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A Study of Beginning Teachers' Use of Communication Technology Employing the Theory of Planned Behavior

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A STUDY OF BEGINNING TEACHERS' USE OF COMMUNICATION
TECHNOLOGY EMPLOYING THE THEORY OF PLANNED BEHAVIOR

BY

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ABSTRACT

A STUDY OF BEGINNING TEACHERS' USE OF COMMUNICATION TECHNOLOGY EMPLOYING THE THEORY OF PLANNED BEHAVIOR.

This quantitative study examined beginning Catholic elementary school teachers in New Jersey and their intentions to use communication technology. The analytic framework was based on Aizen's theory of planned behaviors. The three hypotheses examined the respondents' overall intention to use communication technology and what behavior influences their intention to use. Through descriptive statistics, correlations, and a two model hierarchal regression the three hypotheses were tested.

The two models tested were significant, suggesting that the independent variables (direct measure of subjective norm, direct measure of perceived behavioral control, and direct measure of attitude toward the behavior) shaped teachers' planned/intended intention to use communication technology. Model 2 accounted for the greatest amount of the total variance, 60.1%. This suggests that teachers' subjective norm and attitude toward the behavior, which in this case is their intention to use communication technology, is a strong indicator of whether or not they will use it. The hierarchical regression, where intention was the dependent variable, showed that perceived behavioral control had no significant impact on teachers' intention.

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DEDICATION

This dissertation is dedicated, with love, to my Grandma, Motts. Thank you Motts for all the love and support you have given me over the years. I would not be at this point without it. I love you!

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CHAPTER I

INTRODUCTION

Overview

An examination of the teacher education and induction literature suggests that while communication technology is increasingly present in schools, it is relatively infrequently used even by those beginning teachers who ought to be the most experienced and sophisticated users of communication technology. The question is: What is happening to the beginning teachers' knowledge of communication technology from their preservice curriculum?

Chapter 1 will explain the background of this issue by looking at communication technology, school communications, preservice teachers, a previous study, and alternative explanations of the gap between teacher preparation and actual use. The chapter will conclude with the statement of the problem, operational definitions, and a summary. Chapter 2, the literature review, is divided into seven parts. It will examine the topics surrounding beginning teachers and their use of communication technology. It will also explain the frameworks and the model to be used in this study. Chapter 3 will clarify the methods and statistical used on the current survey. Chapter 4 will report the findings of the various statistical analyses. Lastly, chapter five will discuss the implications of the findings and develop recommendations based on the study's findings.

Background of the Problem

Teachers use many forms of communication at school. In other occupations, technology is an increasingly popular tool used to communicate among co-workers. In higher education, a technology revolution has already taken place (Campus Computing, 1995) However as, in the past, new technologies have met with barriers to entry at the elementary school level (U.S. Department of Education, The National Center for Education Statistics, 2000) But now that schools not only have computers in the classroom, but also computer-savvy, newly graduated teachers who were educated in the computer era, will the higher education technology revolution be a factor in elementary schools? In addition, will communication technology (email and Webpages) become a new form of communication (or of technology) for elementary school teachers and preservice teachers to use in their parent - teacher communication, teacher - teacher communication, and teacher - administration communication? What ideas and opinions do teachers have about the use of technology in school communication? How will the new technology affect communication practices and processes in the elementary school setting? Are there roadblocks regarding the use of communication technology as it relates to communication about minors? This study examined beginning elementary ¹ school teachers to determine their intention to use communication technology and to what extent

¹ The study will also include first year teachers, meaning teachers that are new to the profession of teaching but not recent graduates and/or graduates of education.

they had brought their knowledge of communication technology from their college years into their elementary school classroom.

Communication Technology

Technology is a hot topic these days in educational research in the United States. The introduction of new forms of technology has begun and will continue to expand (see Figure 1). The percent of public schools with internet access has risen from 3% in 1994 to 92% in 2002. Education researchers are looking into the advantages that this boom may hold for educational growth in order to locate new ways in which technology can help to convey information.

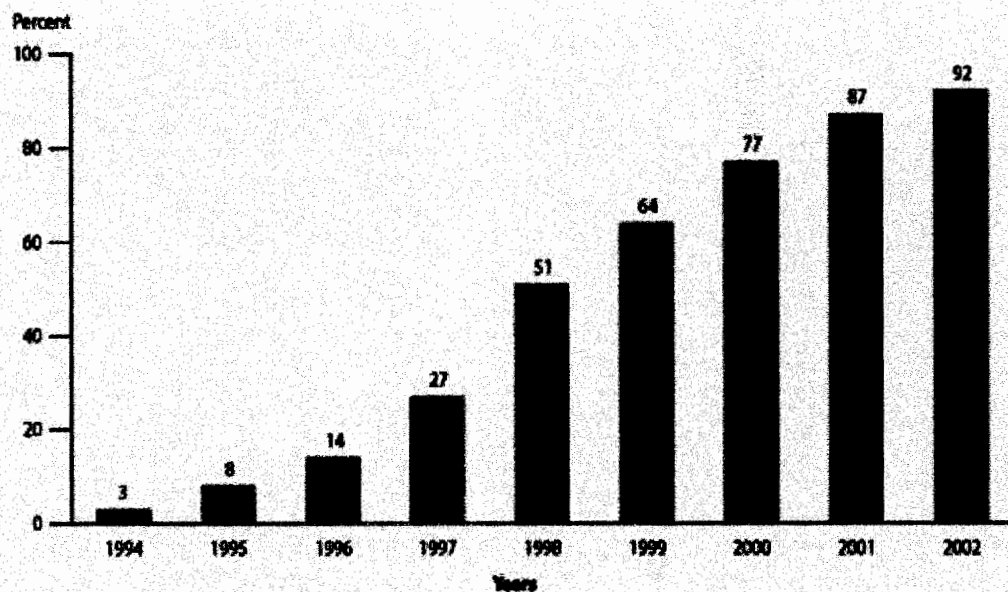
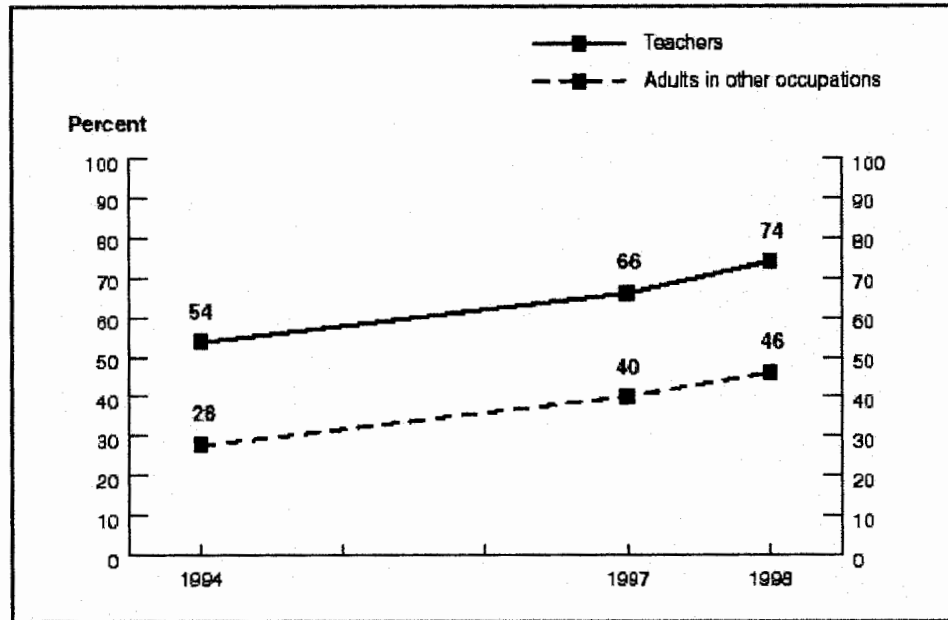


Figure 1. Public school instructional rooms with internet access: 1994–2002.

Source: US Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Instructional Rooms with Internet Access: 1994–2002" FRSS 011, 2004.

Figure 2 shows that teachers are among the most technologically savvy workers: The percent of elementary and secondary teachers who have computers at home rose from 54% in 1994 to 74% in 1998, compared to a rise from 28% to 46 % among all other adult occupations. Most people hold the simplistic belief that technology will make everything easier for them. With the world moving at a faster rate, people want answers at the touch of a button. They want information, and they want it now. Widespread use of the Internet and email has led many people to expect it (Tao & Reinking, 2000).



NOTE: Adults in other occupations includes all survey respondents who reported an occupation which was not elementary or secondary teacher.

Figure 2. Elementary and secondary teachers and adults in other occupations who report having computers at home: 1994, 1997, and 1998.

Source: U.S. Department of Education, National Center for Education Statistics, "Teachers' Tools for the 21st Century: A Report on Teachers' Use of Technology" FRSS, 1999.

How does this emergence of instant information and instant access apply to our schools? In higher education, Internet and email are already a necessity. Colleges are on the cutting edge of developing and employing the latest technology (see Table 1); 45.9% of full-time teachers of education majors used email, and 36.9% of part-time faculty used email. Being in competition with one another, to satisfy their students' demand, colleges seek the best that money can buy. Colleges' technology budgets increase every year with no signs of stopping (Campus Computing Survey, 2004). Table 1 shows that e-mail usage by faculty is now well-established in higher education "Most U.S. higher education institutions have seen IT (Information Technology) expenditures rise significantly over the last five years, making such costs a larger component of the institutional budget" (Finkelstein, Frances, Jewett & Scholz, 2000, p 1). Colleges are already seeing the huge impact that technology has on the teacher-student relationship, in making for more convenient and interesting learning (Finkelstein, Frances, Jewett & Scholz, 2000). By using correspondence technology, students' learning is helped by having classroom material easily distributed and accessed; they can also interact with their classmates and their professors through IT (Finkelstein, Frances, Jewett, & Scholz, 2000).

Table 1

Email Exchange between Student and Faculty in Postsecondary Education

	Percent of students who used e-mail for course-specific communication		Hours per week spent responding to students' e-mail communications	
	Full-time	Part-time	Full-time	Part-time
Total	32.9	32.1	2.7	2.7
Age				
Under 35	36.1	35.1	2.2	2.3
35-44	33.4	30.9	2.6	2.9
45-54	32.6	29.1	2.6	2.7
55-64	31.5	32.0	3.0	2.4
65 or older	33.4	45.3	3.5	3.4
Gender				
Male	32.0	32.8	2.5	2.3
Female	34.6	31.4	3.1	3.1
Majors				
Education	45.9	36.7	3.3	2.7

Note: Among full- and part-time postsecondary instructional faculty and staff who used e-mail to communicate with students, percentage of students using e-mail for course-specific communication and the average hours per week faculty spent responding to students' e-mail, by selected demographic and academic characteristics: Fall 1998

Source: U.S. Department of Education, National Center for Education Statistics, "Fast Response Survey System: National Study of Postsecondary Faculty" FRSS, 1999.

But what type of technology is filtering down to the elementary level and what reaction is it being met with? Around the late 1980s, computers began to be introduced into schools with mixed results (U.S. Department of Education, The National Center for Education Statistics, 2006). Most schools started with a computer lab or with a few computers in the classroom. New departments were added to help control and repair them. Teachers were trained to use new didactic and word processing programs. Then, in the mid-1990s, as the Internet and email became a new addition, schools went on-line. The percent of public schools reporting that they or their districts offered professional development by being given workshops on how to use the Internet and integrate this technology into their curriculum increased (see Table 2). The report shows that 87% of all public schools, from small to large, in urban to rural areas, have started to train their teachers to use communication technology.

Table 2

Public Schools Reporting That They or Their Districts Offered Professional Development in 2002

Percent of public schools reporting that they or their district offered professional development for teachers in their school on how to integrate the Internet into the curriculum in the past 12 months, and percent of teachers in those schools who have attended such professional development in the past 12 months: 2002

School characteristic	School or district has offered professional development ¹	Percent of teachers who have attended professional development ²				
		0 percent	1 to 25 percent	26 to 50 percent	51 to 75 percent	76 to 100 percent
All public schools.....	87	1	42	17	11	30
Instructional level¹						
Elementary.....	87	1	43	15	10	31
Secondary.....	86	§	42	20	12	26
School size						
Less than 300.....	82	§	29	14	9	47
300 to 999.....	88	1	45	17	11	25
1,000 or more.....	93	‡	51	19	8	21
Locale						
City.....	90	!!	53	14	7	25
Urban fringes.....	90	‡	40	18	11	30
Town.....	82	‡	36	21	14	28
Rural.....	84	‡	38	15	12	34
Percent minority enrollment⁴						
Less than 6 percent.....	86	‡	30	16	13	40
6 to 20 percent.....	85	‡	43	18	12	26
21 to 49 percent.....	88	‡	46	17	9	27
50 percent or more.....	89	2!	49	16	7	27
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent.....	90	‡	43	15	12	29
35 to 49 percent.....	82	‡	30	20	14	34
50 to 74 percent.....	85	‡	42	21	7	30
75 percent or more.....	88	‡	51	11	9	27

#Rounds to zero.

!Interpret data with caution: the coefficient of variation is greater than 50 percent.

‡Reporting standards not met.

¹Percentages are based on the 99 percent of public schools with Internet access.

²Percentages are based on 86 percent of public schools (99 percent with Internet access times 87 percent reporting that they or their district offered professional development to teachers in the school on how to integrate Internet into the curriculum in the past 12 months). Detail may not sum to totals because of rounding and not reporting where there are too few cases for a reliable estimate.

³Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

⁴Percent minority enrollment was not available for 15 schools. The weighted response rate was 98.6 percent.

School Communications

In the past, school communications consisted of only face to face talks, hand written memos, or phone calls. (U.S. Department of Education, The National Center for Education Statistics, 1996) Now with computer access throughout a school, will technology communication be the new dominant form? At this time, communication between parents and teachers seems to consist of “Back to School Nights,” conferences, or a phone call home relating to missed homework. Parents and teachers are in constant communication with the student himself/herself, but rarely do the two connect directly to communicate about what is happening at school or at home (U.S. Department of Education, The National Center for Education Statistics, 1996). “Communication includes (a) speaking, (b) listening, (c) reflection of feeling, and (d) interpretation of the message” says Berger (2004, p 1). Parent - teacher communication needs to occur more frequently than just on the first day and last day of school. Swap (1987) found that schools which involve parents in communication benefit students. If parents are engaged in the student’s learning, there are “fewer instances of failing to pass into the next grade, fewer referrals to special education classes, higher levels of grade and high school completion” (Bronfenbrenner, 1974). The U.S. Department of Education (1994) expressed the need for parent and school communication to increase the children’s success.

Parent-teacher communication has been researched for many years by numerous authors to just name a few, Berger, Caddell, Chavkin, Epstein, Hiatt-Michael, McCabel, Swallow, and Swap. Most studies have shown that if parents and teachers communicate, then the students' achievement is higher (Caddell, 2001). These researchers looked at oral and handwritten communication between school and home, but they do not look at the utilization of information technology communication. Will communication technology also be a positive influence on students' learning? Will teachers find communicating with parents through this device more helpful than with other forms of communication?

A teacher's job is to educate, but his/her job involves much more than just classroom work. Most teachers are in frequent contact with the parents, with issues ranging from sick notes to homework questions. Email may slowly start to take the place of these traditional forms. Teachers also need to communicate with other teachers or administrators. With email they could inform each other of the events in their classroom without even leaving it. Teachers would be able to write about a current problem and be able to received instantaneous feedback on how to handle it. If teacher parent communication seems to have a positive impact on a student's learning, then teacher – teacher communication about students could also help. (U.S. Department of Education, The National Center for Education Statistics, 1996)

Figure 3 shows that 84% of new teachers reported that they had learned in college how to use computers and the Internet. For those who have taught for 4 to 9 years, the learning rate is 76%, while for teachers with 10 to 19 years experience, that number drops to 44%, settling at 31% for teachers with 20 years or more experience. Over half of the teachers who have taught for 10 years or more missed out on communication technology at the postsecondary level, which may lead to the lack of understanding and uses of these tools at school.

