 40% (Cook, Heath, & Thompson, 2000; Mertler, 2003; Solomon, 2001), thus an initial random sampling of 1,300 teachers was targeted to complete the survey instrument. Although the exact population (first year teacher in a Florida public K-12 school during the 2005-2006 school year) size was unknown, the larger sample size was targeted to provide a truer reflection of the intended population.

Instrumentation

The data were collected using a researcher developed instrument, *First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T)* (Appendix C). This instrument pulled from the indicators developed by Florida Department of Education's Office of Instructional Technology (FLDOE-OIT) (2005) for use in its *Inventory of Teacher Technology Skills*, from the International Society for Technology

in Education's *National Educational Technology Standards for Teachers* (ISTE NETS-T): *Student Teaching/Internship Performance Profile* (2002b, p. 14), and from the *Public School Teachers Use of Computers and the Internet* survey developed by the U.S. Department of Education, National Center for Education Statistics for its 2000 report, *Teachers' Tools for the 21st Century: A Report on Teachers' Use of Technology*. The instrument also included demographic elements. A group of school district technology contacts and university professors was enlisted to assist the researcher in refining the instrument.

A pilot of the instrument was conducted with a sample of 25 technology leaders from the local area (e.g., Seminole, Volusia, and Orange Counties in Florida). These leaders were asked to comment on the readability and ease of use of the online survey, how long it actually took them to complete the survey, if the questions were clear, concise, and grammatically accurate, and did they consider the questions valid for the purpose of the study. Using feedback from these participants, several modifications were incorporated into the final survey instrument. These modifications included rearranging the order of some questions, changing the scale description, adding highlighting to alternating rows, and modifying some of the question phrasing.

The final survey instrument consisted of 83 questions divided into three constructs, with constructs two and three being subdivided. The first construct, Questions 1.01-1.14, was used to collect demographic data. The responses to the questions were made using drop-down menus or completing a fill-in response box. In the second construct, Questions 2.01-2.29 focused on personal technology proficiency and Questions 2.30-2.35 asked how the personal technology proficiency was achieved. All items in the construct used a 4-point Likert-type response scale. The scale for Questions 2.01-2.29 was 1=poor, 2=fair, 3=above average, and 4=superior; for the Questions 2.30-2.35 the scale was 1=not at all, 2=somewhat, 3=well, and 4=very well. In final

construct, Questions 3.01-3.12 related to technology integration practices, Question 3.13-3.26 examined barriers to their ability to integrate technology, and Questions 3.27-3.32 asked about preparation to integrate technology. All except the final question used a 4-point Likert-type scale response. The final question was an open-ended response. The scale for Questions 3.01-3.12 was 1=poor, 2=fair, 3=above average, and 4=superior; for the Questions 3.13-3.26 the scale was 1=not a barrier, 2=small barrier, 3=moderate barrier, and 4=great barrier; and for Questions 3.27-3.32, the scales was 1=not at all prepared, 2=somewhat prepared, 3=well prepared, and 4=very well prepared. All the Likert-type scale responses were using a radio-button selection that allowed for only a single answer per question.

Participants' access to the survey was via a password protected Web page. Upon entering the correct password, participants were automatically redirected to another Web page and the survey was unlocked. The entire survey appeared within a single window and respondents were given the option of skipping any question they chose not to answer. No question required that a previous question also be answered. At the end of the survey, two buttons were provided: one was to submit the survey and one was to clear all responses and start over. Before clicking the submit button, participants were asked to check a box verifying the information they had entered. Upon clicking the submit button, the participants were automatically redirected to a final page that again thanked them for their participation.

Instrument Reliability and Validity

Instrument reliability is the degree to which an instrument consistently yields the same result when the phenomenon being measured does not change (Gay, Mills, & Airasian, 2005;

Schutt, 2006). Babbie provides some guidelines for maximizing the reliability of an instrument, "Ask people only questions they are likely to know the answers to, ask about things relevant to them, and be clear in what you're asking" (1990, p. 133). These guidelines influenced the overall design of the survey instrument. Since multiple items were used to measure each construct, the answers to the questions should be highly associated with one another. Cronbach's coefficient alpha is an estimate of inter-item consistency and is commonly used to determine the reliability of the items in a given construct on a survey instrument. Coefficient alpha numbers approaching 1.00 represent good inter-item consistency, while numbers approaching 0.00 indicate poor inter-item consistency. The Cronbach's coefficient alpha reliabilities for each of the *First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T)* constructs indicated good inter-item consistency. See Table 5 for division of the constructs and Table 6 for Cronbach's coefficient alpha reliabilities for each of the divisions.

Table 5
Divisions of Constructs of First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T) Survey

Divisions	Item Numbers
Personal Technology Rating	2.01-2.29
Assists to Increasing Personal Technology Proficiency	2.30-2.35
Ability to Integrate Technology	3.01-3.11
Barriers to being able to Integrate Technology	3.13-3.26
Preparation to being able to Integrate Technology	3.27-3.32

Table 6
Coefficient Alpha Reliabilities of First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T) Survey

Divisions	Reliability
Personal Technology Rating	.954
Assists to Increasing Personal Technology Proficiency	.614
Ability to Integrate Technology	.958
Barriers to being able to Integrate Technology	.785
Preparation to being able to Integrate Technology	.682

Validity refers to "the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration" (Babbie, 1990, p. 133) or more simply, a survey's validity is how well it measures what it sets out to measure (Litwin, 1995; Schutt, 2006). Content validity can be determined by individuals with expertise in some aspect of the subject under study (Gay, Mills, & Airasian, 2005; Litwin, 1995). Feedback from a final review of the modified instrument by school district technology contacts, university professors, and school-based technology leaders indicated the survey instrument had content validity.

Data Collection

As required by the University of Central Florida's Internal Review Board, permission to contact individual teachers was secured from each district. The researcher identified the Personnel Director or Head of Human Resources as being the first contact in securing district

permission. A search was conducted of each district's Web site to identify this individual. Once identified, each district contact was sent a personalized (e.g., Dear Dr. Jones) email (Appendix D) asking the appropriate permission. The email specified that the researcher was only asking permission to contact teachers within the district and not asking the district to endorse the study nor to provide any personnel data. Districts were afforded the opportunity of forwarding the contact information to teachers or allowing the researcher to make direct contact. The email to the district also included the link to the online survey and a copy of the participant consent letter (Appendix E).

Some districts responded quickly with an email reply giving their approval, while other districts (Alachua, Bay, Broward, Desoto, Gilchrist, Hillsborough, Lee, Leon, Liberty, Manatee, Miami-Dade, Palm Beach, Pinellas, Polk, Orange, Seminole, and Volusia) requested additional information or required the researcher to complete a district research proposal form before granting permission. Appendix F provides an example of a district's quick approval, while Appendix G provides an example of a district research proposal form. Ultimately, teachers were contacted in all 67 Florida county school districts. Teachers from Florida's eight non-county school districts were not contacted due to the specialized nature (laboratory school affiliated with a public university or atypical student population [deaf/blind, online, or at risk]) of these school districts.

In order to ensure that teachers from every district would be contacted, a stratified sampling method was used. The population from each districted was randomly sorted, and then every 15th name from each district was identified for the sample. In the districts (Lake, Liberty, Manatee, Marianna, and Washington) that requested they be allowed to forward the information to the sample population, the selected names were provided to the district contact. In all the

remaining districts, the email contact information for the targeted samples was individually secured; in most cases this was found by searching the individual's school Web site. However, because of spamming concerns, many schools do not provide email contact information on the school Web site. It was also discovered during these searches that some individuals that were identified in the 2005-2006 database were no longer at the same school during the 2006-2007 school year. In these instances, the researcher returned to the database and selected another name, either immediately above or below the initial 15th identified name.

One factor used to increase the response rates of surveys is to offer an incentive for participating (Dillman, 2007; Porter & Whitcomb, 2003). The researcher initially proposed allowing respondents to submit their names into a separate, random drawing for the opportunity of winning one of three $50 gift cards. This proposed drawing, however, would have constituted a lottery. Lotteries are illegal in Florida, so no incentives were offered to respondents. Reminders have also been shown to increase response rates (Dillman, 2007; Mehta & Sivadas 1995; Smith 1997), but since respondents were promised that they would only be contacted a single time, this was also not a route taken by the researcher. The researcher did use other methods for maximizing response rates, including allowing a large enough window (two weeks) to complete the survey, keeping a clear, concise design, and contacting potential respondents in the sample individually.

The email to the teachers indicated that they would only be contacted the initial time, their responses would be completely anonymous, and no tracking of respondents would take place. In some instances, teachers did respond directly to the researcher that they would or would not participate. It should be noted that over 100 contacts responded with the fact that they were not second year teachers (first year during the 2005-2006 school year). In some cases, the

individuals were new to Florida or to the district, but many had been teaching in the same district for numerous years (ranging from 5-30). If this 8% of the sample is representative of the total population, plus taking into account the potential number that did not return for their second year (on the average 11%), the 257 teachers from the sample that did complete the survey are fairly representative of the total population. It was initially calculated on a total population of 19,500, that a sample of 377 would be needed to provide a 95% confidence level with a 5% confidence interval. Without any adjustments to the population size, the sample of 257 provides a 95% confidence level with a 6.07% confidence interval (Creative Research Systems, 2003).

Data Analysis

The survey was administered using a password protected Web page with responses forwarded to the University of Central Florida's secure Form Manager Web site. The data were exported into a Microsoft Excel spreadsheet and then analyzed using the statistical software Statistical Package for Social Sciences (SPSS) Graduate Pack 13.0 for Windows.

For Research Question 1, (What is the relationship between perceived preparation to meet national educational technology standards during the first year of teaching and the college of education from which they graduated, their path to certification (traditional or alternative), personal demographics (e.g., age, gender, major), or teaching responsibilities (e.g., level, subject)?), a crosstabulation comparison and Chi-square Test of Independence was used to determine the significance, if any, between the variables. The dependent variables were the rankings on the perception questionnaire. The independent variables were the location of institution (Florida or non-Florida), type of institution (public or private), path to certification

(traditional or alternative), type of program (elementary or secondary), and level of personal technology proficiency, age, gender, and major.