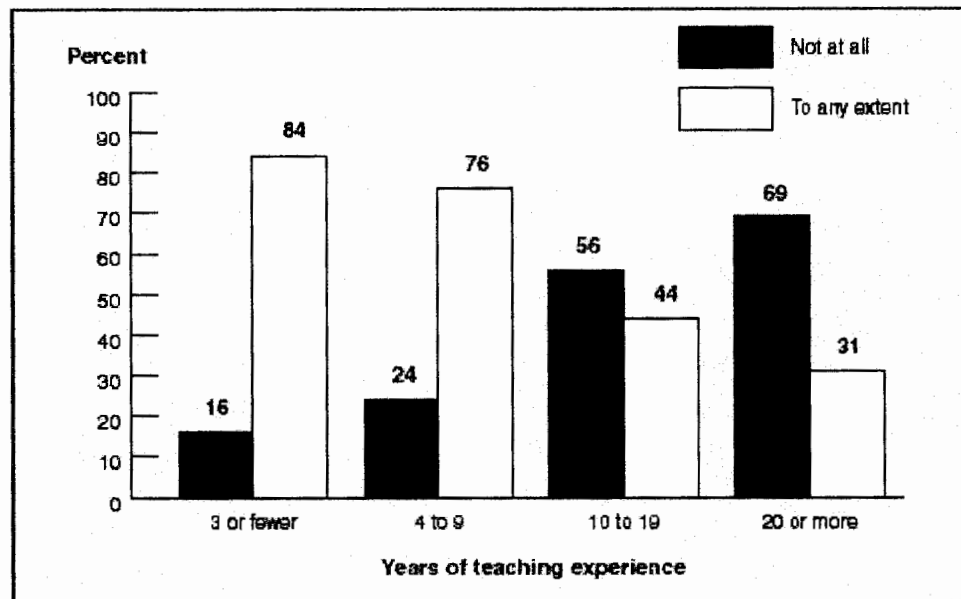


Figure 3: Public school teachers reporting whether college/graduate work prepared them “not at all” or “to any extent” to use computers and the Internet, by years of teaching experience: 1999.

Source: U.S. Department, National Center for Education Statistics, Fast Response Survey System, “Public School Teachers Use of Computers and the Internet,” FRSS 70, 1999.

Adults in other occupations do not have a computer at home because they use one at work; teachers use computers at home and not at school; teachers use computers at home and at school; teachers who have taught for less than 10 years have risen in number which has caused the great increase in computers at home. Overall, Figure 2 and Figure 3 show that more and more teachers are using information technology either at home or at school.

If 92% of teachers have computers at school, and half of the teachers have computers at home, then why does Table 3 seem to contradict the above-cited statistics? Figure 6 is the data generated from a survey by the National Center for Education Statistics done in 1999 (U.S. Department of Education, The National Center for Education Statistics, 1999). They asked teachers how they used information communication technology with colleagues and with parents at home or at school. The communication among colleagues in school is the highest at 50%, while communicating with colleagues from home is a close second at 48%. Communication with parents from school is done by 25%, while only 19% communicate with parents from home.

Table 3

Public School Teachers Reporting Using Computers or the Internet a Little or a Lot at School and at Home, for Various Activities, By School and Teacher Characteristics: 1999

School and teacher characteristics	Activities			
	Communicate with colleagues		Communicate with parents	
	At school	At home	At school	At home
All public school teachers	50	48	25	19
Instructional level				
Elementary	51	49	25	20
Secondary	50	48	24	15
Enrollment size				
Less than 300	52	38	23	21
300 to 999	52	50	25	19
1,000 or more	46	49	24	18
Locale				
City	48	48	23	19
Urban fringe	50	51	25	19
Town	54	50	27	17
Rural	53	43	24	20
Percent minority enrollment in school				
Less than 6 percent	53	50	28	20
6 to 20 percent	62	48	30	17
21 to 49 percent	46	51	25	21
50 percent or more	41	44	14	16
Percent of students in school eligible for free or reduced-price school lunch				
Less than 11 percent	59	52	28	16
11 to 30 percent	55	53	29	21
31 to 49 percent	54	45	29	18
50 to 70 percent	41	44	20	22
71 percent or more	38	40	18	15
Teaching experience				
3 or fewer years	51	51	22	20
4 to 9 years	52	46	25	18
10 to 19 years	52	50	25	18
20 or more years	48	48	25	19

Source: US Department of Education, The National Center for Education Statistics. Teachers' Tools for the 21st Century: A Report on Teachers' Use of Technology, Percent of public school teachers who have computers at school or at home reporting using computers or the Internet a little or a lot at school and at home, for various activities, by school and teacher characteristics, 1999.

Cuban (2001) did a study on schools in Silicon Valley, the “heartland of technology” where he found unexpected and expected findings about the schools, teachers and students. Examples of expected findings on access to computers were, teachers and students had access to computers and related technology and showed no resistance to using information technology. Under ways computers were used in schools, an expected finding included, “Those teachers who used computers at home, office, and school said that they communicated much more with colleagues, parents, and students than they had previously...” (p. 133). These teachers have seen that communication technology has added to their communication. An unexpected finding reported was, “Less than 10 percent of teachers who used computers in their classrooms were serious users (defined as using computers in class at least once a week); between 20 and 30 percent were occasional to rare users (once a month); well over half of the teachers were nonusers” (p. 133). In sum, even in the “heartland of technology” technology is only used by 10% of the teachers weekly.

Preservice Teachers

If parent - teacher communication has a positive impact on students, then will the adoption of communication technology also have an impact on student achievement? Most parents have access to this technology either at work or at home. How will this affect the already in-service teacher who is accustomed to traditional forms of communication? Preservice teachers might have an outlook on information technology that is different from their mentor, in-service teachers.

Most preservice teachers have grown up in the computer age, and email is the most common written form of communication that they use.

Among postsecondary faculty surveyed in fall 1998 (see Table 1), 32.9% of full time and 32.1% of part - time professors used email communication to interact with students. Usage varies by major, controlling for academic field, 45 % of full-time faculty and 36.7 % of part-time faculty in education interact with their students via e-mail. Hence, 50% of education majors' professors use technology communication to interact with their students. Will this usage experience be reflected in their future communications with parents?

Preservice teachers are seeing both sides of technology use in the classroom. In their undergraduate courses, preservice teachers interact with their professors and classmates via email, while in their elementary placement school they are unlikely to interact with the parents at any time.

Previous Study

In a preparatory study done in 2004, the researcher interviewed 18 elementary teachers about their experience with e-mail and its effect on their workload. After reviewing the teacher responses (see Appendix G), many common themes and views emerged about how email will have an impact on the 2004-2005 school year. Since the email system at the school was only working for part of the 2003-2004 school year, many teachers were already discouraged about its use. Many stopped bothering to check it after months of

problems, while others said they did not have very informed opinions on the issue because they hardly used it.

The teachers were asked seven questions about email. The questions focused on their views of email for the future of the school. (Since the email system was not working properly, they were unable to give examples from the past school year). Two thousand and five was the first time these teachers had to use email as another form of communication with parents, and their comments suggest a degree of apprehension.

The predominant concern expressed by the teachers interviewed in this survey was the issue of time or the lack thereof. Email, rather than being viewed as a modern time - saving marvel, is perceived as another demand in their already very tight daily agendas.

Though many people commonly think of email as a quick and easy form of communication, these teachers, at this school, are still struggling with inadequate technology, uncertain regulations, and ever more demanding schedules. They fear that email will be one more duty that will encroach on their limited planning periods both in school and at home.

The second theme that emerged from the survey was the prediction that email could become a venue for parents to vent, in an uninhibited manner, any and all issues that come to mind. Some teachers mentioned the need to restrict the number of emails and to provide guidelines for appropriate language and subject matter. This leads to the corollary issues of legality and confidentiality. A

majority of teachers was so concerned about this problem that they expressed an interest in taking an email etiquette course.

A study done by Wepner and Tao (2002) found that the solution for infusing technology into the classroom needed to have the teachers and the administrators working together. They believe that teachers “need to acknowledge that technology infusion is an evolutionary process that has fits and starts in the functionality and practicality” (p. 648). Teachers need to realize that technology and email can be helpful and not a hindrance. Another solution Wepner and Tao had is aimed at administrators: “Teachers need time to work with technology. Whether it is additional periods during the week or shortened teaching days, teachers need designated time slots for working individually and with others to prepare lessons with technology. Some type of lead technology teacher, ‘technotutor,’ or technology specialist should be available in each building to work regularly with teachers” (p. 648).

This study has shown the researcher that teachers have apprehensions about email, and this has provoked the researcher’s interest to continue to explore teachers’ and preservice teachers’ ideas about the use of communication technology.

Alternative Explanations of the Gap between Teacher Preparation and Actual Use

In this research, and through the previous study, the researcher has provided alternative explanations of teachers’ use of communication technology.

Data (see Figure 3) shows a gap between teachers with less experience compared to teachers with more experience in how these groups choose to use or not to use computers and the Internet. Why is there a gap? Some might say that more experienced teachers (10 years or more in service) were not raised with the Internet, so they will not want to use it in their classrooms. However, teachers with less experience (9 years and less) were part of the computer boom and learned how to use the Internet while in college. This is also true of new preservice teachers. So, is the experience gap going to cause a differential implementation of parent-teacher communication methods?

Another alternative explanation can be time. In the previous study, the most common issue raised by teachers was that of time. These teachers complained that, in using email, that they would need more time, and it would take more time to communicate with the parents than hand writing a note, giving the parent a phone call or even face to face communication. Email would cause a time constraint issue. Figure 3 shows higher education professors use of email with students. The data shows that full-time professors spend a total of 2.7 hours responding to students' email a week.

A third explanation can be from the schools themselves. Barriers set up by the schools themselves could also impede Internet and email communication with teachers. Districts across the United States worry about the legality of communication technology (Conn, 2002), since it is a written document which could be presented in court. Some schools even decided to not allow teachers to have email communications.

Preservice student programs certified by NCATE and other programs are supposedly teaching these students how to communicate with parents and how to integrate technology into their everyday curriculum. But are these preservice teachers really learning how to communicate with parents? Does this constitute another gap between the veteran teachers and the preservice teachers?

Statement of the Problem

This has led to the main research question and subsidiary questions mentioned in chapter 3 for this study. To what extent are beginning teachers able to translate their pre-service preparation experience with communication technology into their in-service practice once they begin teaching?

Operational Definitions

Communication: the imparting or interchange of thoughts, opinions, or information by speech, writing, or signs (Webster's Encyclopedic Unabridged Dictionary of the English Language, 1989)

Computers: a programmable electronic device that can store, retrieve, and process data (Merriam-Webster Online Dictionary, 2004)

Email: Donohoe and Others (1995) "A system for sending electronic messages from one user to another via an electronic network. Email messages can be sent internally from workstations within an office as well as externally to outside destinations" (p.19). (An alternate spelling is "e-mail". Where an author preferred the usage, that spelling in the passage was cited.)

Communication technology: The use of the Internet either through Webpages or email

Internet/internet: Donohoe and Others (1995) "The Internet is the largest computer network in the world...The Internet provides software and document retrieval, electronic mail, bulletin boards, and other services to users" (p. 24).

Parent - teacher communication: Teachers and parents interacting through many forms of communication: email, WebPages, written notes, report cards, phone calls, and in-person interviews.

Parent-teacher involvement: (McCaleb) generally used in American education encompasses a wide variety of approaches or activities through which parents can contribute to the school and their own child's academic progress (p. 3).

Preservice teacher: or a student teacher; someone who is undergraduate education student who is uncertified to teach

Technology: the practical application of knowledge especially in a particular area (Merriam-Webster Online Dictionary, 2004)

Telecommunications: Donohoe and Others (1995) "Communication of information from one place to another using one of many transmission media, both wired and wireless" (p. 34).

Summary

Is information technology a form of communication perceived as either troublesome or wonderful? In this case study, a group of first-year elementary teachers, who have just completed their preservice teaching, have been interviewed to explore their intentions of using information technology for parent-teacher, teacher-teacher, and administrator-teacher communication. Veenman's (1984) findings on first-year teachers' perceived problems and their four specific "needs" and 'reality shock' has helped to frame and explain their replies on their questionnaire based on Aizen's (2002) theory of planned behavior.

The previous study has also addressed the dilemma of why information technology communications, which many people reach for as a convenient form of communication on daily basis, is not something that teachers are quite ready to embrace. Considering that higher education has so readily adopted email and the Internet, how can the K-12 system adapt their programs to make this transition smoother? How can teachers embrace the preservice teachers'

experience with communication technology and prepare to step into the 21st century and balance their teaching time with this ever-more popular communication tool? Perhaps veteran teachers are leery of the time it could take to use the technology to which they are not accustomed. This survey has posed these questions and others to a group of beginning elementary school teachers.

While statistics paint a picture of the prevalence of email in the home, what does this mean for a practicing elementary school teacher versus his/her time as a preservice teacher? Almost every school has computers with Internet access, but do teachers have the time or inclination to make it part of their daily routine? In comparison, preservice teachers are already accustomed to checking their email everyday, or several times a day, and then responding immediately. They have already carved time out of their day to do so, but how will this change when they become practicing teachers?

Overall, everyone believes that technology is important and prevalent, and there is evidence that teachers are expected to use technology as a communication tool in school. There is also evidence that teachers are now being prepared to use technology in the classroom. But, as we will find out in the next chapter(s), there are a host of challenges that new teachers must navigate as they learn to teach. So do they really use technology as we expect them to do, and what explains their actions? This analytic framework explains that process in the context of what new teachers are concerned about.

CHAPTER II

LITERATURE REVIEW

Introduction

The literature review is comprised of seven sections: technology, school communications, communication technology used in schools, preservice teachers, new teacher socialization, new teacher intention attitude translated into actual behavior, and the theoretical framework of the current study.

First, the literature on the availability of communication technology in schools will be reviewed. In addition, the many forms of communications that take place in schools, especially the technology forms, will be discussed. Second, research on the preservice training experience of teachers' will be reviewed to describe their former teacher training in technology communication. Third, we will review studies of new teachers' socialization in their new jobs and how they cope with being the new inexperienced teacher. Finally, we will review available research on how attitude translated into actual behavior, focusing on the beginning teacher's use of their prior knowledge, as well as the behavioral model that will be used in this study to assess the beginning teachers' intention.

Technology

Since the introduction of personal computers, researchers have been studying the impact that technology has had in the educational domain. According to Conn's (2002) research, "Surveys by the National Center for

Education Statistics (NCES) indicates that 98 percent of U. S. public schools have Internet (World Wide Web) access (U.S. Department of Education, The National Center for Education Statistics, 1999). More than 75 percent of all schools have Internet access in classrooms where direct instruction takes place” (p. xiii). Information technology is, in short, present in elementary schools.

Tao and Reinking (2000) found that

Email can provide students and teachers with the opportunity to become familiar with the mode of communication that is increasingly a part of what it means to be literate. With email communication becoming a popular mode of communication today, e-mail use in classes can be an important part of efforts to prepare our students and teachers for tomorrow (p.170).

In similar studies, Heflich and Rice (1999) discussed email as a useful online tool that can better promote communication for teachers and help them with their teaching practices. These practices can now go further than the classroom walls with the help of email. Tao and Boulware (2002) concluded that via e-mail, teachers and students are able to extend their knowledge and interest with peers.

Rowand (2000) provided statistics that

Newer teachers were more likely to use computers or the Internet to accomplish various teaching objectives. Teachers with nine or fewer years of teaching experience were more likely than teachers with 20 or

more years of experience to report using computers or the Internet “a lot to communicate with colleagues (p.3).

Ivers (2002) studied teachers’ perceptions of their technology proficiencies. The research reported that most teachers feel they are not prepared to teach with technology, but when the teachers were surveyed, they said they were “intermediate users.” Vergara (1995) found, “For most teachers, even if they desired to become computer literate, the daily demands of the subjects and objectives to be covered generally left little time, if any, to devote to training in computer skills” (p.19). Teachers are feeling the daily demands of information technology.

Parents and teachers can also interact using email. Meyers (2001) explained that email could be used to connect the parents with the classroom activities via upcoming classroom reminders sent through email, copies of students’ work, and permission slips. Emailing, in addition to being a new form of conversation, has also changed the timing of conversations. Tao and Reinking (1996) described “asynchrony and synchrony,” meaning that emails need not be done simultaneously, unlike a phone conversation. Instead of playing “phone tag”, users could email at anytime of day or evening and could have a pseudo-synchronous conversation.

With email being a newer written document form, the legality issues of using email need to be taught to the school community. Conn (2002) reported, “Title I of the federal Electronic Communications Privacy Act (ECPA) of 1986

protects e-mail communications from intentional interception...Title II of ECPA, on the other hand, prohibits unauthorized accessing of stored e-mails" (p.68). Email laws endeavor to protect the communication happening.