For Research Question 2, (What is the relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills?), and Research Question 3, (What is the relationship between self reported technology integration practices of first year teachers and their perceptions of their ability to integrate technology?), a Pearson correlation was used to calculate the significance of the relationships between the variables.

CHAPTER FOUR: FINDINGS

Introduction

This study was designed to add to the body of scientific research relative to issues in teacher preparation, in particular to preparing future teachers to meet national education technology standards. Three research questions guided the research. Participants in the study completed a survey instrument that attempted to capture demographic background information, personal technology proficiency level, and perceived ability to integrate technology into instructional practices, including barriers to and preparation for technology integration.

This chapter has been divided into two sections. Section one reports the results of the demographic data gathered, as well as a general overview of the population and sample. Section two presents the analysis of the data for each of the three research questions that guided the study.

Demographics

A total of 257 participants responded to the request to participate in the study and completed the on-line, *First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T)* survey instrument. The sample included representation from almost every possible demographic group. The sample included teachers from all grade levels (Table 7) and almost all school levels (Tables 8 and 9).

Table 7
Grade Level of Students Who Respondents Worked with *Most of the Time*

Grade	Frequency	Percentage
Pre-K	1	.4%
Kindergarten	18	7.0%
1	14	5.4%
2	13	5.1%
3	17	6.6%
4	19	7.4%
5	14	5.4%
6	33	12.8%
7	16	6.2%
8	29	11.3%
9	25	9.7%
10	23	8.9%
11	7	2.7%
12	5	1.9%
Special Education (multiple ages or grade levels)	15	6.0%
No response	8	3.1%
Totals	257	100%

Table 8
School Level Where Respondents Taught

Level	Frequency	Percentage
Elementary	103	40.1%
Middle	80	31.1%
High	65	25.3%
Other (multi-level)	9	3.5%
Totals	257	100%

Table 9
Grade Level Configuration of Schools Where Respondents Taught

Level	Frequency	Percentage
PreK-3	9	3.5%
PreK-5	13	5.1%
PreK-6	4	1.6%
PreK-8	1	.4
K-5	54	21.0%
K-6	9	3.5%
K-8	2	.8%
3-6	9	3.5%
6-8	61	23.7%
6-9	2	.8%
6-12	7	2.7%
7-8	15	5.8%
9-12	57	22.2%
ESE	10	3.9%
Vocational	1	.4%
Other	3	1.2%
Totals	257	100%

Note. The only school configurations not represented were PreK, PreK-10, PreK-12, and 7-12.

Although participants' teaching experiences included every grade level (PreK-12) and almost all school levels, some of the more specialized school grade level groupings were not represented by the sample. Florida public schools include 20 different grade level groupings (Table 9); only four of the least occurring grade level groupings were not represented (PreK, PreK-10, PreK-12, and 7-12). If the sample were grouped into the three most typical school grade level groupings (i.e., PreK-5, 6-8, and 9-12), the sample representation would be 37% elementary, 30% middle, and 23% high school (the remaining 9% was other or no response).

Almost all content areas were represented in the sample (Table 10). At the secondary level (middle and high), all the traditional departments were represented (language arts, mathematics, science, physical education, fine arts, foreign language, and vocational).

The Florida Department of Education certifies 54 different coverage areas for teachers, 33 of which were held by one or more participants. Of the 21 coverage areas not represented, only one would be considered a common teaching area (Earth–Space Science [grades 6-12]). Of the remaining 20, nine were a specific foreign language, six would be considered staff support positions, and six were comprehensive K-12 coverages (Tables 11 and 12).

Table 10
Primary Content Area Taught (*Most of the Time* or *With the Most Students*) by Respondents

Primary Content Area	Frequency	Percentage
Elementary (all areas or multiple content areas)	87	33.9%
Special Education (multiple content areas according to students' individual needs)	17	6.6%
Language Arts[a]	46	17.9%
Math	33	12.8%
Science	20	7.9%
Social Studies	21	8.2%
Physical Education	5	1.9%
Fine Arts (Music, Art, Drama, etc.)	13	5.1%
Foreign Language	7	2.7%
Other[b]	8	3.1%
Totals	257	100%

Note. [a]Language Arts included Intensive Reading. [b]Other included: Agriscience, Culinary Operations, Health Sciences (Vocational), Home Economics, Pre-IB Inquiry Skills, Technology, and multiple content areas.

Table 11
Certification Coverages Not Represented by Respondents

Athletic Coaching (grades K-12)
Chinese (grades K-12)
Dance (grades K-12)
Earth–Space Science (grades 6-12)
Educational Media Specialist (grades PreK-12)
French (grades K-12)
Greek (grades K-12)
Hearing Impaired (grades K-12)
Hebrew (grades K-12)
Humanities (grades K-12)
Italian (grades K-12)
Japanese (grades K-12)
Latin (grades K-12)
Portuguese (grades K-12)
Professional Service Areas (grades PreK-12)
Reading (grades K-12)
Russian (grades K-12)
School Psychologist (grades PreK-12)
Speech–Language Impaired (grades K-12)
Technology Education (grades 6-12)
Visually Impaired (grades K-12)

Table 12
Certification Coverages Represented by Respondents

Agriculture (grades 6-12)
Art (grades K-12)
Biology (grades 6-12)
Business Education (grades 6-12)
Chemistry (grades 6-12)
Computer Science (grades K-12)
Drama (grades 6-12)
Elementary and Secondary Coverages (grades K-12)
Elementary Education (grades K-6)
English (grades 6-12)
English to Speakers of Other Languages (ESOL; grades K-12)
Exceptional Student Education (grades K-12)
Family and Consumer Science (grades 6-12)
German (grades K-12)
Guidance and Counseling (grades PreK-12)
Health (grades K-12)
Journalism (grades 6-12)
Marketing (grades 6-12)
Mathematics (grades 6-12)
Middle Grades English (grades 5-9)
Middle Grades General Science (grades 5-9)
Middle Grades Integrated Curriculum (grades 5-9)
Middle Grades Mathematics (grades 5-9)
Middle Grades Social Science (grades 5-9)
Middle Level Coverages (grades 5-9)
Music (grades K-12)
Physical Education (grades K-12)
Prekindergarten/Primary Education (age 3 through grade 3)
Preschool Education (birth through age 4)
School Social Worker (grades PreK-12)
Social Science (broad field; grades 6-12)
Spanish (grades K-12)
Speech (grades 6-12)

Table 13 provides a breakdown of the degrees held in the sample. Almost one-fourth of the respondents held an advanced degree (Master's, Doctor of Education [Ed.D.], or Doctor of Philosophy [Ph.D.]). Note Table 14 which shows that almost half of the respondents were over the median age of 26 (with a mean age of 31). These two are indicators of the possibility of teaching being (at least) a second career.

Table 13
Respondents' Highest Educational Degrees at the Beginning of the 2005-2006 School Year

Degree	Frequency	Percentage
Bachelor	192	74.7%
Master's	55	21.4%
Ed.D. or Ph.D.	3	1.2%
No Response	7	2.7%
Totals	257	100%

Table 14
Respondents' Ages at the Beginning of the 2005-2006 School Year

Age Range	Frequency	Percentage
26 or younger	133	51.8%
27-36	58	22.6%
37-46	36	14.0%
Over 46	28	10.9%
No Response	2	0.7%
Totals	257	100%

Less than half (115 out of 257) of the respondents graduated from a Florida public university (Table 15), and of that number 26.5% listed education as their undergraduate major (Table 16). This is not unexpected given that the Florida Department of Education Office of Evaluation and Reporting (FLDOE OER) reported that 21,919 new teachers were hired to start the 2005-2006 school year (FLDOE OER, 2006); however the Florida universities (public and private) teacher education programs produce less than 6,000 new teachers each year (FLDOE OER, 2003a).

Table 15
Respondents Who Graduated from a Florida Public University

Florida Public University	Frequency	Percentage
Florida A & M University	0	0.0%
Florida Atlantic University	4	1.6%
Florida Gulf Coast University	2	.8%
Florida International University	6	2.3%
Florida State University	18	7.0%
New College of Florida	0	0.0%
University of Central Florida	44	17.1%
University of Florida	19	7.4%
University of North Florida	5	1.9%
University of South Florida	14	5.4%
University of West Florida	3	1.2%
Totals	115	44.7%

Note. 142 of the respondents (55.3%) did not graduate from a Florida public university.

Table 16
Respondents Who Graduated from a Florida Public University's Teacher Education Program

Florida Public University	Frequency	Percentage
Florida A & M University	0	0.0%
Florida Atlantic University	4	1.6%
Florida Gulf Coast University	2	.8%
Florida International University	2	.8%
Florida State University	12	4.7%
New College of Florida[a]	0	0.0%
University of Central Florida	28	10.9%
University of Florida	8	3.1%
University of North Florida	1	.4%
University of South Florida	10	3.9%
University of West Florida	1	.4%
Totals	68	26.5%

Note. [a]New College of Florida does not have a teacher education program.

Additionally, another 51 participants indicated that they graduated from a teacher education program other than one offered by Florida public university (14 were from a Florida private university and 37 were from an out-of-state program). At the end of the 2005-2006 school year, 89 participants (34.6%) held a Florida Professional Certificate and 163 participants (63.4%) held a Temporary Certificate. Five participants did not respond to the question.

These demographics of the sample align with previously reported yearly data and future projections provided by the Florida Department of Education. For example, in 2003 the Florida Department of Education's Office of Evaluation and Reporting (FLDOE OER) stated in its report, *Trends in the Supply of New Teachers in Florida*, that the University of Central Florida (UCF) had the largest number of graduates among the state universities (FLDOE OER, 2003b) and in the sample the majority of respondents were graduates of UCF (Tables 15 and 16). A 2007 report, *New Hires in Florida Public Schools: Fall 1997 through Fall 2006*, by the same office found that approximately 36% of all new hires were elementary teachers and in the sample 33.9% were elementary teachers. Table 17 provides a comparison of the percentages of the respondents versus the percentage of all new hires in Florida at the beginning of the 2005-2006 school year for all primary content areas. The area of Special Education provides the largest difference, but it is also the area that is least filled by first year teachers (Whitaker, 2000).