The International Society for Technology in Education, ISTE, is a nonprofit organization that provides services to educate school communities about how to integrate technology into the curriculum and to answer any questions about technology in schools. In addition, the organization is a support group for teachers who need supplemental material to understand technology. Their motto is, "Providing leadership and service to improve teaching and learning by advancing the effective use of technology in education" (ISTE, 2004, p 1). ISTE provides professional resources through classes, conferences, and written materials.

Higher education institutions are also trying to improve their use of technology, even though they have large budgets for technology which far surpass those of elementary schools. Many institutions still have some of the same issues when discussing technology, and the lack of knowledge in using it. The idea that the faculty does not have the incentive to learn how to use technology is a common issue found in elementary schools. Wepner, Scott, and Haysbert (2003), in a study sponsored by the American Association of Colleges for Teacher Education (AACTE), administered a 23-item survey to 125 institutions, asking what initiatives were given to faculty members who used technology. They found that 95% of faculty members were not required to participate in technology training. They found that traditional classes and

technology-based classes were weighted the same. In addition, of those who do use technology, 88% of them use it for instructional impact; it helps to motivate students. The major barrier these intuitions have in using technology is the lack of skill teachers have in using the technology. These findings show that while faculty members see that students respond favorably to technology, they do not tend to use it in the classroom because they are not comfortable with its use.

School Communications

Emails can provide a new form of interaction between teachers and parents that has not been seen before; a fast and up-to-date report can be given to parents instantaneously about their child.

Many researchers have studied the parent teacher relationship and its effects on students' learning. All the studies have only examined in-person conferences, phone interviews, and written notes; no one, thus far, has studied how email interaction between the teacher and parents could affect students' learning.

In 1957 before email existed, Swallow (1957) studied how parents might play an important part in the modern school. He believed, even then, that a good education must have support from the community. As a student grows, Swallow said, his/her parents and teachers are the most important adults in his/her life, and it is vital for them to work together. This is because, in the

student's subconscious, they blend together, which makes it necessary for the adults to make an effort towards open communication for the good of the child. Swallow's ideas are still valid and continue to be researched today.

In 2000, DePaul, through the Office of Educational Research and Improvement, U.S. Department of Education, studied how new teachers could effectively interact with other veteran teachers, the principal, and parents. DePaul found that once teachers involve the parents in the classroom, it provided the teacher with more resources, the student learned better in school and at home; there were also fewer problems with discipline. Caddell's (2001) findings were consistent with DePaul's. When working with parents, it proved best for teachers to communicate with the parents and ask them to contribute to their children's education. If the parent were confident in the teacher, then the child's learning was enhanced. McCabel (1994) reported that parents want an open dialogue with the teacher; they feared a poor relationship would damage their child's learning. However, McCabel found that some teachers were hesitant about having an open dialogue with parents. These teachers worried about mistakes that could happen when a parent is allowed into the classroom.

Principals even realize the magnitude of parents' involvement for a successful school community. The National Association of Elementary School Principals' meeting (1988) focused on how important parent involvement is in elementary school programs. Success happens when an ongoing

communication and partnership is developed between the parents and the school. When these groups work together, children will succeed.

On the state level, parent-teacher involvement is extremely important. The Alaska State Department of Education, for example, published a brochure in 1997 on the state educational standards. Standard number seven states:

A teacher works as a partner with parents, families, and the community. A. promoting and maintaining regular and meaningful communication between the classroom and students' families; B. working with parents and families to support and promote student learning.... (Alaska State Department of Education, 1997, p 5)

The Department believed that the parent-teacher relationship was so essential in their schools that one out of the eight standards focuses on parent - teacher communication.

Epstein (2001, 2004) has done multiple studies through the National Network of Partnership Schools at Johns Hopkins University on the topic of parents' involvement in schools. Epstein has found that with plans for action teams for partnership (ATP) which link parents and teachers, schools and communities, strong partnerships grow to improve the school. These action plans are linked to four major goals: (a) improving students' academic achievement, (b) behavior/respect for others, (c) school attendance/college preparation, and (d) creating a climate for partnership. Epstein (2002) has also developed six types of involvement that parents can have with schools to

strengthen their relationship: “parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community” (p 6).

Included in these types of involvement are conferences, workshops, and homework involvement.

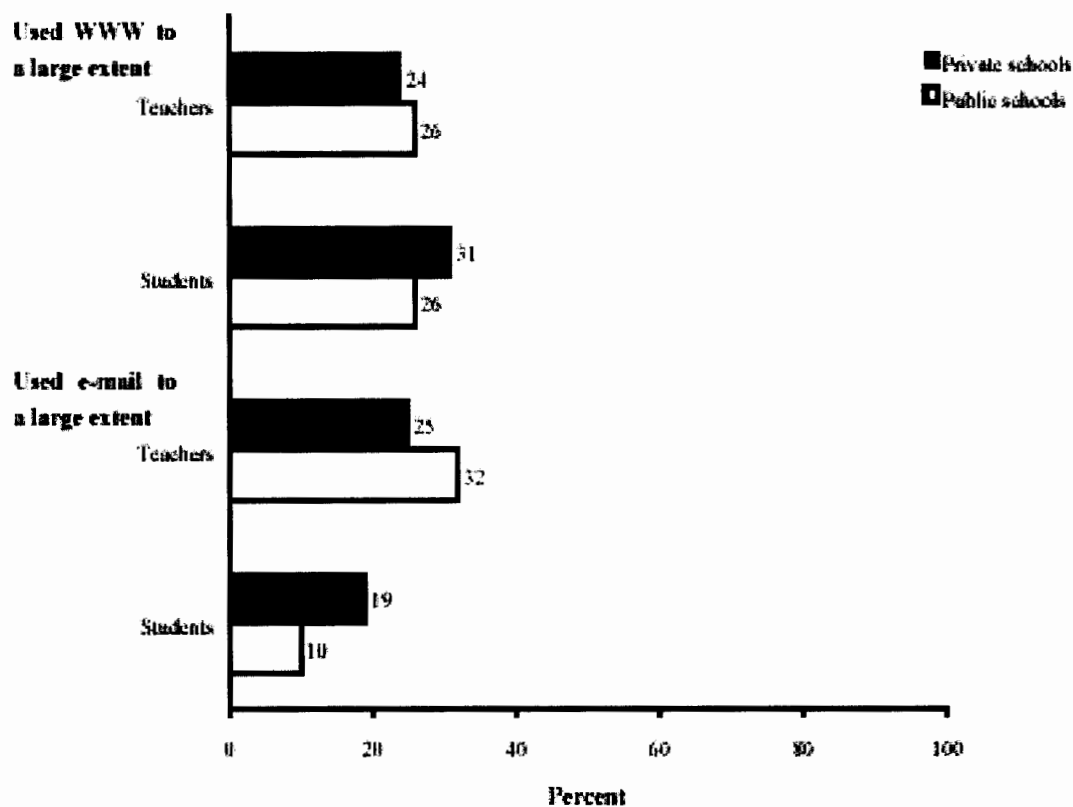
Williams and Chavkin (1989), through the Southwest Educational Development Laboratory (SEDL), found that there are seven types of involvement which echo Epstein’s: “written policies, administrative support, training, partnership approach, two-way communication, networking, and evaluation.” (p 20) Swap (1987), also, has developed options for parent involvement: “parents as audience, parents as advocates, parents as helpers, parents as learners, parents as partners, parents as experts, and parents as ‘just people’.” (p 20) Parents need to be involved in many ways.

Parents as Partners in Education, Families and Schools Working Together, written by Berger (2004) focuses on parent-school cooperation. Berger believes that cooperation brings strengths of home to the school, which promotes better education for the student. Caring schools, communities, and families help children feel that they belong, and in feeling that they belong, their achievement will grow. Hiatt-Michael (2001) wrote “Preparing Teachers To Work With Parents.” Hiatt-Michael found that the more teachers make sure the parents are involved: (a) the better student attendance (b) the higher graduation rates from high school (c) the fewer retentions in the same grade (d) increased levels of parent and student satisfaction with school; more accurate diagnosis of students for educational placement in classes (e) reduced number of negative behavior

reports; and, most notably (f) higher achievement scores on reading and math tests.

Communication Technology Used in Schools

Many researchers focus their study the benefits of technology in terms of improving student learning but not on the costs in terms of time and expenditure of effort on the part of teachers. (Rowand, 2000). Many districts have started school Web pages where a parent can learn information about what is happening. A few teachers have also created homework Web pages or classroom pages, which help parents and children find out what assignments need to be completed or updates about what the children are learning in class (see Figure 4). Some school districts have set up email systems for communicating between schools. Technology communication can involve any of these forms that a teacher can use to input information that the parent is able to access and could respond to through the computer.



NOTE: Data on the availability of the World Wide Web in public schools were not collected in 1994.

Figure 4: Schools with Internet access reporting that teachers and students used the World Wide Web (WWW) and email to a large extent, by school sector: Fall 1998 and school year 1998-99.

Source: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools Fall 1994, Fall 1995, Fall 1996, and Fall 1997", and "Survey on Internet Access in U. S. Public Schools, Fall 1998."

Though computers have been an integral part of schools, the Internet and email have not. Although the business world and higher education use technology, such as the Internet and email on a daily basis, the K-12 education system does not as yet. Figure 6 show that public schools' instructional rooms have increased Internet access from 3% in 1994 to 92% in 2002. This means that 92% of teachers have access to this communication technology and, in theory, could communicate with parents through it.

In the K-12 system, use of the Internet and email is a very delicate subject. With students who range from the ages of 5 to 18, schools are dealing with minors. Schools are held accountable for whatever the child does in school and could be held legally liable for any problems that could arise. Some schools, therefore, draw up guidelines that will enable them to have control over the use of Internet and email. These parents then need to sign guidelines/waivers (see Appendix A) in order to have their child use the Internet and/or email at school. The child also must sign it and agree to the guidelines in order to have permission to use the computer at school. These guidelines could help shield the school from litigation. Teachers also must sign Internet and email guidelines (see Appendix B). Schools want to ensure that teachers are using the Internet and email in the proper way.

As seen in Figure 2, teachers do use the Internet but not at the 87% training level seen in an earlier chart. Table 3 shows that only 26 % of public school teachers used the Internet during the 1998-1999 school year. This means that only a quarter of the teachers actually use this form of

communication, despite the fact that 87% were taught how to use it, and 92% have it available to them in their building. This means that 61% do not apply their (reported) knowledge of this technology. At 32%, email usage by public school teachers is a little greater, 6% more, than their use of the Internet (WWW-World Wide Web).

Although technology, Internet, and email are not new to schools at the K-12 level, it is not whole-heartedly welcomed. Most classrooms have computers in them and almost every school has some type of computer lab in it. In higher education, computer technology is used everywhere and in most instances it is the preferred form of communication among those in the educational community (see Table 1).

Cuban (1986), in *Teachers and Machines, The Classroom Use of Technology Since 1920*, reviews the different technologies that schools have used since 1920 from the radio, to films, televisions, overheads, and computers. He documents how the technology has changed, but raises the question: Does the technology change actually enhance student learning? In his chapter the "Promise of the Computer" he asks how you measure the value of computers in the classroom. The author quotes Dale Peterson to ask the question:

Educational computing, like the Force, is with us. Micro-computers are proliferating in our schools and unless a lot of people are wrong they're here to stay. But the \$64,000 question is whether these computers will make any difference in the education of our children. When my daughter graduates from high school in the year 2000, will she have received a

better education with the help of computers than I did without them? (p 72)

A generation of students is now entering college having been born well into in the computer age. According to statistics from the Census Bureau of the U.S Department of Commerce, "9 in 10 school-age children (6-to-17 years old) had access to a computer in 2000, with 4-in-5 using a computer at school and 2-in-3 with one at home... The report showed that 54 million households, or 51 percent, had one or more computers in the home in August 2000..." (p. 1). Another significant statistic from the same report states, "two-thirds of households with a school-age child had a computer, and 53 percent had Internet access" (U.S. Census Bureau, 2001, p. X).

A year later, in 2001, (see Table 4) the National Center for Education Statistics reported that 89.5% of all children aged 5 to 17 in the United States use computers and 58.5% use the Internet. These statistics show that the next generation is more likely to use communication technology than their parents. Some of those children, who were aged 5 to 17 in 2001, are now in college and will be using their computer knowledge in their postsecondary studies.

Table 4

Children and Adolescents Ages 5 through 17 Who Use Computers and the Internet, By Child and Family/Household Characteristics: 2001

Characteristics	Number of children (in thousands)	Percent using computers	Percent using the Internet
All persons ages 5 through 17	53,013	89.5	58.5
Child characteristics			
Age			
5-7	11,990	80.5	31.4
8-10	12,455	90.5	53.5
11-14	16,493	92.6	68.3
15-17	12,075	93.4	77.1
Sex			
Female	25,835	90.0	58.6
Male	27,178	89.1	58.3
Race/ethnicity¹			
White	33,433	93.4	66.7
Black	8,275	85.0	45.3
Hispanic	8,400	78.7	37.2
Asian	2,268	89.7	64.6
American Indian	637	89.8	53.5
Family and household characteristics			
Parent educational attainment			
Less than high school credential	5,450	75.6	31.6
High school credential	13,611	87.2	50.2
Some college	15,665	92.0	63.2
Bachelor's degree	6,712	94.2	69.3
Graduate education	9,114	96.4	74.4
Family income			
Under \$20,000	8,344	80.1	36.5
\$20,000-\$34,999	8,852	86.3	48.8
\$35,000-\$49,999	7,438	92.0	62.8
\$50,000-\$74,999	9,530	93.6	67.1
\$75,000 or more	12,018	96.2	75.4
Urbanicity			
Metropolitan, city center	12,249	84.6	49.5
Metropolitan, not city center	23,566	91.1	61.9
Nonmetropolitan	9,609	91.4	59.7

SOURCE: U.S. Department of Education, National Center for Education Statistics. (2006). Internet Access in U.S. Public Schools and Classrooms: 1994-2005 (NCES 2007-020).

Preservice Teachers

Dilworth (1986) found that high school students who enter, colleges, and departments of education are the least prepared of all college entrants. We are told that once these students have completed the prescribed program of study they still are not equipped with the basic knowledge or skills necessary to teach in nation's classroom. (p. 368)

Dilworth explained that preservice teachers need more preparation before entering the classroom.

Morris and Others(1997) designed a course to prepare preservice teachers for parent involvement. These preservice teachers need to be exposed to role playing and other "hands on" exercises to prepare them for the interaction.

Morris modeled the preservice assignments from four underlying beliefs and assumptions:

1. Parental involvement in educational activities at home and at school is essential to the child's success at school.
2. Parents and teachers should be viewed as partners in the educational enterprise...
3. Teachers who have high self-esteem and who feel confident about working with parents are more likely to be assertive in reaching out to involve parents in the children's activities.
4. Teachers must assume the leadership role in reaching out to involve families and other community members in the life of the school. (p.3)

Hiatt-Michael (2000) conducted a study on 66 California College of Education programs to examine if parent involvement is a component of their teacher education programs.

Repeatedly findings suggest parent involvement in school activities is correlated to student satisfaction with school and academic achievement...“By the year 2000, every school will promote partnerships that will increase parent involvement and participation in promoting the social, emotional, and academic growth of children (U.S. Department of Education, 1996) (p.1).

Five universities stated that they offered a separate course in parent involvement.

The findings are encouraging because 89% of responding universities are implementing the new standard on teacher involvement in basic teacher education programs and utilizing existing courses” (U.S. Department of Education, 1994) (p. 1).

In many colleges, preservice teachers performed role playing to practice their parent-teacher communication. These students learned how to resolve conflicts through acting out different situations. The only disappointment was that computer skills regarding a parent-teacher curriculum were not taught to preservice teachers.

A study done by Willis and Sujo de Montes (2002) in 1999 on junior education students who took a course on how to use technology in the classroom before they student taught that spring showed some surprising results on communication technology being used in the classroom. Willis and Sujo de Montes found that these students seldom/never and sometimes used informational technology while student teaching. The researchers believe that this was because the preservice teachers need to follow the guidance of their cooperating teacher who did not use technology regularly. Milken Exchange on Educational Technology (1999) found that less than half of preservice teachers have the opportunity to use technology during their field experience because their cooperating teachers did not use technology themselves. In supporting their findings, they quoted, Wideen, Mayer-Smith, and Moon who suggested “Beginning teachers enter preservice teacher education with firmly held views about teaching...and beginning teachers are little influenced by the interventions that occur in preservice teacher education” (p. 168). This means that preservice teachers will teach how they have been taught in the past, and their past educational experiences in elementary school were without technology.

The Standard of Excellence in Teacher Preparation (NCATE)

Even after these findings, The Standard of Excellence in Teacher Preparation (National Council for Accreditation of Teacher Education, NCATE), an accrediting agency for teacher preparation programs, focuses on technology in its curriculum standards for colleges. In the document, *Technology and the*

New Professional Teacher: Preparing for the 21st Century Classroom (1997)

sought to improve the curriculum for preservice teachers. NCATE then created many standards that colleges need to meet in order to be viewed as an accredited program. Some standards focus on technology being infused and used in preservice teachers' curriculum. Standard 3: Field Experiences and Clinical Practice states, "Design, Implementation, and Evaluation of Field Experience and Clinical Practice" wants the colleges' curriculum to provide preservice teachers with "a variety of school-based activities directed at the improvement of teaching and learning, including the use of information technology" (NCATE, 2003, p.26). Standard 3 allows preservice teachers, in their curriculum, to learn how to use computers to help improve their teaching.

Standard 6: Unit Governance and Resources: "Unit Resources Including Technology," wants an on-target college to "successfully...serve as an information technology resource in education beyond the education programs – to the institution, community, and other institutions. Faculty and candidates have access to exemplary library, curricular, and electronic information resources that not only serve the unit, but also a broader constituency" (NCATE, 2003, p.40). This will help prepare preservice teachers, in the future, for exploiting information technology in the classroom. These teachers will be able to use their previous knowledge of technology to support parent-teacher communication through the Internet.

New Teachers' Socialization

As in any job, people need to feel that they are a part of a team. Within a school, teachers join the community and need to understand the school structure.

First, induction is used to label a unique phase (or stage) in teacher development...Second, induction is construed as a time of transition when teachers are moving from preparation to practice. Researchers often use the term 'Socialization' to describe the informal processes by which newcomers enter the field and join the ranks of teachers (Feiman-Nemser, Schwille, Carver, and Yusko, 1999, p. 14).

Feiman-Nemser et al. use the term "socialization" - as do so many other researchers - to identify the process beginning teachers must go through once entering a school. They found that inductions can happen informally or formally, which usually means a mentor, an experienced teacher, is assigned to work with them so they can fit into the school. This kind of induction, though, can lead to beginning teachers adapting their behavior and teaching styles in order to be welcomed into the community.

Angelle (2002) completed two studies about new teacher socialization. The studies consisted of interviews of middle school administrators, experienced teachers, and novice teachers. The results showed that a school with a healthy atmosphere will provide a positive socialization experience for the new teacher. In order for schools to achieve this, they must have "interdisciplinary teaming, to

increase professional and collegial development” and an effective “organizational process in the school” (p. 25) to build the teachers skills through mentoring, monitoring, and team building. The studies also concluded that new teachers need to be prepared in college to succeed in teaching.

The Teacher Socialization Framework

Veenman’s (1984) “The Teacher Socialization Framework,” reported the eight most frequently perceived problems of beginning teachers (see Table 5). The fourth most frequent problem, “relation with parents,” will be one of the focuses of the current study. His teacher socialization framework focuses on perceived problems of beginning teachers. In order to help discover first-year teachers’ needs, perceptions, and behaviors in communicating with parents, Veenman used a Gehrke study of beginning secondary teachers to explain their socialization through their needs. He gives “four specific needs ...during early role transition: need for respect, need for liking, need for belonging, and need for a sense of competence” (p. 163). These four needs could affect the teachers’ use and views about communication technology in the school, and, in turn, affect this study of the beginning teachers.

Table 5

Veenman's Most Frequently Perceived Problems of Beginning Teachers

Rank Order	Problems	Frequency (n=91 studies)
1	Classroom discipline	77
2	Motivating students	48
3	Dealing with individual differences	43
4	Assessing students' work	31
4	Relations with parents	31
6	Organization of class work	27
6	Insufficient materials and supplies	27
8	Dealing with problems of individual students	26

Note. Source: Veenman (1984), S. Perceived problems of beginning teachers. *Review of Educational Research*, 54 (2).

Problems Beginning Teachers Face

Veenman (1984) uses another theory by Muller-Fohrbrodt, Cloetta, and Dann to explain some of the problems beginning teachers face. The study focused on how these teachers adapt to the new organization, and how the environment could affect their induction. Muller-Fohrbrodt and Dann (1978) used the term reality shock to explain how beginning teachers adapt or try to adapt to their new job. The five indicators that define reality shock are:

1. Perceptions of problems - This category includes subjectivity experienced problems and pressures, complaints about work load, stress, and psychological and physical complaints.
2. Changes of behavior - Implied are changes in teaching behavior contrary to one's own belief because of external pressures.
3. Changes of attitudes - Implied are changes in belief system (e.g, a shift from progressive to conservative attitudes with respect to teaching methods).
4. Changes of personality - This category refers to changes in the emotional domain (e.g., liability-stability) and self-concept.
5. Leaving the teaching position - The disillusion may be so great, that the beginning teacher leaves the profession early. (p. 144)

These indicators represent issues beginning teachers could face when entering the job market.

In two studies in 1969 (based on teacher initiation and transition into becoming a teacher), Eddy found that beginning teachers are affected by the bureaucracy in their classroom. These beginning teachers were assigned to mentor teachers, and they turned to them for help or to the administration. In following the help, the beginning teachers realized later that their autonomy was

limited and that teaching gives them no independence. The beginning teachers went from having a college mentor who told them how to teach to a school administrator and/or a teacher mentor who also told them what to do. Eddy's finding corresponds to Fuller and Bown's study from 1975. The latter (i.e. Fuller and Bown) discussed the fact that younger teachers look towards the veteran teachers for assistance. In addition, new teachers, during their preservice teaching, have a one-sided relationship with their supervisors, because the student teacher must do what the supervisor says in order to receive a good grade. This affects the new teachers' concerns: Their first stage of concern is "survival" as a teacher. Burden (1979) explains this stage more fully:

1. Limited knowledge of teaching activities;
2. limited knowledge about the teaching environment;
3. conformity to an image of the teacher as authority;
4. subject-centered approach to curriculum and teaching;
5. limited professional insight and perceptions;
6. feelings of uncertainty, confusion and insecurity;
7. unwillingness to try new teaching methods. (p. 4)

Feiman-Nemser, Schwille, Carver, and Yusko (1999) explain how the shock of reality and learning to teach sinks in, and the teachers realize that they are on their own and must assume the role as teacher. Feeling ill-prepared, the teacher looks towards a mentor and uses the teaching styles that the mentor uses.

"Immediate entry" (Lortie, 1975) is the cause for the reality shock of new teachers. Lortie describes that these teachers graduate as a student in June with some practice, but, in September, they are required to teach their own classroom on the level of a veteran teacher. The new teachers then need to use

prior knowledge of when they were a student and imitate how their teachers used to teach. They also ask for a mentor's help, a veteran at their school. Their classroom is then monitored by a supervisor whom they want to please, so they (the new teachers) adapt to their values. Overall, the new teachers have left behind their college knowledge and use their mentor's, supervisor's and former teachers' styles of teaching.

New Teachers' Intention, Attitude Translated into Actual Behavior

Research has shown that new teachers come with their own beliefs about teaching, but, after 2 years, their behavior has actually changed to adapt to norms of the school community.

Mapping Teacher Change

In 2003, Flores conducted an empirical study entitled *Mapping Teacher Change*. The study was based on 14 new teachers for their first 2 years and sought to understand the transformation in teachers' attitudes and intentions. Overall, the study found that these new teachers started out with their own beliefs and behaviors, but, over the years, they had compromised them and adhered to the school community behaviors. The study interviewed the teachers during the year, and the majority of the teachers' responses were that they had seen a change in themselves. Below are a few of the responses that support this claim:

“In ideological terms I still keep my initial ideas about teaching, but started realizing that if I try to put them into practice they don’t work, and I end up doing what works in practice...” (p. 8)

“When I was a student teacher I had a positive view of teaching and that things could be improved. Now I start understanding and getting used to...the system so to speak...You can have a different way of seeing things but you end up carrying on like most of them [teacher], you think other people do that, why shouldn’t I do that as well.” (p. 8)

“I have changed the way I saw teaching”. (p. 9)

“Maybe I am getting a bit more used to the system...I mean, now I don’t try to change anything; there is no point in doing that. The school is the way it is, you have to get used to it... It they [the headteacher and his team] want you to do something you do ...and that’s it.” (p. 9)

From these responses, the author realized that the new teachers “compromised their beliefs and images,” (p. 8) in order to conform to the school community.

He found that three main situations caused them to change. The first was “to do ‘what works’ in practice, even if they believed in the opposite....” The second, they became ‘socialized,’ the teachers “started acting as their colleagues and the school administration did, instead of trying to keep their own ideas” (p. 8).

Third, the teachers said that they were ‘forced’ to act in a manner different from their own because of external and internal influence. What this research demonstrated is that new teachers have their own intentions and attitudes about how to teach before they get into the classroom, but once they start teaching, their actual behavior at school will adapt to that of the school community.

“Disappointment” and “disillusion” (Waller, 1965) were terms new teachers had towards teaching. Their ideals were hurt when they realized that teaching was not all they thought it would be; instead, they had to face the school community, supervisors, veteran teachers, students, and parents. Their attitude towards teaching was adjusted.

The Theoretical Framework

Aizen's (2002) study, theory of planned behavior (TpB) (see Figure 5), will be the framework this researcher will use to structure the questionnaires concerning the beginning teachers' “intentions to use” towards email, examining their

behavioral beliefs, normative beliefs, and control beliefs”. TpB is a theory that holds that “human action is guided by three kinds of considerations: beliefs about the likely outcomes of the behavior and the evaluations of these outcomes (Behavioral Beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (Normative Beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (Control Beliefs) (p. 1).

Based on this theory, the behavior of beginning teachers and their use of communication technology can be understood by discerning which of the beliefs influences its application at the elementary school level. Veenman's (1984) “teacher socialization framework” with its focus on “reality shock” and

“most frequently perceived problems of beginning teachers” will help with the bases of the TpB theory to explain the motivation for beginning teachers to use or not to use communication technology. Beginning teachers face many socialization problems, of which one is communication. It is through the TpB theory that the use of communication technology by beginning teachers can be explained.

TpB Diagram

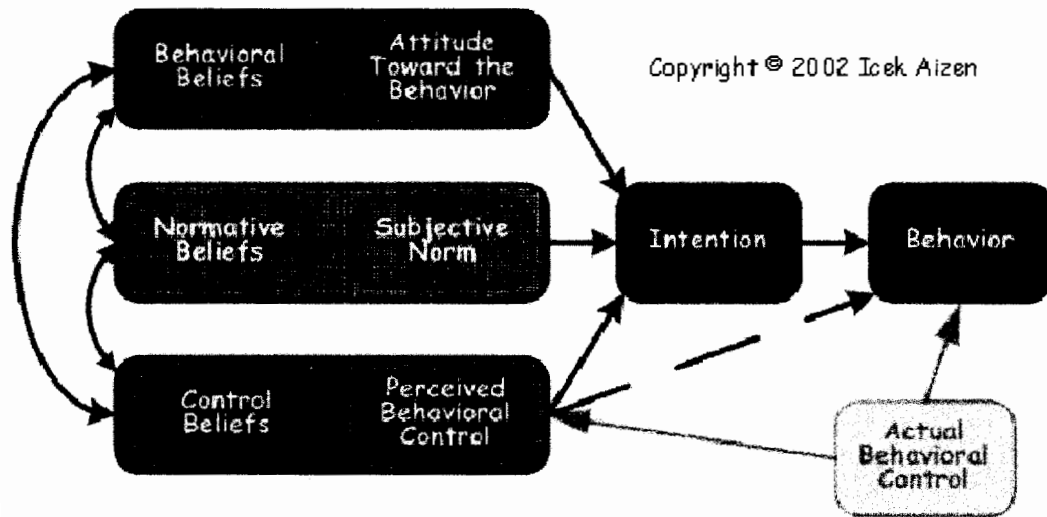


Figure 5. Icek Aizen's, theory of planned behavior.

The behavioral beliefs (see Figure 6) of the beginning teachers are shaped by the attitude toward the behavior, a positive or negative view that the beginning teachers have about using communication technology. The normative beliefs are how the beginning teachers are encouraged to use communication technology by their administrators, more experienced teachers, or their students' parents. The social pressure or the subjective norm, the beginning teachers face from the normative beliefs of the school community could affect the beginning teachers' intentions about communication technology.

Eddy (1969) speaks to the normative beliefs of teacher socialization. Eddy found that beginning teachers went from having a college mentor who told them how to teach, to a school administrator and/or a teacher mentor who also told them what to do. Eddy realized later that their autonomy was limited and that teaching gives them no independence. Eddy's findings could be a factor in the normative beliefs findings.

Finally, control beliefs are those shaped by the beginning teachers discovery of what access they have to technology in their school. The beginning teachers' perceived behavioral control is their perception of how well they could use communication technology that they have. All of these beliefs contribute to the beginning teachers' intentions to use communication technology.

Veenman (1984) offers some insights into both the behavioral and control beliefs. Veenman's findings on first-year teachers' perceived problems and their

four specific needs and reality shock correspond with the theory of planned behavior. His teacher socialization framework focuses on perceived problems of beginning teachers. In order to help discover first-year teachers' needs, perceptions, and behaviors in communicating with parents, the normative behavior will be looked at. The teachers' needs could affect the teachers' use and views about communication technology in the school, and, in turn, affect this study of the beginning teachers through the control beliefs.

TpB can control the variables that can hinder a beginning teacher from using communication technology. Variables such as: not knowing/or knowing how to use communication technology, not wanting/or wanting to use communication technology, being not required/or required to use communication technology, or not having/or having access to communication technology in the school.

The TpB focuses on multiple variables in the question: What are beginning teachers intentions to use communication technology? If they respond to the questionnaire that they strongly agree to have used communication technology, then their answers will focus on social pressures that make them use technology, or that technology is present in the school, or that they like using technology. If they answer in the questionnaire that they strongly disagree with using communication technology, then they will respond to questions that focus on the lack of social pressures to use it, the lack of a technology set-up, or their lack of knowledge regarding the technology.

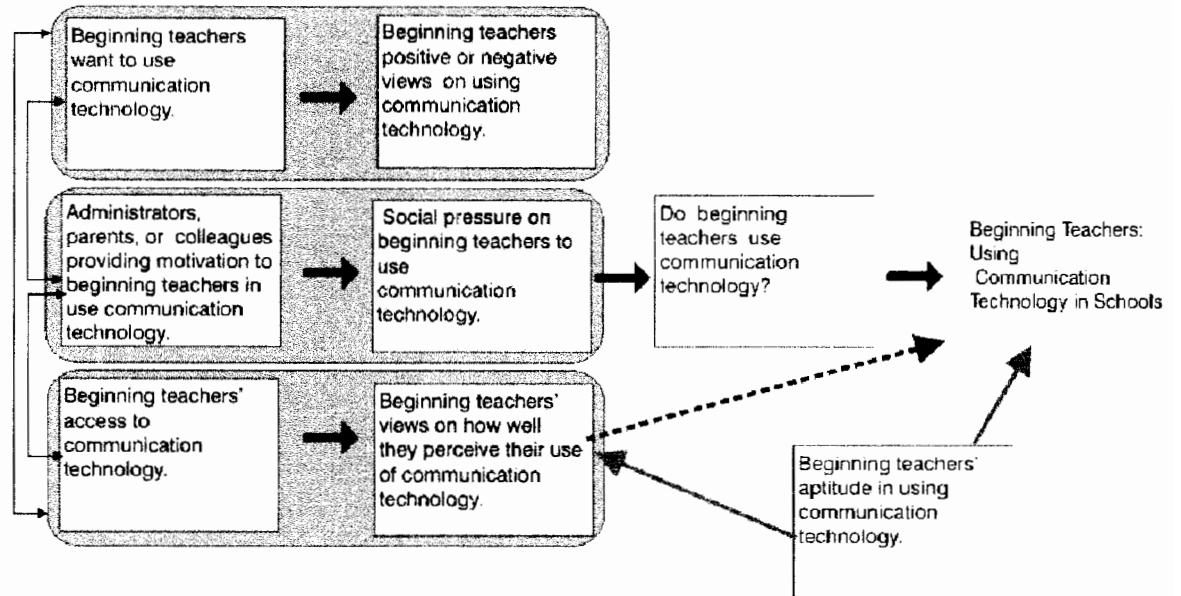


Figure 6. Adaptation of Aizen TpB diagram.