Table 17
Comparison of Content Areas Taught by Respondents Versus All New Hires

Primary Content Area Taught	Percentage of Respondents	Percentage of All New Hires in Florida
Elementary[a]	33.9%	36.3%
Special Education[b]	6.6%	17.8%
Language Arts	17.9%	12.1%
Mathematics	12.8%	7.1%
Science	7.9%	6.5%
Social Studies	8.2%	5.2%
Physical Education	1.9%	2.3%
Fine Arts (Music, Art, Drama, etc.)	5.1%	4.1%
Foreign Language	2.7%	2.0%
Other	3.0%	6.6%
Totals	100%	100%

Note. [a]Elementary includes all areas or multiple content areas. [b]Special Education includes multiple content areas according to students' individual needs

In the population sample, almost 80% were female and 20% were male. In 2006 the Florida Department of Education's Education Information and Accountability Services (FLDOE EIAS) office reported that 78.3% of all instructional staff members were female and 21.7% were male (FLDOE EIAS, 2006a). Also, in the population sample, almost 75% held a Bachelor's degree, 21% held a Master's degree, and slightly more than 1% held an Ed.S., Ed.D, or Ph.D. This compares to a state average of all teachers, where 61% held a Bachelor's degree, 35% a Master's, and 3.8% an Ed.S., Ed.D., or Ph.D. (FLDOE EIAS, 2006b). It would be expected that first year teachers as a whole, would hold a larger proportion of Bachelor's degrees compared to the entire teaching population.

Research Question 1

> What is the relationship between perceived preparation to meet national educational technology standards during the first year of teaching and the college of education from which they graduated, their path to certification (traditional or alternative), personal demographics (e.g., age, gender, major), or teaching responsibilities (e.g., level, subject)?

Question 3.33 asked participants to indicate how well prepared they thought they were to meet national educational technology standards at the beginning of the 2005-2006 school year. Respondents selected from *Not at all prepared*, *Somewhat prepared*, *Well prepared*, and *Very well prepared*. Overall, less than half of the respondents (42%) indicated they felt they were well or very well prepared to meet national educational technology standards (Table 18).

Table 18
Respondent's Perception of Preparation to Meet National Educational Technology Standards

Question	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
3.33 In your opinion, how well prepared were you to meet national educational technology standards at the beginning of the 2005-2006 school year? (n=250)	11.7%	43.6%	28.8%	13.2%

Note. 7 respondents did not answer the question.

A crosstabulation comparison of those participants that graduated from a Florida public university and those that did not, finds graduates of Florida public universities felt slightly less prepared than did non-Florida public university graduates (Table 19).

Table 19
Perception of Preparation to Meet National Educational Technology Standards of Florida Public University Graduate Versus Non-Florida Public University Graduates

Graduated from a Florida public university	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Yes	111	13.5%	46.8%	24.3%	15.3%
No	139	10.8%	43.2%	33.8%	12.2%

Note. 7 respondents did not answer the question.

A crosstabulation comparison of those participants that graduated from a Florida public university's teacher education program and those that did not, finds a larger percentage of the graduates of a Florida public university teacher education program perceived they were very well prepared. If the comparison is expanded to include well prepared and very well prepared, then there is little difference between the two groups (Table 20). Because of the small sample size from each specific Florida public university's teacher education program, no particular trends can be noted (Table 21).

Table 20
Perception of Preparation to Meet National Educational Technology Standards of Respondents Who Graduated from a Florida Public University's Teacher Education Program

Graduated from a Florida public university's teacher education program	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Yes	67	11.9%	43.3%	20.9%	23.9%
No	183	12.0%	45.4%	32.8%	9.8%

Note. 7 respondents did not answer the question.

Table 21
Perception of Preparation to Meet National Educational Technology Standards of Respondents Who Graduated from a Specific Florida Public University's Teacher Education Program

Florida Public University	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Florida A & M University	0	0.0%	0.0%	0.0%	0.0%
Florida Atlantic University	4	0.0%	50.0%	50.0%	0.0%
Florida Gulf Coast University	2	0.0%	0.0%	100.0%	0.0%
Florida International University	2	0.0%	0.0%	50.0%	50.0%
Florida State University	12	0.0%	50.0%	25.0%	25.0%
New College of Florida	0	0.0%	0.0%	0.0%	0.0%
University of Central Florida	28	10.7%	53.6%	14.3%	21.4%
University of Florida	8	25.0%	37.5%	0.0%	37.5%
University of North Florida	1	0.0%	0.0%	100.0%	0.0%
University of South Florida	9	22.2%	33.3%	11.1%	33.3%
University of West Florida	1	100.0%	0.0%	0.0%	0.0%
Totals	67	11.9%	43.3%	20.9%	23.9%

Note. New College of Florida does not have a teacher education program.

A crosstabulation comparison between groups based upon the type of teaching certificate held (professional vs. temporary) found that more than half of the participants (54.3%) that held a professional certificate felt they were well or very well prepared to meet national educational technology standards compared to only 46% of the participants that held a temporary certificate (Table 22).

Table 22
Perception of Preparation to Meet National Educational Technology Standards by Type of Teaching Certificate Held by Respondents

Type of Teaching Certificate	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Professional	87	5.7%	40.2%	31.3%	23.0%
Temporary	159	15.7%	47.8%	27.7%	8.8%

Note. 11 respondents did not answer the question.

A crosstabulation comparison between groups based upon their age found that the second oldest group (ages 37-46) had the highest percentage (54.3%) that felt they were well or very well prepared to meet national educational technology standards (Table 23).

Table 23
Perception of Preparation to Meet National Educational Technology Standards Based Upon Age of Respondents

Age	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
26 or younger	129	13.2%	42.6%	27.1%	17.1%
27-36	56	10.7%	50.0%	32.1%	7.1%
37-46	35	8.6%	37.1%	40.0%	14.3%
Over 46	28	10.7%	53.6%	25.0%	10.7%

Note. 9 respondents did not answer the question.

A crosstabulation comparison between groups based upon their gender found little difference in their perceptions in being well or very well prepared to meet national educational technology standards (Female-43.9% vs. Male-41.2%). Males did show a 7.5% difference at the highest preparation level (Table 24).

Table 24
Perception of Preparation to Meet National Educational Technology Standards by Gender

Gender	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Female	198	12.1%	43.9%	31.8%	12.1%
Male	51	11.8%	47.1%	21.6%	19.6%

Note. 8 respondents did not answer the question.

A crosstabulation comparison between groups based upon their school grade level (elementary, middle, high) found little difference in their perceptions of preparedness to meet national educational technology standards (Table 25).

Table 25
Perception of Preparation to Meet National Educational Technology Standards by School Grade Level Taught in 2005-2006

Gender	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Elementary	101	8.9%	43.6%	30.7%	16.8%
Middle	77	13.0%	48.1%	26.0%	13.0%
High	63	11.1%	46.0%	33.3%	9.5%
Other	9	44.4%	22.2%	22.2%	11.1%

Note. 7 respondents did not answer the question.

A crosstabulation comparison between groups based upon their content area found little difference between elementary teachers and secondary core content teachers (math, science, social studies, and language arts) in their perceptions of preparedness to meet national educational technology standards (Table 26).

Table 26
Perception of Preparation to Meet National Educational Technology Standards by Content Area

Content area	n	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
Elementary	85	5.9%	45.9%	31.8%	16.5%
Mathematics	33	15.2%	45.5%	30.3%	9.1%
Science	20	5.0%	60.0%	20.0%	15.0%
Social Studies	20	20.0%	35.0%	30.0%	15.0%
Language Arts	45	20.0%	42.2%	24.4%	13.3%
Foreign Language	6	0.0%	83.3%	16.7%	0.0%
Physical Education	5	0.0%	40.0%	40.0%	20.0%
Arts	12	16.7%	33.3%	50.0%	0.0%
Special	16	25.0%	37.5%	25.0%	12.5%
Other	8	0.0%	37.5%	37.5%	25.0%

Note. 7 respondents did not answer the question.

As part of the crosstabulation analysis, a Chi-square Test of Independence was determined for each of the independent variables. Dummy coding was used to facilitate the entry of the independent variables into the analysis. There was no statistically significant relationship ($p < .05$) between perceived preparation to meet national educational technology standards during the first year of teaching and most of the independent variables, with the exception of type of teaching certificate held and graduating from a Florida public university's teacher education program (Table 27).

Table 27
Relationship Between Perceived Preparation to Meet National Educational Technology Standards During the First Year of Teaching and Independent Variables

Independent Variable	Chi-Square	DF	Significance
Graduate of a Florida public university	2.877	3	.411
Graduate of a Florida public university's teacher education program	9.503	3	.023
Type of teaching certificate	20.595	6	.002
Age	6.870	9	.651
Gender	4.440	6	.617
School grade level	12.516	9	.186
Content area	24.268	27	.615

Research Question 2

What is the relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills?

Questions 2.01-2.28 of the *First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T)* survey instrument asked participants to rate their personal technology proficiency in a variety of technology-specific tasks. Respondents selected from *Poor*, *Fair*, *Above Average*, and *Superior* (Table 28).

The personal technology proficiency rating questions were adapted from the indicators developed by Florida Department of Education's Office of Instructional Technology (FLDOE-OIT) (2005) for use in its *Inventory of Teacher Technology Skills*. For the majority of the 28 indicators, the respondents rated themselves at Above Average or Superior, with half of the questions receiving at least 80% Above Average or Superior. Only two questions (2.20 and 2.21) were answered at less than 50% Above Average or Superior. Overall, over 80% of the respondents perceived their personal technology proficiency to be Above Average or Superior (Table 29). This percentage compares favorably to the slightly less than 90% of early career staff (10 years or less teaching experience) that rated their computer skills as good or excellent according to a 2004 National Education Association national survey.

Table 28
Personal Technology Proficiency Rating

Survey Question	n	Poor	Fair	Above average	Superior
2.01 I knew how to open and exit programs; including starting up and shutting down the computer properly.	257	0.0%	2.3%	10.1%	87.5%
2.02 I knew how to save and retrieve a file from the hard drive; including saving the file to a designated folder.	257	1.9%	2.3%	12.5%	83.3%
2.03 I knew how to print to a desktop printer and to a network printer, including using print preview to modify my product prior to printing.	257	0.4%	2.7%	14.4%	82.5%
2.04 I knew how to create directories and folders; including changing file names, deleting files, copying files, and navigating a folder hierarchy.	257	2.7%	7.8%	16.0%	73.2%
2.05 I knew how to make backup discs; including file backups and system backups.	257	9.7%	17.1%	21.0%	51.8%
2.06 I knew how to work with more than one software program at a time; including toggling between all open programs as needed.	257	3.5%	7.4%	16.3%	72.8%
2.07 I knew how to perform the following operations in a word processing program: select, cut, copy, paste, change size/style, and spell check text.	254	1.2%	1.9%	10.9%	84.8%
2.08 I knew how to format paragraph text, columns, tables, margins, and tab settings.	256	1.6%	10.1%	21.4%	66.5%
2.09 I knew how to use a spreadsheet; including entering data, adding functions and formulas, editing cell and sheet, and sorting information.	256	8.9%	26.8%	22.6%	41.6%

Survey Question	n	Poor	Fair	Above average	Superior
2.10 I knew how to create charts and tables using spreadsheets and databases; including publishing the information in the most appropriate form.	256	9.7%	26.8%	25.7%	37.4%
2.11 I knew how to use a database; including adding records, sorting records, adding fields, editing fields, and creating simple layouts.	256	14.8%	26.5%	28.0%	30.4%
2.12 I knew how to use create a presentation and deliver the presentation using appropriate software.	256	7.8%	12.1%	24.9%	54.9%
2.13 I knew how to locate graphics (including web and clip art sources); including inserting and manipulating graphics (sizing, grouping, arranging, etc.).	257	6.6%	10.9%	21.4%	61.1%
2.14 I knew how to access the Internet; including performing searches, setting bookmarks/favorites, following links, and saving a Web page.	257	0.0%	3.9%	14.4%	80.2%
2.15 I knew how to apply electronic search strategies, including the use of keyword searches and using Boolean operators.	253	8.2%	10.5%	26.5%	53.3%
2.16 I knew how to use varied communication tools (e-mail, groupware, fax, chat, and threaded discussions) to participate in group projects.	254	3.9%	16.3%	24.5%	54.1%
2.17 I knew how to use e-mail; including send/receive, forward/reply, save/ archive, create/use address books, and send attachments.	254	1.2%	3.1%	17.1%	77.4%

Survey Question	n	Poor	Fair	Above average	Superior
2.18 I knew how to use multiple technology tools; including CD-ROM/DVD, video cameras, VCRs, scanners, digital cameras, etc.	253	2.3%	10.1%	24.9%	61.1%
2.19 I knew how to use multimedia authoring programs; including creating linear/nonlinear projects incorporating text, graphics, audio, and video.	256	21.8%	30.7%	22.2%	24.9%
2.20 I knew how to use interactive virtual environments, such as virtual reality or simulations.	256	40.1%	26.8%	15.6%	17.1%
2.21 I knew how to prepare lesson plans that involved the specific use of software to accomplish classroom goals.	256	13.6%	26.5%	27.6%	31.9%
2.22 I knew how to use technology to make my class more active and more interesting for students.	255	8.9%	25.7%	29.2%	35.4%
2.23 I knew how to evaluate technology projects based on a rubric developed jointly with students.	252	18.3%	30.0%	23.0%	26.8%
2.24 I knew how to load, preview, evaluate, and use software for instruction; including selecting the most appropriate software for classroom objectives.	257	12.8%	27.6%	25.3%	34.2%
2.25 I knew how to adhere to software licensing agreements and comply with copyright law and guidelines.	257	10.5%	16.0%	31.1%	42.2%
2.26 I knew how to use administrative software; including grade reporting and/or attendance software.	257	8.6%	20.6%	29.6%	41.2%
2.27 I knew how to use and understand technology terminology appropriately as it related to my job	256	1.9%	14.8%	35.4%	47.5%

Survey Question	n	Poor	Fair	Above average	Superior
2.28 I knew how to perform simple troubleshooting tasks; minimizing dependence on technical support.	250	5.1%	18.7%	32.3%	43.6%

Table 29
Perception of Personal Technology Proficiency

Question	n	Poor	Fair	Above average	Superior
2.29 How would you rate your overall personal technology proficiency during the 2005-2006 school year?	243	1.2%	12.1%	44.4%	37.0%

Note. 14 respondents did not answer the question.

A Chi-square analysis between the respondents' self-reported overall technology proficiency and perceived preparation to meet national educational technology standards during the first year of teaching demonstrated a statistical significance, χ^2 (9, N=237) = 68.084, $p < .001$).

Questions 2.30-2.35 asked participants to rate a variety of assists in increasing their personal technology proficiency. The assists were: undergraduate college work, graduate college work, professional development activities, colleagues, students, and independent learning. Respondents selected from *Not at All*, *Somewhat*, *Well*, and *Very Well* (Table 30). While over 58% of the respondents indicated that their undergraduate college work was an assist to increasing their personal technology proficiency, this was considerably lower than the over 82%

that gave credit to independent learning. These numbers are not substantially different than in 1999 when 93% of public school teachers indicated independent learning and 51% reported college work prepared them to use computers and the Internet (U.S. Department of Education, National Center for Education Statistics, 2000).

Table 30
Assists to Increasing Personal Technology Proficiency

Survey Question	n	Not at All	Somewhat	Well	Very Well
2.30 Undergraduate college work	251	16.7%	22.6%	32.3%	26.1%
2.31 Graduate college work	204	37.4%	17.9%	14.4%	9.7%
2.32 Professional development activities	244	20.2%	38.5%	25.7%	10.5%
2.33 Colleagues	253	11.7%	36.2%	34.2%	16.3%
2.34 Students	247	49.4%	29.2%	14.4%	3.1%
2.35 Independent learning	250	.8%	14.4%	33.1%	49.0%

Research Question 3

What is the relationship between self reported technology integration practices of first year teachers and their perceptions of their ability to integrate technology?

Questions 3.01-3.11 of the *First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T)* survey instrument asked participants to rate their ability in a variety of technology integration practices. Respondents selected from *Poor*, *Fair*, *Above Average*, and *Superior* (Table 31).

The technology integration practices questions were adapted from the indicators in the International Society for Technology in Education's *National Educational Technology Standards for Teachers* (ISTE NETS-T). Compared to their reported personal technology skills, the participants' ratings on integration practices were substantially lower. Out of the 11 indicators, only three received more than 50% Above Average or Superior. The indicator with the largest percent of Above Average or Superior ratings (56.8%) was Question 3.11 (being able to model safe and responsible use of technology). Question 3.07, that examined if respondents was able to design an evaluation plan for determining student technology proficiency and content area learning, received the lowest percentage of Above Average or Superior at less than 42%. Overall, less than 42% of the respondents perceived their ability to integrate technology to be Above Average or Superior (Table 32). These percentages align with the 43% of public school teachers who reported feeling well or very prepared to use computers and the Internet in their teaching (U.S. Department of Education, National Center for Education Statistics, 2000) and the 41% of teacher education alumni that felt schools of education prepared teachers to integrate technology moderately well or very well (Levine, 2006).

Table 31
Self Reported Technology Integration Practices of Respondents

Survey Question	n	Poor	Fair	Above average	Superior
3.01 I was able to identify, evaluate, and select specific technology resources available at my school site to support a coherent lesson sequence.	254	9.3%	38.1%	30.7%	20.6%
3.02 I was able to create and implement a well-organized plan to manage available technology resources, provide equitable access for all students, and enhance learning outcomes.	252	13.6%	32.3%	34.2%	17.9%
3.03 I was able to design and facilitate learning experiences that used assistive technologies to meet the special physical needs of students.	251	18.3%	37.4%	26.1%	16.0%
3.04 I was able to plan and implement technology-based learning activities that promoted student engagement in analysis, synthesis, interpretation, and creation of original products.	250	19.5%	32.3%	29.6%	16.0%
3.05 I was able to design, implement, and assess learner-centered lessons that were based on the current best practices on teaching and learning with technology and that engaged, motivated, and encouraged self-directed student learning.	253	19.1%	32.3%	34.2%	12.8%
3.06 I was able to guide collaborative learning activities in which students used technology resources to solve authentic problems in my subject area(s).	252	23.7%	33.5%	27.6%	13.2%

Survey Question	n	Poor	Fair	Above average	Superior
3.07 I was able to design an evaluation plan that applied multiple measures and flexible assessment strategies to determine students' technology proficiency and content area learning.	248	29.6%	35.0%	21.8%	10.1%
3.08 I was able to recognize students' talents in the use of technology and provide them with opportunities to share their expertise with their teachers, peers, and others.	249	21.4%	32.3%	29.6%	13.6%
3.09 I was able to use results from assessment measures (e.g., learner profiles, computer-based testing, electronic portfolios) to improve instructional planning, management, and implementation of learning strategies.	250	25.3%	30.0%	28.0%	14.0%
3.10 I was able to apply technology productivity tools and resources to collect, analyze, and interpret data and to report results to parents and students.	248	17.1%	31.1%	30.0%	18.3%
3.11 I was able to model safe and responsible use of technology and develop classroom procedures to implement school and district technology acceptable use policies and data security plans.	250	10.9%	29.6%	32.3%	24.5%

Table 32
Perception of Ability to Integrate Technology

Survey Question	n	Poor	Fair	Above average	Superior
3.12 How would you rate your overall ability to integrate technology into your instructional practice during the 2005-2006 school year?	245	18.7%	35.4%	30.7%	10.5%

Note. 12 respondents did not answer the question.