Summary

Technology communication is evolving in elementary schools. With 98% of public schools having Internet access, information technology is providing a new source of communication at school communities' fingertips. Researchers and teachers are still exploring the numerous possibilities for it. This tool can help to reach far beyond the boundaries of the classroom. Teachers are able to interact with students, parents, and peers without having all parties present. Another vehicle for enhancing parental involvement may be provided. Technology communication could help preservice teachers and teachers by providing new learning materials too, but there is also a downside to this communication stemming from security, training, teachers' time and privacy issues.

What is missing in the research, and the reason for this study, is why or why not communication technology is being used by the new teachers and their intentions for using or not using it. In the literature, the beginning teacher has been taught as a preservice teacher how to use communication technology through their curriculum. It is well established that students perform better when there is more communication. The question is, are the new teachers applying the skills they have learned or adapting to the veteran teachers' practices?

CHAPTER III

METHODOLOGY

Introduction

This chapter will describe the methodology that was used for this study. First, the primary purpose of the study and the conceptual framework undergirding the study will be explained. Then, the research design will be described, including the research question. The researcher then describes the population and sampling that was employed as well as the data collection instrument used. Then, the researcher identifies the data analysis and the statistical methods used to test the three hypotheses. Finally the researcher will identify the limitations imposed on study results by the methods chosen.

Purpose and Design

The primary purpose of this study was to determine what factors affect a first-year teacher's intentions to use communication technology. This was a single quantitative study (survey) of a cohort of newly entering teachers. The research participants completed a paper-and-pencil survey based on Aizen's (2002) theory of planned behavior that was mailed to them at their school (see Appendix C). They were asked questions concerning their intentions to use computer technology in order to determine the conditions under which attitudes and beliefs can result in behavioral intentions.

Research Question

The study investigated what factors impact the teachers' intention to plan to use communication technology with variables such as perceived behavioral control (PBC), subjective norm (SN), and attitude toward the behavior (Ab).

According to the theory of planned behavioral belief (TpB) (see Figure 5), human action is guided by these three beliefs and they shape the beginning teachers' view of communication technology.

This has led to the main research question: To what extent are beginning teachers able to translate their pre-service preparation experience with communication technology into their in-service practice once they begin teaching?

Hypotheses

1. Beginning teachers plan/intend to use communication technology if they perceive that it is highly available or accessible. Conversely, beginning teachers would not plan/intend to use communication technology because they perceived low availability and/or accessibility.
2. Beginning teachers plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use. Conversely, beginning teachers do not plan/intend to use communication technology because they perceive that their

administrators, other more experienced teachers, and parents have low or no expectations for its use.

3. Beginning teachers plan/intend to use communication technology if they believe that using communication technology will help them with their job.

Conversely, if beginning teachers do not find value in using communication technology, they will not plan to use it.

Participants

The population for this study was to be beginning teachers: either teachers who have just taught a full year of elementary school or teachers who have just started their first year of teaching and will have only been in the school for a few months in diocesan schools in New Jersey.

Specifically, the population has been drawn from the employment rolls of Catholic schools operating in four New Jersey dioceses. Within the four dioceses, the study's sample was the entire relevant population: 242 first- and second-year teachers. Surveys were sent to all 242 teachers.

The schools were located in middle and lower class areas in urban and suburban New Jersey. Diocese A, a northern suburban middle-class school district hired 78 new teachers in the 2004-2005 school year, and in 2005-2006 they hired 54 (see Table 6). The diocese has 58 elementary schools affiliated with it, which serves three counties. Diocese B, a southern urban, suburban, and rural New Jersey school district has middle to lower class students.

Diocese B hired 46 new teachers in the 2004-2005 school year, and in 2005-2006 they hired 40. The diocese has 55 elementary schools affiliated with it, which serves six counties. Diocese C, another northern New Jersey district is urban and suburban and has middle to lower class students. This diocese hired about 150 new teachers in 2004-2005 school year, and in 2005-2006 they hired 92. The diocese has 121 elementary schools affiliated with it, which serves four counties. Diocese D, a suburban school district has middle-class students. Diocese D hired about 10 new teachers in 2004-2005 school year, and in 2005-2006 they hired 8. The diocese has 42 elementary schools affiliated with it, which serves four counties. The major demographic of the schools' student bodies are majority White, middle and lower class students. Names and school addresses were provided by the dioceses to recruit participants.

Table 6

New Teachers Hired by Archdiocesan Elementary Schools in New Jersey

Diocese	2004-2005	2005-2006
A	78	54
B	46	40
C	90*	92
D	10*	8
Total	224*	194

*Note. Estimation

Instrumentation

Aizen's Theory of Planned Behavior

The conceptual framework used for this study, Aizen's theory of planned behavior (Aizen, 2002), focused on the impact on intended technology use of three sets of beliefs: attitude, subjective norm, and perceived behavioral control. The behavioral beliefs produces attitudes toward the behavior (favorable or not favorable). These include beliefs that the beginning teacher holds about the desirability of using communication technology. Normative belief affects subjective norms, which are the beginning teachers' perceptions of the beliefs others (administrators, other more experienced teachers, and parents) hold about the beginning teachers' appropriate use of communication technology. The third variable, control beliefs gives rise to the perceived behavioral control, which refers to the beginning teachers' perceptions of the actual availability to them of communications technologies in the school setting.

This paper-and-pencil survey (see Appendix C) was based on theory of planned behavior theory (TpB). It was distributed to and self-administered by those among the 242 beginning-year teachers who were willing to participate. The TpB questionnaire is based on a 7-point semantic differential scale (Osgood, Suci, & Tannenbaum, 1957). The beginning teachers completed the 51-question survey by circling their choices on the form and mailing it to the researcher. There were seven different types of questions that were asked on the surveys (see Table 7).

Table 7

Type of Survey Questions

Type of Questions	Number of questions
Outcome evaluation	10
Direct measures of perceived behavioral control	4
Direct measures of subjective norm	4
Direct measures of attitude toward the behavior	6
Direct measures of intention	3
Motivation to comply	3
Behavioral beliefs	10
Control beliefs	4
Power of control factors	4
Norm beliefs	3
Total Questions	51

All but one section (direct measures of perceived behavioral control, subjective norm, attitude, and intention) have questions that ask for the same information in different ways. These six parts were written in such a way as to ensure that the teacher responds fully to the request for information. They include:

1. Outcome evaluation and behavioral beliefs
2. Control beliefs and power of control factors
3. Motivation to comply and normative beliefs

The questionnaire had two types of measures, direct questions and indirect questions. The direct questions were used to test the hypotheses in this study while the indirect questions were used to test the validity of the instrument (see Appendix E). The direct questions ask the participants directly about their overall views of the behavior. The indirect questions ask the participant indirectly about their intended use of the behavior. These indirect questions are paired questions about the same topic that are worded differently in an effort to receive a similar response. ¹

Data Collection Procedures

The study took place during February 2006. Prior to sending out the questionnaires to the school, the researcher spoke to the superintendent of the dioceses and received approval for the study. The superintendent of schools gave in writing a list of all beginning teachers to the researcher. The researcher

did not receive all the 418 names from the dioceses that were expected (see Table 6) but did receive 242 from that number. The prospective participants had no contact with the researcher. The teachers received the questionnaire at their school. In a letter sent with the survey, the researcher explained to each beginning teacher the reason for the study (see Appendix D). The beginning teacher then was able to choose whether or not to participate in the study. If the participant chose to participate, then the teacher returned the completed questionnaire in a self-addressed stamped envelope to the researcher.

The 242 participants received a letter mailed to their school (see Appendix D) asking them to voluntarily participate in the study. They had no contact with the researcher and were not pressured by their school's diocese to complete the survey. The survey did not ask for the participant's name but did ask for their gender, major, age, college graduation date, school area (suburban or urban), and grade level. Included with the letter were the questionnaire with directions on how to complete it (see Appendix C) and a stamped envelope with the researcher's address.

Flores (2003) found that beginning teachers are more prone to change their own behavior because of the normative beliefs held by those around them. When they were in college, their curriculum standards focused on using technology in the classroom (NCATE, 2003). This study investigated at the teachers' interactions in their school community by their use of communication

technology to examine whether these teachers adapt to their new environment by using or not using communication technology.

Data Analysis

Upon receipt of the completed surveys, the data analysis was then performed. Using the TpB theory, the data were analyzed using a variety of statistical procedures through the Statistical Package for the Social Sciences (SPSS) version 14.0.

To score the direct measures of the attitude toward the behavior (items 12, 15, 18, 21, 23, and 25) on a 1 to 7 scale, first the questions 15, 21, and 23 were recoded because of their negatively worded responses. Then the compute command was used to create the composite variables. Lastly, the means were found. To score the direct measures of subjective norm, questions (items 13, 17, 20, and 24) on a 1 to 7 scale, first questions 13 and 20 were recoded because of their negatively worded responses. Then the compute command was used to create the composite variables. Lastly, the means were calculated. To score the direct measures of perceived behavioral control, questions (items 16, 27, 28, and 29) on a 1 to 7 scale, first had questions 27 and 29 recoded because of their negative worded responses. Then the compute command was used to create the composite variables. Lastly, the means were computed.

Testing the Hypotheses

As stated previously, the main research question is: To what extent are beginning teachers able to translate their pre-service preparation experience with communication technology into their in-service practice once they begin teaching?

And the three hypotheses are:

1. Beginning teachers plan/intend to use communication technology if they perceive that it is highly available or accessible. Conversely, beginning teachers would not plan/intend to use communication technology because they perceived low availability and/or accessibility.
2. Beginning teachers plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use. Conversely, beginning teachers do not plan/intend to use communication technology because they perceive that their administrators, other more experienced teachers, and parents have low or no expectations for its use.
3. Beginning teachers plan/intend to use communication technology if they believe that using communication technology will help them with their job. Conversely, if beginning teachers do not find value in using communication technology, they will not plan to use it.

To test the hypotheses, Pearson zero-order correlations were computed, between the outcome variable, intentions of using communication technology,

and direct measures of: perceived behavioral control (PBC), subjective norm (SN), and attitude toward the behavior (Ab). Then, a hierarchical regression was performed with intention as the dependent variable and direct measures of: PBC, SN, and Ab as the independent variables. Two models were compared in the regression.

Model 1: direct measures of: perceived behavioral control (PBC), subjective norm (SN) were entered

Model 2: direct measures of: subjective norm (SN), and attitude toward the behavior (Ab) were entered and perceived behavioral control was removed.

The analysis of the data examined what models in the regression were significant.

Limitations

The limitation in the study was the teachers used in the survey only came from Catholic schools as compared to all educators. The research (see Figures 1, 3, and Table 3) shows that previous research that examined teachers using communication technology only focused on the public school teachers' use.

The second limitation occurs from the gender of the teachers in the study; the majority of the teachers receiving surveys were females. This is due to the lower population of males in the elementary schools in these dioceses.

A third limitation is that a majority of the teachers are non-beginning teachers, and instead are first-year teachers. That is, these teachers have not just graduated from college, they have just left their old job and have entered the

teaching profession. This limitation could lead to different findings if reproduced with only beginning teachers right out of college.

Lastly, the survey could benefit from a revision. The survey only examined the teachers' intention to use communication technology, not their actual use. It is then assumed that their intentions will lead to actual use. If a new survey was done, then teachers could also be asked questions on their actual use of communication technology. This set of questioning could help in examining if teacher intentions were consistently and directly translated into behaviors.

Summary

The study was conducted to examine factors that affect beginning teachers' intended or planned use of communication technology at school. Participants who were mainly first-year teachers in elementary schools at four dioceses, completed a paper-and-pencil survey, based on Aizen's (2002) theory of planned behavior. The teacher must have been teaching for a year or two. The beginning teachers self-administered the surveys and returned them directly to the researcher.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

An examination of the literature showed that while communication technology is present in schools and teachers are prepared in college to use it, it seems that communication technology frequently goes unused. In this study, a group of teachers were surveyed to explore their intentions to use information technology in parent - teacher, teacher - teacher, and administrator - teacher communication. The researcher sought to explain beginning teachers' intention to use communication technology by employing the theory of planned behavior.

This chapter will begin by describing the characteristics of the research participants in this study. Then, there will be a discussion of the instrument's reliability, the hypotheses and the statistical procedures used to test them. The chapter will conclude with the overall summary of the study's three hypotheses and data analysis procedures.

Sample Respondent Characteristics

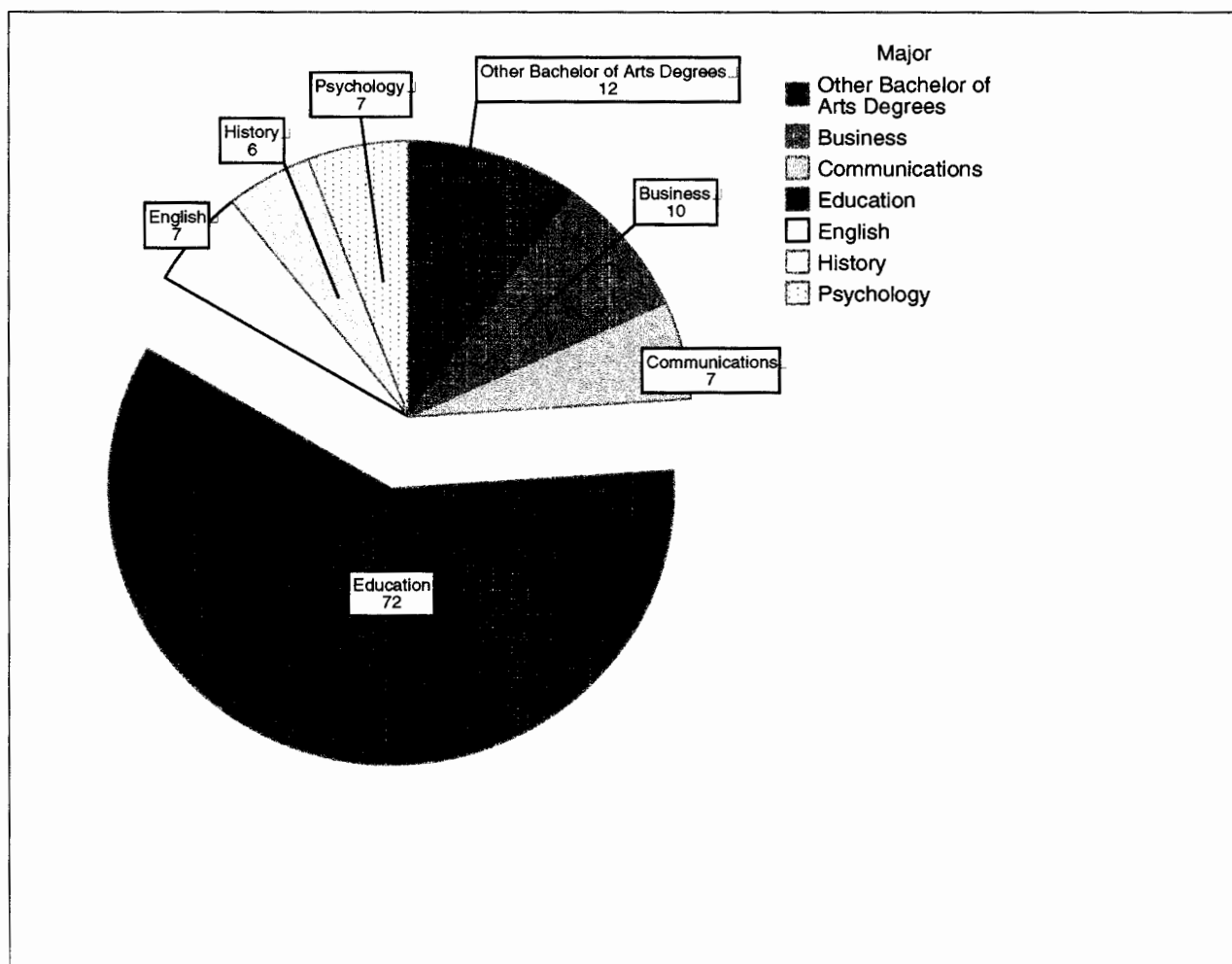
The 121 participants were asked what their majors were in college. Approximately 60% (n=72) of the participants were education majors. The remaining 40% of participants majored in other subjects (e.g, business, communication, English, psychology, history, or other majors). This latter

subgroup could impact the findings: if these participants became teachers later in their lives they could have graduated in a major that did not require the training in communication technology typical of today's education major graduates. In fact, a total of 43 of the non-education major participants (approximately 88% of the non-education majors) were from the 25 to 30 and 31 plus age groups and were still identified as beginning teachers (see Table 8 and Figure 7).

Table 8

Respondent Major by Age

Major	Age			Frequency	Percent
	21 to 24	25 to 30	31 +		
Education	9	6	57	72	59.5
Business	0	1	9	10	8.5
Communications	0	3	4	7	6.0
Psychology	2	1	4	7	6.0
English	1	2	4	7	6.0
History	1	2	3	6	4.0
Other bachelor of arts degrees	2	2	8	12	10.0
Total	15	17	89	121	100



*Note Other Bachelor of Arts Degrees means majors represented by 2 or less in frequency. Examples: Arts, Economics, Environmental, Humanities, Librarian, Music and Sociology.

Figure 7. Respondent undergraduate majors.

The researcher was initially under the assumption that respondents would be first-year teachers, meaning that they graduated 1 or 2 years before and had just begun their first year of teaching at the diocesan school. The researcher was given a list from each diocese which came from their new teacher training at the beginning of each of their school years 2004-2005 and 2005-2006. It was assumed that these teachers were new to teaching and would have just graduated college. What the researcher found through the questionnaire was that the majority of the teachers on these lists were not new to teaching but they had just begun teaching at that school. They were not all recent graduates. It was therefore assumed that the majority of the teachers had returned to teaching after a break or began a new teaching job in that diocese. This study was modified to investigate all new teachers' intentions of using communication technology, not just the first-year beginning teachers who were recent college graduates (see Figure 8). From the data in Figure 8, it can be seen that the majority of participating teachers were not beginning teachers at all, meaning that they had a different major before they began teaching. Indeed, the majority (n=67 teachers) graduated before 1990.

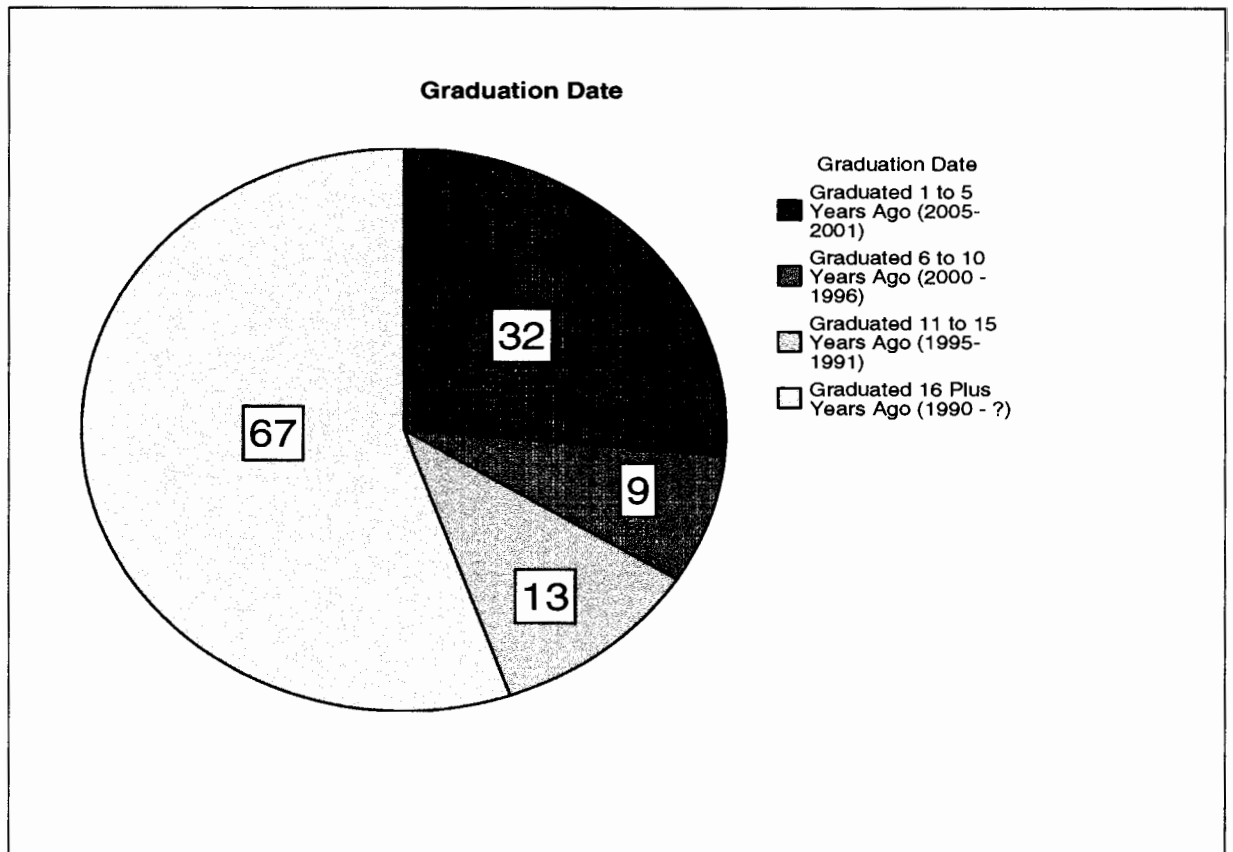


Figure 8. Respondent Graduation Dates.

Four dioceses were sampled in the study. From these dioceses, 91% of the teachers that participated were from a suburban school, and 9 % were from an urban school (see Table 9). The statistics show that the majority of the participants, were female, 114 (approximately 94%). There were seven male participants approximately 6% of the participants (see Table 9). Females greatly outnumber males in teaching at the elementary level, therefore participants in this study were predominantly female. This survey shows that there were no male participants in the 21 to 24 age range, and six male participants were 31 years plus with one male in the 25 to 30 age range. Of these seven male participants, five were education majors, one was a business major, and one had a bachelor of arts degree (see Table 10).

Table 9

Gender, Types of Elementary Schools and Age of Participants

	Female	Percent	Male	Percent	Percent Total
Gender	114	94.2	7	5.8	100
Types					
Suburban	104	86.0	6	5.0	90.9
Urban	10	8.0	1	1.0	9.1
Age					
21 to 24	15	12.0	0	0.0	12.4
25 to 30	16	13.0	1	1.0	14.0
31 +	83	69.0	6	5.0	73.6

Table 10

Respondent Major by Gender

Major	Gender		Frequency	Percent
	Female	Male		
Education	67	5	72	59.5
Business	9	1	10	8.5
Communications	7	0	7	6.0
Psychology	7	0	7	6.0
English	7	0	7	6.0
History	6	0	6	4.0
Other bachelor of arts degrees	11	1	12	10.0
Total baccalaureate	114	7	121	100

The participants were asked the year in which they graduated. These dates were collapsed into four categories: graduated 1 to 5 years ago (2005-2001), graduated 6 to 10 years ago (2000 - 1996), graduated 11 to 15 years ago (1995-1991), and graduated 16 plus years ago (1990 -) (see Tables 11 and 12). The largest category was 16 plus with 67 total participants (about 56%), and of these 46 were education majors, and 21 held other degrees. The 1 to 5 years category was the next largest group with 32 graduates (about 26%), of which half majored in education and the other half held other degrees. The 32 graduates in the 1 to 5 years range had a wide age range with 14 being in the 21 to 24 category, 11 in the 25 to 30 category, and 7 in the 31 plus. This again is a strong indication for people becoming teachers later in life.

Table 11

Respondent Age by Graduation Date

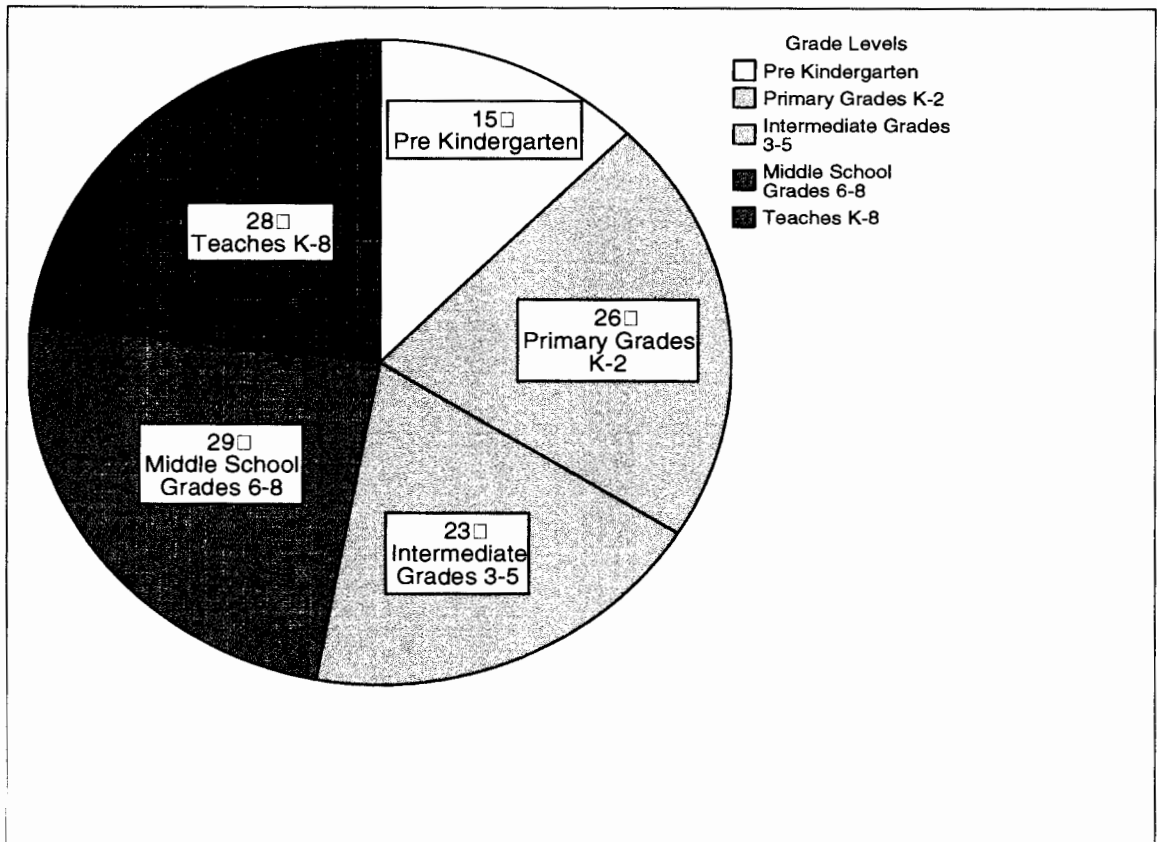
Age	<u>Time since graduation</u>				Frequency	Percent
	1 to 5 years	6 to 10 years	11 to 15 years	16 plus		
21 to 24	14	1	0	0	15	12.4
25 to 30	11	6	0	0	17	14.0
31 +	7	2	13	67	89	73.6
Total	32	9	13	67	121	100

Table 12

Respondent Major by Graduation Date

Major	1 to 5 years	6 to 10 years	11 to 15 years	16 plus	Frequency	Percent
Education	16	5	5	46	72	59.5
Business	1	0	3	6	10	8.5
Communications	2	2	1	2	7	6.0
Psychology	3	0	2	2	7	6.0
English	3	0	1	3	7	6.0
History	2	2	0	2	6	4.0
Other Bachelor of Arts Degrees	5	0	1	6	12	10.0
Total	32	9	13	67	121	100

Lastly, the grades the participants taught were combined into Pre-kindergarten (PK), kindergarten – 2nd, intermediate: 3rd-5th, middle school: 6th-8th, and K-8th (which means that they teach all the grades). Pre-kindergarten had 15 teachers (about 12%), K-2 had 26 teachers (about 22%), Grades 3-5 had 23 teachers (about 19%), Grades 6-8 had 29 teachers (about 24%), and K-8 had 28 teachers (about 23%) (see Figure 9).



*Note Teaches K-8 stands for teachers who teach all the different levels.

Figure 9. Respondent Grade Levels Taught.

Instrument Reliability

The instrument was based on Aizen's (1984) theory of planned behavior (TpB). The 51-question survey was based on perceived control behavior, subjective norm, and attitude toward the behavior towards the intention to use communication technology. In order to test for reliability of the survey, Cronbach's alphas reliability coefficient was computed to determine how well each set of items measured the intention to use communication technology. The Cronbach's alpha for the intention to use communication technology ranged from 0.060 - 0.855. (See Table 13) Direct measure of perceived behavioral control reliability coefficient range was low, 0.060 which is not significant.

Table 13

Reliability Coefficients for PBC, SN, and Ab

Behavior variables	Cronbach's alpha
DM of Ab	0.855**
DM of SN	0.459*
DM of PBC	0.060
DM of Intentions	0.846**

Note. **Cronbach's alpha significant at .80 level; * Cronbach's Alpha significant at .40 level

Key – DM of PBC: direct measure of perceived behavioral control; DM of SN: direct measure of subjective norm; DM of Ab: direct measure of attitude toward the behavior; DM of Intention: direct measure of intention

Testing the Hypotheses

To address the three hypotheses, three statistical tests were run on each. For each variable, descriptive statistics were calculated in order to display the range of answers. Then, a correlation was computed to find the relationship between intentions and the direct measure of each of the variables. Finally, a hierarchal regression with two models permitted the researcher to identify the independent variable(s) that most impacted intention (i.e., planned/intended use of communication technology).

Intention was the dependent variable for all the statistical testing. The three intention questions were on a scale ranging from 1 to 7, where 1 on the scale meant that the teachers did not intend to use communication technology, and 7 on the scale meant that the teachers highly intended to use communication technology. The mean equaled 5.0551 (Standard Deviation=1.51984). With 50.4% of the participants scoring in the 5 to 7 range, this shows that half of the teachers highly intend to use communication technology.

Hypothesis 1

1. Beginning teachers plan/intend to use communication technology if they perceive that it is highly available or accessible. Conversely, beginning teachers would not plan/intend to use communication technology if they perceived low availability and/or accessibility.

Descriptive Statistics Hypothesis 1

The perceived behavioral control questions scale's range was from -84 to +84, meaning that on the negative range of the scale the teachers did not feel in control of their use of communication technology. On the positive range of the scale, the teachers felt in control of their use of communication technology. The actual minimum score was -40 and the actual maximum score was +72 (Mean = 25.14, Standard Deviation = 22.30) (see Table 14).

The frequency distribution of perceived behavioral control score shows that 12% of participants had a negative score, with 5 scoring in the -40 to -21 range. The majority of the participants scored above zero (approximately 88%). The largest perceived behavior control score was obtained and reported for the 45 participants who scored in the 21 to 41 range. These data show that these teachers feel they have some control over the use of communication technology.

Table 14

Descriptive Statistics: Means and Standard Deviations for PBC, SN, and Ab

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
PBC	121	-40.00	72.00	25.1405	22.30034
SN	121	-63.00	63.00	13.0600	3.98300
Ab	121	-2.00	210.00	103.9587	44.06593

Note. Key - PBC: perceived behavioral control; SN: subjective norm; Ab: attitude toward the behavior

*Correlation between Intention and Direct Measure of Perceived Behavioral**Control for the Hypothesis 1*

A correlation was performed to examine relationships between intention, the dependent variable, and the direct measure of perceived behavioral control (DM of PBC) (see Table 15). Table 15 shows the correlations between intention and behavioral variables. (Each variable in the table will be discussed with its associated hypotheses later in the chapter.)

In testing the correlation between intention and direct measure of perceived behavioral control for the first hypothesis, Table 15 shows that perceived behavioral control did not significantly affect intentions to use communication technology ($r = .128, p < .080$). Hypothesis one was not supported.

Table 15

Behavioral Correlates of Intention to Use Communication Technology

		Intention
DM of SN	<i>R</i>	.510
	Significance	.000 *
	<i>N</i>	121
DM of PBC	<i>R</i>	.128
	Significance	.080
	<i>N</i>	121
DM of Ab	<i>R</i>	.764
	Significance	.000 *
	<i>N</i>	121

* $p < .01$.