A Chi-square analysis between the respondents' self-reported ability to integrate technology and perceived preparation to meet national educational technology standards during the first year of teaching demonstrated a statistical significance, χ^2 (9, N=242) = 169.014, $p < .001$).

Shelly, Cashman, Gunter, and Gunter (2006) stated that "for more than two decades, several barriers have hindered technology integration in many schools" (p. 344). This statement is echoed in the participant responses to survey Questions 3.13-3.26 that asked participants to rate possible barriers to their ability to integrate technology. Respondents selected from *Not a barrier*, *Small barrier*, *Moderate barrier*, and *Great barrier* (Table 33). A careful examination of the data reveals that time and lack of access to modern hardware/software are the biggest barriers, with lack of classroom presentation equipment being the greatest barrier. Support and personal readiness were the least barriers.

Table 33
Barriers to Technology Integration

Survey Question	n	Not a barrier	Small barrier	Moderate barrier	Great barrier
3.13 Lack of time in schedule for students to use technology in class	252	11.3%	24.1%	35.0%	27.6%
3.14 Lack of classroom presentation equipment	253	17.1%	13.6%	24.9%	42.8%
3.15 Lack of student access to technology	253	18.3%	19.5%	31.9%	28.8%
3.16 Outdated, incompatible, or unreliable technology	252	32.3%	22.6%	21.4%	21.8%
3.17 Lack of good/appropriate instructional software	252	24.9%	26.5%	26.1%	20.6%
3.18 Internet access was not easily accessible	252	51.0%	18.7%	17.1%	11.3%
3.19 Lack of personal technology skills	251	66.1%	19.8%	7.4%	4.3%
3.20 Lack of personal technology integration readiness	251	52.9%	27.2%	11.7%	5.8%
3.21 Lack of adequate training opportunities	250	45.5%	28.8%	17.1%	5.8%
3.22 Lack of release time to learn/practice/plan ways to integrate technology	251	26.5%	29.6%	28.8%	12.8%
3.23 Lack of administrative support	250	54.1%	21.4%	16.3%	5.4%
3.24 Lack of support regarding ways to integrate technology into the curriculum	247	37.8%	28.0%	23.3%	7.4%
3.25 Lack of technical support or advice	251	48.6%	28.4%	15.2%	5.4%
3.26 Other	24	.4%	0.0%	1.6%	7.4%

Questions 3.27-3.32 asked participants to rate a variety of assists in preparing them to be able to integrate technology. The assists were: undergraduate college work, graduate college work, professional development activities, colleagues, students, and independent learning. Respondents selected from *Not at all prepared*, *Somewhat prepared*, *Well prepared*, and *Very well prepared* (Table 34). As was the case in the participant responses to assists in increasing personal technology proficiency (Table 30), independent learning received the highest percentage of Well prepared and Very well prepared ratings.

Table 34
Assists to Preparing to be Able to Integrate Technology

Survey Question	n	Not at all prepared	Somewhat prepared	Well prepared	Very Well prepared
3.27 Undergraduate college work (n=249)	249	28.0%	38.5%	18.3%	12.1%
3.28 Graduate college work (n=201)	201	39.3%	18.7%	13.2%	7.0%
3.29 Professional development activities (n=242)	242	20.2%	49.0%	19.1%	5.8%
3.30 Colleagues (n=249)	249	15.6%	47.1%	27.2%	7.0%
3.31 Students (n=239)	239	52.1%	31.1%	7.4%	2.3%
3.32 Independent learning (n=246)	246	4.7%	30.7%	30.4%	30.0%

The final question on the survey instrument allowed for an open ended response to the question, "Please share any other information that would help in understanding how well you feel you were prepared by your preservice education programs to meet national educational technology standards." Sixty-seven participants included an additional response, and only five of those included a positive comment about their preservice education program preparing them to meet national educational technology standards. At the other end of the spectrum were comments such as these:

- "Most of what I know I dug and clawed to find out."
- "To be honest, I don't really remember our preservice speaking about the how's to implement technology in the classroom."
- "School did not prepare me, I am just very 'tech savvy' and that has helped me help my students."
- "My college did not require technology classes as it related to classroom instruction."
- "Most preservice technology instruction is a waste of time due to its 'dumbed-down' nature. Instructors do not use differentiated instruction at the college level, as we are supposed to in the elementary level."
- "Most of my technology education comes from personal experience and not from my education course."
- "I wasn't. No one showed me anything. I was thrown to the wolves."
- "I was unaware that there are national educational technology standards."

Although these anecdotal responses may not have statistical significance, they do provide insight into the frustrations felt by many of the participants and reiterate their perceived lack of preparation and reliance on personal experience.

CHAPTER FIVE: CONCLUSION

Summary

The purpose of this study was to determine if first year teachers in Florida perceived they were adequately prepared by their preservice education programs to meet the National Educational Technology Standards for Teachers (NETS-T). Two hundred fifty-seven first year Florida public school teachers from the 2005-2006 school year responded to the *First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards for Teachers (NETS-T)* survey instrument with perceptions about their personal technology proficiency and self-reported on technology integration practices.

The following research questions guided this study:

1. What is the relationship between perceived preparation to meet national educational technology standards during the first year of teaching and
    A. the college of education from which they graduated?
    B. their path to certification (traditional or alternative)?
    C. personal demographics (e.g., age, gender, major)?
    D. teaching responsibilities (e.g., level, subject)?
2. What is the relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills?
3. What is the relationship between self reported technology integration practices of first year teachers and their perceptions of their ability to integrate technology?

This chapter begins with the discussion of findings for each of the three research questions that guided this study. The chapter concludes with the implications for practice, recommendations for future research, and concluding comments.

Discussion of Findings for Research Question 1

> What is the relationship between perceived preparation to meet national educational technology standards during the first year of teaching and the college of education from which they graduated, their path to certification (traditional or alternative), personal demographics (e.g., age, gender, major), or teaching responsibilities (e.g., level, subject)?

The data obtained in the teacher perception survey revealed that less than half of the respondents (42%) indicated they felt they were well or very well prepared to meet national educational technology standards. Comparisons between Florida public university graduates and non-Florida public university graduates, personal demographics, and teaching responsibilities revealed no statistically significant differences in perception of preparation. However, holding a professional teaching certificate and graduating from a Florida public university's teacher education program did reveal a statistical significance ($p < .05$). Approximately 16% of the respondents that held a temporary certificate perceived they were not at all prepared to meet national educational technology standards compared to less than 6% of the respondents that held a professional certificate. Almost one-quarter (23.9%) of the respondents who graduated from a Florida pubic university's teacher education program perceived they were very well prepared to meet national educational technology standards compared to less than one-tenth (9.8%) of the respondents that did not. A conclusion that can be drawn is teacher preparation programs do have

a positive impact on teachers' perceptions of readiness to meet national educational technology standards.

Discussion of Findings for Research Question 2

> What is the relationship between first year teacher perceptions for preparedness for technology integration and their perceived personal technology skills?

The data obtained in the teacher perception survey revealed that slightly more than 1% of the respondents perceived their personal technology proficiency to be poor. An analysis between the respondents' self-reported overall technology proficiency and perceived preparation to meet national educational technology standards during the first year of teaching demonstrated a statistical significance ($p < .001$). Although slightly less than 60% of the respondents indicated that their undergraduate college work assisted them well or very well in increasing their personal technology proficiency, over 80% of the respondents credited independent learning as assisting them well or very well in increasing their personal technology proficiency. A conclusion that can be drawn is the more technology proficient teachers are, the better their ability to integrate technology.

Discussion of Findings for Research Question 3

> What is the relationship between self-reported technology integration practices of first year teachers and their perceptions of their ability to integrate technology?

The data obtained in the teacher perception survey revealed that almost 19% of the respondents perceived their overall ability to integrate technology into their instructional practice

to be poor. An analysis between the respondents' self-reported ability to integrate technology and perceived preparation to meet national educational technology standards during the first year of teaching demonstrated a statistical significance ($p < .001$). Although participants ranked their ability to integrate technology lower than their perceived personal technology proficiency, the lack of appropriate technology equipment was listed as the biggest barrier in their ability to integrate technology. Twenty-eight percent of the respondents reported that their undergraduate work did not assist them at all in being prepared to integrate technology, compared to 95% crediting their own independent learning as being some assist in being prepared to integrate technology. A conclusion that can be drawn is teachers' self-reported technology integration practices provide an accurate view of their ability to integrate technology; in many cases, however, the poor perceptions of being able to integrate technology may be due more to barriers than their own personal technology proficiency.

Implications for Practice

Today's beginning teachers have confidence in their personal technology abilities, but this does not necessarily carry over into being able to integrate technology into their instructional practices. At the Consortium for School Networking (CoSN) 2007 conference, Jim Bosco, a former CoSN board chair and a professor emeritus at Western Michigan University, warned, "…just because today's young people are accustomed to using technology in their everyday lives doesn't mean they will be agents of change when they become teachers themselves" (Perry, 2007). This study has provided support for Bosco's warning. Almost 80% of the respondents in this study perceived their personal technology proficiency to be above average or superior, but

only slightly more than half that number perceived their proficiency in being able to integrate technology to the same degree. An examination of the respondents' self-reported technology integration practices draws more concern. The respondents rated themselves the lowest on incorporating instructional activities that would be at the highest levels (analyze, evaluate, and create) of Bloom's revised taxonomy (Anderson & Krathwohl, 2001).

Although this study did find that graduates from colleges of education perceived they were better prepared to meet national educational technology standards than those that did not, many still advocate for changes in teacher education programs. The final rule on the U.S. Department of Education's Office of Postsecondary Education's *Preparing Tomorrow's Teachers to Use Technology* program included these sentences:

> Several recent national reports have concluded that teacher preparation has emerged as the critical factor limiting the contributions of new technologies to improved learning—and these findings respond to the need to restructure the teacher preparation system. . . . No school system in America can ensure that these future teachers are well-prepared, technology-proficient educators without significant improvement and restructuring of the teacher preparation system (Preparing Tomorrow's Teachers to Use Technology, 1999).

In 2002 the American Council on Education Presidents' Task Force on Teacher Education released *Touching the Future: Final Report* (a follow-up of their 1999 report, *To Touch the Future: Transforming the Way Teachers are Taught*). One of the 10 steps that the report set forth as an action agenda for college and university presidents was to, "Ensure that their teacher education programs have the equipment, facilities, and personnel necessary to educate future teachers in the uses of technology" (p. 7). Although this is a commendable recommendation for the *what* that is needed, additional thought must be given to the *how*.

According to Thomas (2005), "Tools are effective for improving student learning only if the new teacher has had opportunities to apply technology for learning in his or her teacher

preparation experiences" (p. 157). Studies have shown that preservice teachers that observe technology integration being modeled by their instructors are more likely to emulate this practice in their own instruction (Schwab, 2000; Smith, 2001; Russell, Debell, O'Dwyer, & O'Connor, 2003; West, Graham, & Wright, 2005; Fleming, Motamedi, & May, 2007). In turn, these teacher educators may need professional development in new pedagogical methods of incorporating technology into their classrooms (Bruni, 2000; Carlson & Gadio, 2002; Snider, 2003; Darling-Hammond, et al, 2005). Additionally, in order for preservice teachers to learn how to support student-centered lessons with technology, they need knowledgeable mentor teachers and adequate access to technology to practice and develop those lessons (Dexter & Riedel, 2003; Grove, Strudler, & Odell, 2004).

Since the state of Florida requires only a single course in educational/instructional technology for education majors (i.e., EME 2040), more thought should be given to the actual content of the course. The majority of respondents in this study indicated independent learning to be the biggest factor in increasing their personal technology proficiency, but the course description of EME 2040 for most Florida public universities indicates that it is an "introduction" for students. The implication here is that students do not need an "introduction," but instead would benefit from a more in-depth focus on the practical applications for technology integration. One suggestion is to require students to demonstrate personal technology proficiency before enrolling in EME 2040; the demonstration could be accomplished by testing or prerequisite coursework.

University teacher preparation programs cannot be the sole focus of possible changes. As was previously reported (FLDOE, 2003), and was evidenced by this study, the majority of new public school teachers in Florida use alternative paths to certification. In the state of Florida,

these alternatives paths include the FLDOE Alternative Certification Program, district-developed programs that have been approved by the FLDOE, and Educator Preparation Institutes (many of which are offered by community colleges). To date, these alternative paths have not been held to the same rigor as teacher preparation programs offered by universities. Although both alternative and traditional paths to certification must be FLDOE approved, the university teacher education programs also meet national accreditation (through organizations such as NCATE) standards.

If the goal of public education is to raise student achievement at least one grade level each year, then a focus needs to be on the most effective way to reach that goal. Studies have shown that teacher quality is the most important school-related factor in influencing student achievement (Hanushek, Kain, O'Brien, & Rivkin, 2005; Nye, Konstantopoulos, & Hedges, 2004; Rice, 2003). This study has shown that in preparing new teachers to meet national educational technology standards, university teacher preparation programs are perceived to be beneficial.

Recommendations for Future Research

While the literature is abundant on teacher preparation, the research base on teachers' perceptions of their preservice education program preparing them to meet national educational technology standards is limited. This study attempted to contribute to that body of scientific research. The following are recommendations for future research.

1. A study could be replicated to focus on the perceptions of the graduates from the college of education at individual Florida public universities or a study could be conducted to more closely compare Florida public university teacher preparation

program graduates' perceptions versus Florida private university teacher preparation programs graduates' perceptions. The focus of both of these studies could be to identify exemplarily programs.

2. A study could be conducted to more closely compare traditional versus alternate paths to certification. Zeichner and Conklin (2005) examined peer-reviewed research related to the impact of alternative versus traditional teacher education programs. They cited "inconsistent and contradictory outcomes across studies and various conceptual and methodological problems with existing research" (p. 698) that lead to a "lack of success in finding empirical support for a particular model of teacher education at the preservice level" (p. 704). They concluded, "It remains for future research, however, to establish evidentiary warrant for the validity of these claims about program excellence" (p. 704).
3. This study focused on the perceptions of preparation. A follow-up study could be conducted to examine why preservice teachers do not perceive they are well or very well prepared to integrate technology into their instructional practices.

Concluding Comments

The attrition rate for first year teachers in Florida ranges between 12 and 20 percent. One contributing factor that influences a beginning teacher's decision to leave is inadequate preparation to teach (Florida Senate Committee on Education, 2003). Part of this study focused on Florida first year teachers' perceptions to teach using technology, with one conclusion being that perceptions of being able to teach with technology are not as high as perceptions of personal

technology skills. To more adequately prepare preservice teachers to teach using technology, one required course is not enough (research can be cited that shows teachers need long-term professional development to adapt and infuse curricula with technology). If Florida public universities are unable to require more than one technology course, then as a minimum universities need to require that all the faculty (not just college of education faculty) practice modeling and use technology in their courses. Likewise, alternative certification programs need to provide mentors who can help teachers adapt technology applications to their classrooms. Although these are just two small steps, they do align with the previously discussed implications for practice.

APPENDIX A
INITIAL RESEARCH REQUEST APPROVAL

University of Central Florida

Office of Research & Commercialization

September 8, 2006

Rosemayre Taylor, Ph.D. &
Mr. Larry Bedenbaugh
Department of Educational Research,
Technology & Leadership
ED 222L
Orlando, FL 32816-1250

Dear Dr. Taylor & Mr. Bedenbaugh:

With reference to your protocol #06-3741 entitled, "First Year Teacher Perceptions Related to Preparedness to Meet National Education Technology Standards for Teachers (NETS-T)" I am enclosing for your records the approved, expedited document of the UCFIRB Form you had submitted to our office. **This study was approved on 9/7/06. The expiration date for this study will be 9/6/2007.** Should there be a need to extend this study, a Continuing Review form must be submitted to the IRB Office for review by the Chairman or full IRB at least one month prior to the expiration date. This is the responsibility of the investigator.

Please be advised that this approval is given for one year. Should there be any addendums or administrative changes to the already approved protocol, they must also be submitted to the Board through use of the Addendum/Modification Request form. Changes should not be initiated until written IRB approval is received. Adverse events should be reported to the IRB as they occur.

Should you have any questions, please do not hesitate to call me at 407-823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

Joanne Muratori

Joanne Muratori
UCF IRB Coordinator
(FWA00000351 Exp. 2/13/07, IRB00001138)

Copies: IRB File

JM:jt

APPENDIX B
RESEARCH REQUEST ADDEDNUM/MODIFICATION APPROVAL

UCF IRB Addendum/Modification Request Form

This addendum form does NOT extend the IRB approval period or replace the Continuing Review form for renewal of the study.

INSTRUCTIONS: Please complete the upper portion of this form and attach all revised/new consent forms, altered data collection instruments, and/or any other documents that have been updated. **The proposed changes on the revised documents must be clearly indicated by using bold print, highlighting, or any other method of visible indication. Attach a highlighted and a clean copy of each revised form.** This Addendum/Modification Request Form may be emailed to IRB@mail.ucf.edu or mailed to the IRB Office: ATTN: IRB Coordinator, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or campus mail 32816-0150. Phone: 407-823-2901 or 407-882-2276, Fax: 407-823-3299.

- **DATE OF ADDENDUM:** November 8, 2007 to IRB# 06-3741 IRB Addendum # 3979
- **PROJECT TITLE:** Doctoral Dissertation: First Year Teacher Perceptions Related To Preparedness To Meet National Educational Technology Standards For Teachers (NETS-T)
- **PRINCIPAL INVESTIGATOR:** Dr. Rosemarye Taylor
- **MAILING ADDRESS:** P. O. Box 161250 College of Education University of Central Florida Orlando, Fl. 32826
- **PHONE NUMBER & EMAIL ADDRESS:** 407-823-1469 rtaylor@mail.ucf.edu
- **REASON FOR ADDENDUM/MODIFICATION:** Update from pilot study to final study
- **DESCRIPTION OF WHAT YOU WANT TO ADD OR MODIFY:**

Item 7. Modify purpose from test of pilot to actual study.

Item 8. Modify targeted participants to Florida public school teachers that completed their first year of teaching during the 2005/2006 school year and who are still in the classroom. For this study, an email that details the purpose of the study will be sent to randomly selected teachers from the population. The email will either be sent directly to the targeted participants by the co-investigator or forwarded through the district personnel department.

Item 9. Add: Targeted participants will only be contacted one time. Potential benefit allowing participants so desiring to enter a random drawing for one of four $50 gift certificates.

Item 10. Modify method of contact: The Director of the Personnel Department of all 67 Florida school districts will be first contacted asking permission to conduct the survey with targeted teachers in their district.

SECTION BELOW - FOR UCF IRB USE ONLY

X Approved ___ Disapproved

___ Full Board X Chair Expedited

Tracy L Dietz
IRB Chair Signature

11/9/06
Date

IRB Member/Designated Reviewer

Date

APPENDIX C
FIRST YEAR TEACHER PERCEPTIONS RELATED TO PREPAREDNESS TO MEET NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS FOR TEACHERS (NETS-T) SURVEY INSTRUMENT

First Year Teacher Perceptions Related to Preparedness to Meet National Educational Technology Standards For Teachers (NETS-T)

The purpose of this study is to learn how first year teachers feel they were prepared by their preservice education programs to meet national educational technology standards.

For each item that asks you to make a selection, please select the item that best describes you. You will only be able to select one item per question (except Items 1.07 and 1.08 which allow for multiple selections). If you want to change an answer, simply select another item.

For each item that asks for you to rate the statement, please click on the desired radio button. You will only be able to choose one button per item. If you want to change an answer, simply click on another button.

For the open-ended questions, the response box will scroll to contain your entire response. Thank you again taking time out of your busy day and sharing your perceptions.