Note. Key – DM of PBC: direct measure of perceived behavioral control; DM of SN: direct measure of subjective norm; DM of Ab: direct measure of attitude toward the behavior

Hypothesis 2

Beginning teachers plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use. Conversely, beginning teachers will not plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have low or no expectations for its use.

Descriptive Statistics for Hypothesis 2

The subjective norm scale's range was from -63 to +63, meaning on the negative range of the scale, the teacher did not feel social pressure to use communication technology, and on the positive range of the scale, the teacher felt social pressure to use communication technology. The actual minimum score was -63 and the actual maximum score was +63 (Mean = 13.06, Standard Deviation = 3.983) (see Table 14).

The frequency distribution of subjective norm score shows that of the 85 participants scoring in the 0 to 63 range, 54 scored in the 0 to +20. The majority of the teachers felt the social pressure to use communication technology with 85 participants being on the positive side. Teachers, on average, feel social pressure to use communication technology by administrators, veteran teachers, and/or parents.

Correlation between Intention and Direct Measure of the Subjective Norm for the Hypothesis 2

A correlation was conducted to examine the relationship between intention, the dependent variable, and the direct measure of subjective norm (DM of SN) (see Table 15). Subjective norm was positively and statistically significantly related to intention ($r = .510, p < .000$). This would indicate that subjective norms influence the intention of those teachers planning to use communication technology.

Hypothesis 3

Beginning teachers plan/intend to use communication technology if they believe that using communication technology will help them with their job. Conversely, beginning teachers do not find value in using communication technology, they will not plan to use it.

Descriptive Statistics for Hypothesis 3

The attitude toward the behavior (Ab) scale's range, from -210 to +210, was the largest of the three given the number of questions. This scale in the negative range means the teacher did not favor using communication technology, and in the positive range of the scale, the teacher did favor using communication technology. The actual minimum score was -2, and the actual

maximum score was +201 (Mean=103.95, Standard Deviation = 44.06) (see Table 14).

Correlation between Intention and Direct Measure of Attitude Toward the Behavior for the Hypothesis 3

A correlation was performed to examine relationships between intention, the dependent variable, and direct measure of attitude toward the behavior (DM of Ab) (see Table 15). Attitude toward the behavior was found to be positively and statistically significantly related to intention ($r = .764, p < .000$). These results suggest that teachers' attitude toward the behavior will influence their intention.

Hierarchical Regression

Utilizing a multiple regression analysis permitted the researcher to identify the independent variable(s) that most impacted intention (i.e., planned/intended use of communication technology). The F statistic was used to test whether the model attained statistical significance. The R^2 ranges from 0 to 1 and is interpreted as the percentage of the variance in the dependent variable (direct measures of intentions) that is explained by the independent variables (direct measures of subjective norms (SN), direct measures of attitude toward the behavior (Ab) and direct measure of perceived behavioral control (PBC). The Beta helps to establish the contribution of each independent variable(s) in predicting the teachers' intention to use communication technology.

Two separate models of hierarchical regression were run in order to determine which independent variable(s) explained the teachers' intention to use communication technology. In the first model, direct measure of intention was regressed on direct measure of perceived behavior control and direct measure of the subjective norm, which is a combination of hypotheses 1 and 2. In the second model, direct measure of intention was regressed on direct measure of subjective norm and direct measure of attitude toward the behavior which is a combination of hypotheses 2 and 3 while direct measure of perceived behavior control was removed.

Model 1 is testing hypotheses 1 and 2, which sought to explain whether beginning teachers plan/intend to use communication technology, if they perceive that it is highly available or accessible and if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use. Conversely, beginning teachers would not plan/intend to use communication technology because they perceived low availability and/or accessibility and because they perceive that their administrators, other more experienced teachers, and parents have low or no expectations for its use.

Model 2 is testing hypotheses 2 and 3, which is investigating do beginning teachers plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use and if they believe that using communication technology will help them with their job. Conversely, beginning teachers do not

plan/intend to use communication technology because they perceive that their administrators, other more experienced teachers, and parents have low or no expectations for its use and do not find value in using communication technology, they will not plan to use it.

In analyzing the data, model 1 is statistically significant, $F=20.801$, significance at the .000 level; as is model 2, $F=88.870$, significant at the .000 level (see Table 16).

Table 16

Intention Variables #1 and Intention to Use Communication Technology

Model		df	Mean Square	F	Significance
1	Regression	2	36.126	20.801*	.000
	Residual	118	1.737		
	Total	120			
2	Regression	2	83.295	88.870*	.000
	Residual	118	.937		
	Total	120			

Note. * $p < .01$.

To determine the relative efficacy of the each of the two models, it is important to note the R^2 change as each of the new variables were entered. (see Table 17) In model 1, which is significant, the R^2 value = .261. In model 2, the R^2 value = .601, with an R^2 change = .341, which is significant at the .000 level; this shows that model 2 explains an additional 34.1% of the variance in intentions to use communication technology.

Table 17

Intention Variables #2 and Intention to Use Communication Technology

Model	R^2	R^2 Change	Significance
1	.261	.261	.000
2	.601	.341	.000

Note. * $p < .01$.

In order to assess the efficacy of each model, we must examine the predictors and view how they behave in terms of significance (see Table 18). In model 1, direct subjective norm does have a significant impact on intention scores, $\beta = .517$, significant at the .000 level. Direct measure of perceived behavioral control does not have a significant impact on intention scores, $\beta = -.025$. These results suggest that the more the subjective norm pressures the teachers experience, then the greater their planned/intended use of communication technology.

In model 2, (see Table 18) the direct measure of subjective norm does have a significant impact on intention scores, $\beta = .216$, significant at the .023 level. Direct measure of attitude toward the behavior does have a highly positive significant impact on intention scores, $\beta = .821$, significant at the .000 level. These results suggest that the teachers' attitude toward using communication technology impacts their planned/intended use of communication technology in model 2. The betas also suggest that attitude toward the behavior beta is about four times stronger than the subjective norm beta in model two. This suggests that it is important for the teacher to see the value of communication technology in their job quite beyond the expectations that others (administrators, more experienced teachers) may hold or the simple availability of the technology.

Table 18

Intention Variables #3 and Intention to Use Communication Technology

Model		β	<i>t</i>	Significance
1	DM of SN	.517*	6.243	.000
	DM of PBC	-.025	-.303	.762
2	DM of SN	.216	2.307	.023
	DM of Ab	.821*	10.041	.000

Note. * $p < .05$.

Key – DM of PBC: direct measure of perceived behavioral control; DM of SN: direct measure of subjective norm; DM of Ab: direct measure of attitude toward the behavior

Summary

As stated in chapter 3 under limitations, the respondents differed from the projected population. The projected population was going to be only beginning teachers who just graduated from college and have taught for 1 or 2 years. Instead, the respondents were not only beginning teachers but teachers who were new to the teaching profession but graduated more than 2 years ago, with the majority of the respondents actually graduating 10 years plus. These graduates are new to teaching but not a recent graduate from college. They could affect this study by their college curriculum not requiring technology. The three hypotheses were examining the respondents' overall intention to use communication technology and what behavior influences their intention to use. Through descriptive statistics, correlations, and a two model hierarchical regression, the three hypotheses were tested.

The two models tested were significant, suggesting that the independent variables (direct measure of subjective norm, direct measure of perceived behavioral control, and direct measure of attitude toward the behavior) shaped teachers' planned/intended intention to use communication technology. Model 2 accounted for the greatest amount of the total variance 60.1%. This suggests that teachers' subjective norm and attitude toward a behavior, which in this case is their intention to use communication technology, is a strong indicator of whether or not they will use it. The hierarchical regression, where intention was the dependent variable, showed that perceived behavioral control had no significant impact on teachers' intention.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Introduction

This study tested three hypotheses about whether or not beginning teachers plan/intend to use communication technology in their classrooms and why. The three hypotheses examined beginning teachers' intention to use communication technology based on (a) beginning teachers' perception of the availability of communication technology to them (b) the expectation to use communication technology from administrators, other more experienced teachers and parents, and (c) beginning teachers' belief in whether or not the use of communication technology will help them do their job. The implications of these results could be considered for higher, secondary, and elementary education. Lastly, the researcher will provide recommendations for future research studies.

Summary of Sample Characteristics

Respondents included 121 teachers who were new to teaching in the dioceses. The majority of the respondents were females and of those females, the majority was not new to teaching (not new college graduates). Therefore, it is assumed that these participants have taken the alternative route in order to become teachers.

The U.S. Department of Education in 2004 published a 70-page document on the alternative route. The alternative route was conceived/ designed as a way to attract new job candidates, from other professions, who already have a college degree in some area other than education. These candidates are usually mid-career individuals or middle age retirees from other professions. This non-traditional path helps these candidates to get hired in a teaching job while they earn their teaching certificate at night by taking a few extra hours of course work. The majority of female participants in this study could fit this definition and could explain some of the results.

In 2005, Mayo, Kajs, and Tanguma completed a 3-year study comparing teacher candidates (TC), also known as preservice teachers, to alternative certification teachers (ACT). The study looked at the TC participants and how they incorporated the technology they learned in college into their first year of teaching compared to the ACT first-year teachers and the amount of technology they incorporated into their lessons. Their study revealed that the TC participants had a more robust use of technology in their classrooms than did the ACT teachers

Veenman's (1984) "The Teacher Socialization Framework," (see Table 5) stated the fourth most frequent problem beginning teachers have is, "relation with parents," an arena in which communication technology may be useful. Veenman used a Gehrke study of beginning secondary teachers to explain their socialization through their needs. He identifies "four specific needs ...during early role transition: need for respect, need for liking, need for belonging, and

need for a sense of competence” (p. 163). These four needs could have affected the teachers’ use of and views about communication technology in the school, and, in turn, affected this study of the beginning teachers’ intention to use communication technology.

The Findings

This study revealed which factors impact the teachers’ plan/intention to use communication technology with variables such as perceived behavioral control (PBC), subjective norm (SN), and attitude toward the behavior (Ab).

What does affect teachers’ planned used of technology? Availability of technology did not affect the decisions to use communication technology in the classroom. This fact suggests that if teachers intended to use communication technology then they would, irrespective of the availability of computers (although there was no real test of how these intentions would be acted out in a school with no computers at all).

By using the social psychological approach, the theory of planned behavior, Aizen 2002, the behaviors (DM of SN, DM of Ab, and DM of PBC) were able to explain what impacted the teachers’ intentions to use communication technology. This study showed a highly statistically significant correlation between their subjective norm and intentions, meaning that administrators, peer teachers, and parents play an active part in their decision to use communication technology. For example, Model 1 and 2 showed that subjective norm and

attitude toward behavior will evoke the teacher's intentions to use communication technology. The use of these behaviors and the study could help school districts (or diocese) realize how they could improve their teachers intended use

Model 1 of the regression specifically showed that intention regressed on subjective norm was statistically significant signifying that beginning teachers plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use. This finding suggests that teachers' intention is shaped by others. Schools, other teachers, and parents can then, in turn, motivate their teachers' intention to use communication technology making the teachers more likely to comply (See Tables 16, 17, & 18).

Model 2 of the regression showed that intention regressed on attitude toward behavior was statistically significant, suggesting that if beginning teachers believe that using communication technology will help them with their job, they will plan to use it. This result suggests that these teachers need to see a value in order to manifest their intentions. If schools provide information on the advantages of using communication technology, then the teachers' attitudes toward using it will likely be positive, and the teacher will likely act on his or her intentions. Schools can use this knowledge to improve the teachers' attitude by making the teachers feel more comfortable with the computer (e.g., computer lessons) (See Tables 16, 17, & 18).

The second and third hypotheses were supported through Models 1 and 2. The second hypothesis stated that beginning teachers plan/intend to use communication technology if they perceive that their administrators, other more experienced teachers, and parents have high expectations for its use. And the third hypothesis said that beginning teachers plan/intend to use communication technology if they believe that using communication technology will help them with their job.

The first hypothesis, however, was not supported because perceived control behavior was not significant. The first hypothesis stated that beginning teachers plan/intend to use communication technology if they perceive that it is highly available or accessible. Conversely, beginning teachers would not plan/intend to use communication technology if they perceived low availability and/or accessibility. This hypothesis could have been tested more completely (see recommendations for future research, number 3) by posing more specific questions focused on their perceived control behavior, for example, do they have a computer in their classroom?

Implications

The question posed in chapter 1 was, “What is happening to the beginning teachers’ knowledge of communication technology from their preservice curriculum?” NCATE: Standard 6: Unit Governance and Resources: “Unit Resources Including Technology” states that an on-target college should

“successfully...serve as an information technology resource in education beyond the education programs – to the institution, community, and other institutions.” As stated in chapter 1, 84% of new teachers reported that they had learned how to use computers and the Internet in college. If 92% of teachers have computers at school and half of the teachers have computers at home, then why is there so little use in the classroom or for classroom-related communication? Figure 4 is the data generated from a survey by the U.S. Department of Education, National Center for Education Statistics done in 1999. They asked teachers how they used information communication technology with colleagues and with parents at home or at school. The communication among colleagues in school is the highest at 50%, while communicating with colleagues from home is a close second at 48%. Communication with parents from school is done by 25%, while only 19% communicate with parents from home.

In 1986, Cuban made a prediction about the use of computers that seems to be corroborated by this study:

Researchers, reformers, and policy makers will discover how little teachers use the machines. I predict that most teachers will use computers as an aid, not unlike radio, film, and television. In elementary schools where favorable conditions exist, teachers use will increase but seldom exceed more than 10 percent of weekly instructional time...Where unfavorable conditions exist (i.e., limited principal and central office support, few machines, and so forth), teachers who are serious computer users will secure machines but schoolwide use will be spotty. (p. 99)

The analytic framework based on Aizen's (2002) theory of planned behaviors was an integral tool in addressing the questions and its utility as a potential theoretical framework is supported. The results from the researcher's data analysis, suggest that these findings from 1999 might be outdated or were only applicable to public school teachers. Beginning teachers in this study were viewing communication technology optimistically. Their intention was to use communication technology because of their favorable attitude towards it (likely developed during their teacher preparation training) and the pressures from the school community's subjective norms. The dioceses, however, need to keep up to date. The perceived control behavior was not significant (see hypothesis 1 and model 1), because not all the teachers felt that they had any control over their use of technology. In fact, 10 participants wrote on their surveys that not having a computer in their room could affect their usage of communication technology.

Recommendations for Future Research

The study did have some significant findings, but also limitations based upon which there are recommendations for future researchers. The study can be reproduced easily with the questionnaire and the statistical methods and analysis used in chapters 3 and 4, which can assist in guiding future studies:

1. The sample of this study was intended to be beginning teachers who have just graduated from college. The lists given from the dioceses were new teachers, but after post-survey administration the researcher determined

that many participants on the lists may have been teachers new to the dioceses, not beginning teachers. This suggests that studies should ensure the actual sample reflects the intended population. In future studies, one way to ensure that all the teachers are beginning teachers who have just graduated from college would be to exactly define the population “beginning teachers who have just graduated from college” in the mailing. Another way would be to physically meet with the group of teachers instead of doing a mailing at all.

2. This study should be done also in public schools all the around the country to discern regional differences. This study only used four dioceses in New Jersey, so the participants only came from the private sector in only one state. Private verses public education could have an impact on the findings by affecting the subjective norms and perceived behavior control. In addition, the participants only came from New Jersey which gives the study less demonstrable, external validity. Also alternative route standards differ from state to state.

3. The questionnaire should have asked whether or not the participant had a computer in the classroom. About 10 participants (8%) had written on their questionnaire that they did not have a computer in their classroom. Some of the participants might not have their own classroom and move from room to room in order to teach and might not, therefore, have access to computers. Indeed, there may be even additional respondents without access to computers who did not think of noting it on the survey.

4. The questionnaire could benefit by revision. After the data were collected, the researcher recognized that another set of questions about the respondents' actual behavior (in contradistinction to their intentions) could have been posed. This set of questioning could help in examining if teacher intentions were consistently and directly translated into behaviors. Likewise, the questionnaire could have a few questions removed. The indirect questioning about attitude toward the behavior had 10 questions on behavioral belief and 10 about outcome behavior. This section could have been rewritten and shortened to five questions for each instead of 10, which then could be replaced by the actual behavior questions to keep the total number of questions on the questionnaire to about 50. This suggestion was reinforced by advice from the Seton Hall IRB

The research question asked, "To what extent are beginning teachers able to translate their pre-service preparation experience with communication technology into their in-service practice once they begin teaching?" The study found that if respondents feel that the subjective norm wants them to use communication technology, and their attitude toward communication technology is positive, then the beginning/first year teacher will use communication technology in their classroom notwithstanding challenges posed by the perceived availability/non-availability of technology.