Part 1: Demographics	
1.01	**Did you graduate from a Florida public university?**

	If Yes, please choose your school from the drop down menu. ---- / If No, please enter the school from which you graduated.
1.02	**What year did you graduate?**
1.03	**What was your undergraduate major?**
1.04	**What was your highest educational degree at the beginning of the 2005-2006 school year?**

1.05	**What type Florida teaching certificate did you hold at the beginning of the 2005-2006 school year?**

1.06	**How did you earn your Florida teaching certificate?**

	If Other *(please describe)*
1.07	**What certification coverage was listed on your certificate? (*please select all that apply --> use Ctrl-click*)**

1.08	**What endorsement (if any) was listed on your certificate? (*please select all that apply --> use Ctrl-click*)**

1.09	**In which grade level school did you teach at during the 2005-2006 school year?**

1.10	**What level would you place the school that you taught in during the 2005-2006 school year?**

1.11	**What was the grade level of students with which you worked with *most of the time* during the 2005-2006 school year?**

1.12	**What was your primary content area (what you taught *most of the time* or with the *most students*) during the 2005-2006 school year?**

	If Other *(please describe)*
1.13	**Please indicate your gender:**

1.14	**How old were you at the beginning of the 2005-2006 school year?**

Part 2: Personal Technology Proficiency					
During the 2005-2006 school year, how would you have rated your personal technology proficiency for the following items:		**Poor (1)**	**Fair (2)**	**Above Average (3)**	**Superior (4)**
2.01	I knew how to open and exit programs; including starting up and shutting down the computer properly.	○	○	○	○
2.02	I knew how to save and retrieve a file from the hard drive; including saving the file to a designated folder.	○	○	○	○
2.03	I knew how to print to a desktop printer and to a network printer, including using print preview to modify my product prior to printing.	○	○	○	○
2.04	I knew how to create directories and folders; including changing file names, deleting files, copying files, and navigating a folder hierarchy.	○	○	○	○
2.05	I knew how to make backup discs; including file backups and system backups.	○	○	○	○
2.06	I knew how to work with more than one software program at a time; including toggling between all open programs as needed.	○	○	○	○
2.07	I knew how to perform the following operations in a word processing program: select, cut, copy, paste, change size/style, and spell check text.	○	○	○	○
2.08	I knew how to format paragraph text, columns, tables, margins, and tab settings.	○	○	○	○
2.09	I knew how to use a spreadsheet; including entering data, adding functions and formulas, editing cell and sheet, and sorting information.	○	○	○	○
2.10	I knew how to create charts and tables using spreadsheets and databases; including publishing the information in the most appropriate form.	○	○	○	○

2.11	I knew how to use a database; including adding records, sorting records, adding fields, editing fields, and creating simple layouts.	○	○	○	○
2.12	I knew how to use create a presentation and deliver the presentation using appropriate software.	○	○	○	○
2.13	I knew how to locate graphics (including web and clip art sources); including inserting and manipulating graphics (sizing, grouping, arranging, etc.).	○	○	○	○
2.14	I knew how to access the Internet; including performing searches, setting bookmarks/favorites, following links, and saving a Web page.	○	○	○	○
2.15	I knew how to apply electronic search strategies, including the use of keyword searches and using Boolean operators.	○	○	○	○
2.16	I knew how to use varied communication tools (e-mail, groupware, fax, chat, and threaded discussions) to participate in group projects.	○	○	○	○
2.17	I knew how to use e-mail; including send/receive, forward/reply, save/ archive, create/use address books, and send attachments.	○	○	○	○
2.18	I knew how to use multiple technology tools; including CD-ROM/DVD, video cameras, VCRs, scanners, digital cameras, etc.	○	○	○	○
2.19	I knew how to use multimedia authoring programs; including creating linear/nonlinear projects incorporating text, graphics, audio, and video.	○	○	○	○
2.20	I knew how to use interactive virtual environments, such as virtual reality or simulations.	○	○	○	○
2.21	I knew how to prepare lesson plans that involved the specific use of software to accomplish classroom goals.	○	○	○	○

2.22	I knew how to use technology to make my class more active and more interesting for students.				
2.23	I knew how to evaluate technology projects based on a rubric developed jointly with students.				
2.24	I knew how to load, preview, evaluate, and use software for instruction; including selecting the most appropriate software for classroom objectives.				
2.25	I knew how to adhere to software licensing agreements and comply with copyright law and guidelines.				
2.26	I knew how to use administrative software; including grade reporting and/or attendance software.				
2.27	I knew how to use and understand technology terminology appropriately as it related to my job.				
2.28	I knew how to perform simple troubleshooting tasks; minimizing dependence on technical support.				
		Poor (1)	**Fair (2)**	**Above Average (3)**	**Superior (4)**
2.29	How would you rate your overall personal technology proficiency during the 2005-2006 school year?				

To what extent did each of the following assist you in increasing your personal technology proficiency?		Not at All (1)	Somewhat (2)	Well (3)	Very Well (4)
2.30	Undergraduate college work	○	○	○	○
2.31	Graduate college work	○	○	○	○
2.32	Professional development activities	○	○	○	○
2.33	Colleagues	○	○	○	○
2.34	Students	○	○	○	○
2.35	Independent learning	○	○	○	○

Part 3: Technology Integration Practices					
During the 2005-2006 school year, how would you have rated your ability in the following areas:		Poor (1)	Fair (2)	Above Average (3)	Superior (4)
3.01	I was able to identify, evaluate, and select specific technology resources available at my school site to support a coherent lesson sequence.	○	○	○	○
3.02	I was able to create and implement a well-organized plan to manage available technology resources, provide equitable access for all students, and enhance learning outcomes.	○	○	○	○
3.03	I was able to design and facilitate learning experiences that used assistive technologies to meet the special physical needs of students.	○	○	○	○
3.04	I was able to plan and implement technology-based learning activities that promoted student engagement in analysis, synthesis, interpretation, and creation of original products.	○	○	○	○
3.05	I was able to design, implement, and assess learner-centered lessons that were based on the current best practices on teaching and learning with technology and that engaged, motivated, and encouraged self-directed student learning.	○	○	○	○

3.06	I was able to guide collaborative learning activities in which students used technology resources to solve authentic problems in my subject area(s).	○	○	○	○
3.07	I was able to design an evaluation plan that applied multiple measures and flexible assessment strategies to determine students' technology proficiency and content area learning.	○	○	○	○
3.08	I was able to recognize students' talents in the use of technology and provide them with opportunities to share their expertise with their teachers, peers, and others.	○	○	○	○
3.09	I was able to use results from assessment measures (e.g., learner profiles, computer-based testing, electronic portfolios) to improve instructional planning, management, and implementation of learning strategies.	○	○	○	○
3.10	I was able to apply technology productivity tools and resources to collect, analyze, and interpret data and to report results to parents and students.	○	○	○	○
3.11	I was able to model safe and responsible use of technology and develop classroom procedures to implement school and district technology acceptable use policies and data security plans.	○	○	○	○
		Poor (1)	**Fair (2)**	**Above Average (3)**	**Superior (4)**
3.12	How would you rate your overall ability to integrate technology into your instructional practice during the 2005-2006 school year?	○	○	○	○

	Please indicate to what extent, if any, each of the following were barriers to your ability to integrate technology into your instructional practice during the 2005-2006 school year:	Not a barrier (1)	Small barrier (2)	Moderate barrier (3)	Great barrier (4)
3.13	Lack of time in schedule for students to use technology in class	○	○	○	○
3.14	Lack of classroom presentation equipment	○	○	○	○
3.15	Lack of student access to technology	○	○	○	○
3.16	Outdated, incompatible, or unreliable technology	○	○	○	○
3.17	Lack of good/appropriate instructional software	○	○	○	○
3.18	Internet access was not easily accessible	○	○	○	○
3.19	Lack of personal technology skills	○	○	○	○
3.20	Lack of personal technology integration readiness	○	○	○	○
3.21	Lack of adequate training opportunities	○	○	○	○
3.22	Lack of release time to learn/practice/plan ways to integrate technology	○	○	○	○
3.23	Lack of administrative support	○	○	○	○
3.24	Lack of support regarding ways to integrate technology into the curriculum	○	○	○	○
3.25	Lack of technical support or advice	○	○	○	○
3.26	Other (*please specify*)	○	○	○	○

To what extent did each of the following prepare you to be able to integrate technology into your instructional practice during the 2005-2006 school year?		Not at all prepared (1)	Somewhat prepared (2)	Well prepared (3)	Very well prepared (4)
3.27	Undergraduate college work	○	○	○	○
3.28	Graduate college work	○	○	○	○
3.29	Professional development activities	○	○	○	○
3.30	Colleagues	○	○	○	○
3.31	Students	○	○	○	○
3.32	Independent learning	○	○	○	○
3.33	In your opinion, how well prepared were you to meet national educational technology standards at the beginning of the 2005-2006 school year?	○	○	○	○

3.34	Please share any other information that would help in understanding how well you feel you were prepared by your preservice education programs to meet national educational technology standards:

Please verify the accuracy of all information provided on the form above.

If incorrect, please make the desired changes. If you want to start completely fresh, you may click the Reset button. This will clear all entries, and allow you to start over.

When you are satisfied with your responses, please click the Submit button.

Submit Reset

APPENDIX D
COVER E–MAIL TO DISTRICT PERSONNEL DIRECTOR

Dear PERSONNEL DIRECTOR:

I am a doctoral student at the University of Central Florida. As part of my research study, I am conducting a survey of Florida's 2005-2006 first year teachers. The purpose of this study is learn how first year teachers feel they were prepared by their preservice education programs to meet national educational technology standards. I am requesting permission to contact some of the teachers that your district previously reported to the Florida Department of Education as being first year teachers during the 2005-2006 school year. If permission is granted, at your discretion, I will either contact randomly selected teachers directly via email or have you forward the survey information. I am attaching the informed consent letter that will be sent to the randomly identified teachers.

The survey will be conducted solely online and should be able to be completed in less than 15 minutes. Participant responses will be completely anonymous; no names or other identifying information will be asked or collected. There are no anticipated risks to the participants in this survey. Teachers are free to withdraw their consent to participate and may discontinue their participation in the survey at any time without consequence by simply closing the online survey window.

I know that time is a precious commodity for teachers, so I will only be contacting prospective participants one time. If I fail to receive enough responses statewide (within a two-week window), I will seek permission to contact a second random sample.

I thank you very much for your consideration and assistance with this study.

Sincerely,

Larry G. Bedenbaugh
Information Services Coordinator
FLaRE Center
407-823-4245
lbedenba@mail.ucf.edu

APPENDIX E
PARTICIPANT LETTER OF CONSENT

Dear Colleague:

I am a doctoral student in Educational Leadership at the University of Central Florida under the supervision of faculty member Dr. Rose Taylor. As part of my research study, I am conducting a survey of Florida's 2005-2006 first year teachers. The purpose of this study is to learn how teachers like yourself, feel they were prepared by their preservice education programs to meet national educational technology standards. I am asking you to participate because you have been identified by the Florida Department of Education as being a first year teacher during the 2005-2006 school year.

The survey will be conducted solely online and should be able to be completed in less than 15 minutes. Your responses will be completely anonymous; no names or other identifying information will be asked or collected.

Your participation in this research is greatly appreciated. There are no anticipated risks to you as a participant in this survey. You are free to withdraw your consent to participate and may discontinue your participation in the survey at any time without consequence by simply closing the online survey window. Participation in this study is voluntary. You will not have to answer any question you do not wish to answer. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to the Institutional Review Board Office, IRB Coordinator, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246. The telephone numbers are (407) 882-2276 and (407) 823-2901. The office is open from 8:00 am to 5:00 pm Monday through Friday except on UCF official holidays. IRB approval for this study is protocol #06-3741.

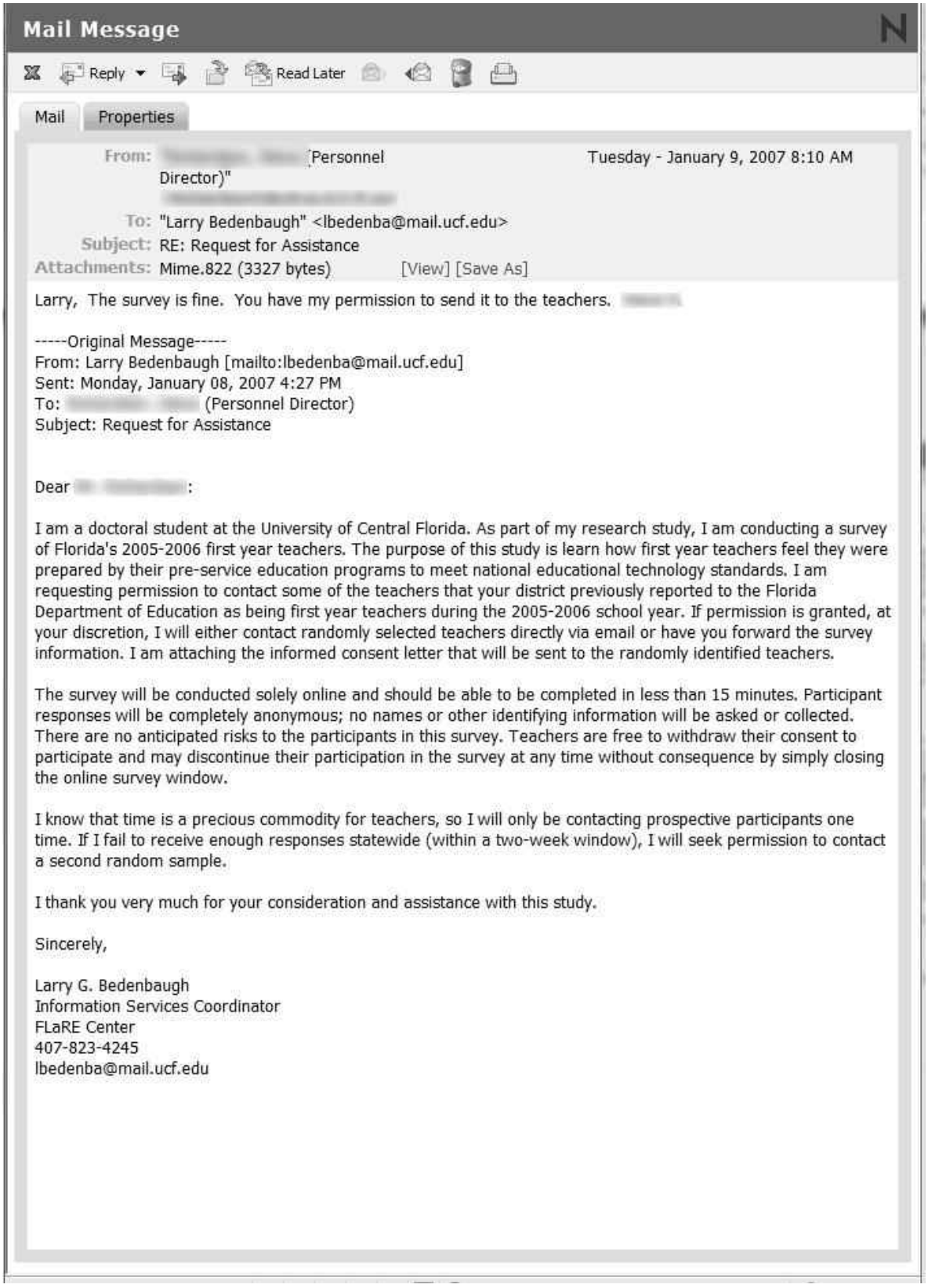
The link to the online survey is http://tinyurl.com/grbf4. The five digit log-in code = 12357. If you elect to participate, you will first see this same cover letter. You will be asked to signify that you have read and understand the above information and that you are at least 18 years old. If you click on the "Begin Survey" button, you will be indicating your informed consent to participate in the survey. Once you have completed the survey, please click on the "Submit Survey" button at the end of the survey. Results will be complied into a database that does not track any personal information. You may complete the survey at any time between now and 2/26/2007.

If you have any questions about this research, please contact me at 407 823-4245 or by e-mail at lbedenba@mail.ucf.edu. I am well aware that time is a precious commodity to teachers, so I thank you very much for your assistance with this study. This will be the only request that you will receive asking you to participate.

Sincerely,

Larry G. Bedenbaugh
Doctoral Candidate, University of Central Florida

APPENDIX F
EXAMPLE CONSENT FROM DISTRICT



Mail Message

Reply Read Later

Mail Properties

From: [redacted] Personnel Director)" Tuesday - January 9, 2007 8:10 AM

To: "Larry Bedenbaugh" <lbedenba@mail.ucf.edu>

Subject: RE: Request for Assistance

Attachments: Mime.822 (3327 bytes) [View] [Save As]

Larry, The survey is fine. You have my permission to send it to the teachers. [redacted]

-----Original Message-----
From: Larry Bedenbaugh [mailto:lbedenba@mail.ucf.edu]
Sent: Monday, January 08, 2007 4:27 PM
To: [redacted] (Personnel Director)
Subject: Request for Assistance

Dear [redacted]:

I am a doctoral student at the University of Central Florida. As part of my research study, I am conducting a survey of Florida's 2005-2006 first year teachers. The purpose of this study is learn how first year teachers feel they were prepared by their pre-service education programs to meet national educational technology standards. I am requesting permission to contact some of the teachers that your district previously reported to the Florida Department of Education as being first year teachers during the 2005-2006 school year. If permission is granted, at your discretion, I will either contact randomly selected teachers directly via email or have you forward the survey information. I am attaching the informed consent letter that will be sent to the randomly identified teachers.

The survey will be conducted solely online and should be able to be completed in less than 15 minutes. Participant responses will be completely anonymous; no names or other identifying information will be asked or collected. There are no anticipated risks to the participants in this survey. Teachers are free to withdraw their consent to participate and may discontinue their participation in the survey at any time without consequence by simply closing the online survey window.

I know that time is a precious commodity for teachers, so I will only be contacting prospective participants one time. If I fail to receive enough responses statewide (within a two-week window), I will seek permission to contact a second random sample.

I thank you very much for your consideration and assistance with this study.

Sincerely,

Larry G. Bedenbaugh
Information Services Coordinator
FLaRE Center
407-823-4245
lbedenba@mail.ucf.edu

APPENDIX G
EXAMPLE DISTRICT RESEARCH REQUEST FORM

Submit this form and a copy of your proposal to: *Accountability, Research, and Assessment* *P.O. Box 271* *Orlando, FL 32802-0271*	**Orange County Public Schools** **RESEARCH REQUEST FORM**	Your research proposal should include: Project Title; Purpose and Research Problem; Instruments; Procedures and Proposed Data Analysis

Requester's Name **Larry Bedenbaugh** Date **Jan 9, 2007**

Address: Home **3321 Crimson Lane, Deltona, FL 32738** Phone **386-789-4968**

Business **UCF – COE – Higher Ed Leadership** Phone

Project Director or Advisor **Dr. Rose Taylor** Phone **407-823-1469**

Address **P. O. Box 161250 College of Education University of Central Florida Orlando, Fl. 32826**

Degree Sought: (check one) ☐ Associate ☑ Doctorate ☐ Bachelor's ☐ None ☐ Master's ☐ Specialist

Project Title **First Year Teacher Perceptions Related To Preparedness To Meet National Educational Technology Standards For Teachers (NETS-T)**

ESTIMATED INVOLVEMENT

PERSONNEL/CENTERS	NUMBER	AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY/DESCRIBE GRADES, SCHOOLS, SPECIAL NEEDS, ETC.
Students			
Teachers	**~ 100**	**15 minutes each**	**Randomly selected teachers complete online survey**
Administrators			
Schools/Centers			
Others (specify)			

Specify possible benefits to students/school system: **The results could assist school administrators and future students in identifying programs that graduates felt were exemplarily in preparing future teachers to meet national education technology standards.**

ASSURANCE

Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director of Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.

Requester's Signature L C Bedenbaugh

Approval Granted: ☐ Yes ☐ No Date:

Signature of the Senior Director for Accountability, Research, and Assessment

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form, signed by the Senior Director, Accountability, Research, and Assessment, should be shown to the school principal.

Reference School Board Policy GCS, p. 249

FORM ID #GB0103/23-1/1FY REV 1/04

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