5. A new study looking at teachers' use of communication technology with parents, other teachers, or with administrators. This study could find the percent of the teachers' communication technology with each group then could

see if their use of communication technology helped with their job. Caddell researched that the more teachers communicate with parents then the students will achieve more. The study could then further look at this statement to see if this is true with the communications being with the use of technology.

6. Using the data from this study, an individual analysis of each question could be done in order to see the attitude toward each communicator (ex: teacher-teacher, teacher-parent and teacher-administrator.) This analysis could see the teachers' subjective norm that they value the most. School administrators could then use this research to help them keep the pressure of those subjective norms on the teachers.

7. Lastly, administrators need to know how to increase technology use in their schools. What policy implications do they need to create in order to have their teachers using communication technology? From this study, it was found that teachers needed to find value in using technology. In addition, some teachers felt that they needed a computer easily accessible. How do administrators instill accessibility and value into their schools in order to increase technology use?

Reference

- Aizen, I. (2002). *Theory of planned behavior (University of Massachusetts)*, Abstract Retrieved Feb 23, 2005, from www.people.umass.edu/aizen/faqtxt.html
- Alaskan State Department of Education, Juneau. (1997) *Standards for Alaska's teachers*. Alaskan state department of education, office of teacher education certification, Juneau, AK.
- Angelle, P. (2002, February). *Beginning teachers take flight: A qualitative study of socialization*. Paper presented at the Annual Meeting of the Southwest Educational Research Association, Austin, TX.
- Angelle, P. (2002, April). *Socialization experiences of beginning teachers in differentially effective schools*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Bartell, C. A. (1995). Shaping teacher induction policy in California. *Teacher Quarterly*, 22(4), 27-43.
- Berger, E. (1995) *Parents ad partners in education: families and schools wprking together*. Englewood Cliffs, NJ: Merrill.
- Burden, P. (1979). Teachers' perceptions of the characteristics and influences on their personal and professional development. (UMI No. 8008776)..
- Caddell, D. (2001) *Working with Parents: A shared understanding of the curriculum 3-5. Early Education Support Series*. Learning and Teaching Scotland, Dundee. (ERIC Document Reproduction Service No. ED450901)
- Campus Computing Survey (2006). *Homepage* Retrieved December 18, 2006, from www.campuscomputing.net
- Carhart, C., & Strohmer, J.(1997). *Time-saving tips for teachers*. Thousand Oaks, CA: Corwin Press.
- Chapman, C. & DeBell, M. (2001). Technology in education computer and Internet use by children and adolescents in 2001. *National Center for Education Statistics*, 5(4). Retrieved January 17, 2005, from http://nces.ed.gov/programs/quarterly/vol_5/5_4/2_1.asp#tab_a
- Conn, K. (2002). *The Internet and the law*. What educators need to know. Alexandria, VA: Association for Supervision and Curriculum Development.

- Cuban, L. (1986). *Teachers and machines, the classroom use of technology since 1920*. New York: Teachers College Press, Columbia University.
- Cuban, L. (2001). *Oversold and underused computers in the classroom*. Cambridge, MA: Harvard University Press.
- Cuban, L., & Tyack, D. (1995). *Tinkering toward utopia, a century of public school reform*. Cambridge, MA: Harvard University Press.
- DePaul, A. (2000). *Survival guide for new teachers: how new teachers can work effectively with veteran teachers, parents, principals, and teacher educators*. Office of Educational Research and Improvements, Washington, DC.
- Dilworth, M.E. (1986). Teacher testing: adjustments for schools, colleges, and departments of education. *The Journal of Negro Education*, 55 (3), 368-378.
- Donohue, A., and Others. (1995). *Making sense of technology terminology for adult literacy. A glossary and annotated bibliography. Practice guide*. University of Pennsylvania Publication, National Center on Adult Literacy, Philadelphia.
- Dutt-Doner, K., & Powers, S. (1998, March). *Replacing the tin can: Creating an effective electronic communication environment*. Paper presented at Society for Information Technology & Teacher Education International Conference, Washington, DC.
- Eddy, E. (1969). *Becoming a teacher: The passage to professional status*. New York Teachers College Press.
- Epstein, J.L. & Salinas, K.C. (2004). Partnering with families and communities. *Educational Leadership*, 61 (8), 12.
- Epstein, J. L. (2001). *School, family and community partnership: preparing educators and improving schools*. Boulder, CO: Westview Press.
- Feiman-Nemser, S. Schwille, S. Carver, C. & Yusko, B. (1999). *A conceptual review of literature on new teacher induction*. Washington, DC: National Partnership for Excellence and Accountability in Teaching.

- Finkelstein, M. J., Frances, C., Jewett, F. I., & Scholz, B. (Eds.). (2000). *Dollars, distance, and online education*. Phoenix, AZ: The Oryx Press for American Council of Education.
- Flores, M. (2003, April). *Mapping teacher change: A two-year empirical study*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.
- Fuller, F.F., & Brown, O.H. (1975). *Becoming a teacher*. In K. Ryan (Ed). Teacher education 74th Yearbook of the National Society for the Study of Education, Chicago: University of Chicago Press.
- Heflich, D., & Rice, M. (1999, February). *Online survey: A venue for reflective conversation and professional development*. Paper presented at the Society for Information Technology & Teacher Education International Conference, San Antonio, TX.
- Hiatt-Michael, D. (2001 a). *Preparing pre-service teachers for home-school partnerships across the United States*. Paper presented at American Educational Research Association Annual Meeting, Seattle, WA.
- Hiatt-Michael, D. (2001 b). *Preparing teachers to work with parents*. Office of Educational Research and Improvement, Washington, DC.
- Hiatt-Michael, D. (2000, April). *Parent involvement as a component of teacher education programs in California*. Paper present at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- International Society for Technology in Education. (2003). *Home page*. Retrieved June 10, 2004, from <http://www.iste.org>
- Ivers, K. (2002, April). *Changing teachers' perceptions and use of technology in the classroom*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Lortie, D. (1975). *Schoolteacher, a Sociological Study*. Chicago: The University of Chicago Press.
- Mayo, N. B., Kajs, L. T., & Tanguma, J. Longitudinal study of technology training to prepare future teachers. *Educational Research Quarterly*, 29(1) 3-15.
- Merriam-Webster Online Dictionary. (2004). Springfield, MA: Merriam-Webster.

- Meyers, E. (2001). *How to use the Internet in your classroom: A guide for teachers, technology coordinators, staff developers, administrators, and other educators about teaching and learning in the new media classroom*. New York: By Teachers for Teachers. Teachers Network.
- Milken Exchange on Educational Technology. (1999). *Will new teachers be prepared to teach in a digital age? A national survey on information technology in teacher education*. Santa Monica, CA.
- Morris, V., & Others. (1997, February). *Involving families in education: Using diverse teaching and assessment strategies to prepare teachers for this role*. Paper presented at the Annual Meeting of the Association of Teacher Educators, Washington, DC.
- National Association of Elementary School Principals (1998). *Early childhood education & the elementary school principal: standards for quality programs for young children*. Minneapolis, MN: Lifetough, Inc.
- National Council for Accreditation of Teacher Education (NCATE). (1997, 2003). *Technology and the new professional teacher: Preparing for the 21st century classroom*. Washington, DC: Retrieved August 7, 2006, from <http://www.ncate.org/>
- Nemser, S., Shulman L., & Skyes G. (1983). *In Handbook of Teaching and Policy*. New York: Longman.
- Rowand, C. (2000). *Teacher use of computers and the internet in the public schools. Stats in brief*. Retrieved on January 17, 2005, from <http://nces.ed.gov>
- Ryan, K. (1975). *Teacher Education: The seventy-fourth yearbook of the national society for the study of education*. Chicago: University of Chicago Press.
- Shea, V. (1994). Core rules of netiquette. Retrieved on January 17, 2005, from <http://www.educause.edu/pub/er/review/reviewArticles/29558.html>
- Swallow, W. C. (1957). The role of parents in the modern school. *Journal of Educational Sociology*. 30 (8), 357-361.
- Tao, L., & Boulware, B. (2002). E-mail: Instructional potentials and learning opportunities. *Reading & Writing Quarterly*, 18, 285-288.

- Tao, L., & Reinking, D. (1996, Oct-Nov). What research reveals about email in education. *Paper presented at Annual Meeting of the College Reading Association*, Charleston, SC.
- Tao, L., & Reinking, D. (2000, April-June). Email and literacy education. *Reading & Writing Quarterly*, 16 (2), 169-175.
- U. S. Department of Education (2001). *Census bureau reports: 9-in-10 school age children have computer access; Internet use pervasive*. Retrieved January 17, 2005, from <http://www.census.gov/Press-Release/www/2001/cb01-147.html>
- U.S. Department of Education. (2004). *Innovations in Education: Alternative Routes to Teacher Certification*. Retrieved August 7, 2006, from <http://www.chse.org/policy/eddata.php>
- U.S. Department of Education, The National Center for Education Statistics. (1996). *The Survey on Family and School Partnerships in Public Schools, K- 8 addressed the following issues*: Retrieved December 18, 2006, from <http://nces.ed.gov/surveys/frss/publications/98032/3.asp>
- U.S. Department of Education, The National Center for Education Statistics. (1998). *Teachers' tools for the 21st century: A report on teachers' use of technology, percent of elementary and secondary teachers and adults in other occupations who report having computers at home: 1994, 1997, and 1998*. Retrieved January 17, 2005, from <http://www.nces.ed.gov/quicktables/displaytableimage.asp?ID=QTFImage495>
- U.S. Department of Education, The National Center for Education Statistics. (1999 a). *Advanced telecommunications in U.S. private schools: Percent of schools with Internet access reporting that teachers and students used the World Wide Web (WWW) and e-mail to a large extent, by school sector: Fall 1998 and school year 1998-99*. Retrieved January 17, 2005, from <http://www.nces.ed.gov/quicktables/displaytableimage.asp?ID=QTFImage925>

- U.S. Department of Education, National Center for Education Statistics. (1999 b). *Fast Response Survey System. Advanced telecommunications in U.S. private schools: 1998-99; Among private schools that offered or participated in advanced telecommunications training for teachers, percent of schools using various methods of encouragement for teacher training, by selected school characteristics: School year 1998-99.* Retrieved August 7, 2006, from <http://nces.ed.gov/quicktables/displaytableimage.asp?ID=QTFImage484>
- U.S. Department of Education, National Center for Education Statistics. (1999 c). *Fast Response Survey System: National Study of Postsecondary Faculty.* Retrieved January 17, 2005, from <http://www.nces.ed.gov/quicktables/result.asp?SrchKeyword=communications&topic=All&Year=2003&Year=2002&Year=2001&Year=2000&Year=1999&Year=1998&Year=1997>
- U.S. Department of Education, The National Center for Education Statistics. (1999 d). *Teachers' tools for the 21st century: A report on teachers' use of technology, percent of public school teachers who have computers at school or at home reporting using computers or the Internet a little or a lot at school and at home, for various activities, by school and teacher characteristics: 1999.* Retrieved January 17, 2005, from <http://www.nces.ed.gov/quicktables/displaytableimage.asp?ID=QTFImage430>
- U.S. Department of Education, The National Center for Education Statistics. (1999 e). *Teachers' tools for the 21st century: A report on teachers' use of technology, percent of public school teachers reporting whether college/graduate work prepared them not at all or to any extent to use computers and the Internet, by years of teaching experience: 1999.* Retrieved January 17, 2005, from <http://www.nces.ed.gov/quicktables/displaytableimage.asp?ID=QTFImage930>
- U.S. Department of Education, The National Center for Education Statistics. (2000). *Teachers' tools for the 21st century: A report on teachers' use of technology.* Retrieved December 18, 2006, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000102>
- U.S. Department of Education, The National Center for Education Statistics. (2002 a). *Internet access in U.S. public schools and classrooms: 1994–2002.* Retrieved January 17, 2005, from <http://www.nces.ed.gov/surveys/frss/publications/2004011/>

- U.S. Department of Education, National Center for Education Statistics. (2002 b). *Internet access in U.S. public schools and classrooms: 1994–2002. Average number of computers with Internet access regularly available to students outside of regular school hours, by school characteristics: 2001–02*. Retrieved August 7, 2006, from <http://nces.ed.gov/quicktables/displaytableimage.asp?ID=QTImage212>
- U.S. Department of Education, National Center for Education Statistics. (2003). *Internet access in U.S. public schools and classrooms: 1994-2002* (NCES 2004-011). Retrieved August 7, 2006, from <http://nces.ed.gov/fastfacts/display.asp?id=46>
- U.S. Department of Education, The National Center for Education Statistics. (2006 a). *Internet access in U.S. public schools and classrooms: 1994-2005*. Retrieved December 18, 2006, from <http://www.nces.ed.gov/pubs2007/2007020.pdf>
- U.S. Department of Education, National Center for Education Statistics. (2006 b). *Internet access in U.S. public schools and classrooms: 1994-2005* (NCES 2007-020). Retrieved February 2, 2007, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007020>
- University of New Mexico, College of Education. (2003). Resident teacher program, teacher induction. Retrieved January 17, 2005, from <http://www.unm.edu/~rtp/probs.html>
- Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research*, 54(2), 143-78.
- Vergara, H. (1995). *Design, development, and implementation of an instructional program for kindergarten teachers to increase their basic computer skills through word processing training*. Unpublished doctoral dissertation, Nova Southeastern University.
- Waller, W. (1965). *The sociology of teaching*. science editions. New York: John Wiley & Sons.
- Webster's Encyclopedic Unabridged Dictionary of the English Language, (1989). New York: Random House.
- Wepner, S., Scott, S., & Haysbert, J. (2003). What are colleges and universities doing to promote technology initiatives? *Journal of Computing in Teacher Education*, 20(1), 17-27.

- Wepner, S., & Tao, L. (2002, April). From master teacher to master novice: Shifting responsibilities in technology-infused classrooms. *Reading Teacher, 55* (7), 642-652.
- Williams, D. & Chavkin, N. (1989). Essential element of strong parent involvement programs. *Educational Leadership, 47* (2), 18-20.
- Willis, E. M., & Sujo de Montes, L. (2002). Does requiring a technology course in preservice teacher education affect student teacher's technology use in the classroom? *Journal of Computing in Teacher Education, 18*(3), 76-80.
- Yusko, B., Carver, C., Feiman-Nemser, S., & Schwille, S. (1999). *A conceptual review of literature on new teacher induction*. East Lansing, MI.

APPENDIX A
STUDENT WAIVER FOR INTERNET USAGE

PATERSON DIOCESAN SCHOOLS

Internet and Computer Use Agreement for Elementary Schools

STUDENT NAME (please print): _____

I have read, understand, and agree to everything in the (Name of School) Internet and Computer Policy. I understand that I am responsible for whatever I do while I am using the computers and Internet at school. I know that I am expected to act like a good student in a Catholic school whenever I am using the computers and Internet at (Name of School).

I understand that I may be punished, and lose the privilege to use the computers and Internet at School if I break any of the rules in the Internet and Computer Policy of (Name of School).

To show that I understand, I am writing my name here.

STUDENT SIGNATURE: _____

Parental Permissions:

I am the parent/guardian of the student named above. I acknowledge that I have read, understand, and agree to all terms as outlined in the (Name of School) Internet and Computer Policy. I understand that my child will engage in supervised activities that involve the use of computers and the internet while at school as part of his/her regular instruction. I have reviewed this policy with my child and have helped him/her to understand it. I also understand that this agreement will be binding during the entire career of my child at (Name of School).

For e-mail usage:

_____ My child **MAY** use e-mail while at school according to the school's policy.

_____ My child **MAY NOT** use e-mail while at school.

For Independent Internet access:

_____ My child has my permission to be an independent Internet user, able to access the Internet at school without direct supervision or direction.

PARENT/GUARDIAN NAME (please print): _____

PARENT/GUARDIAN SIGNATURE: _____

DATE SIGNED: _____

APPENDIX B
TEACHERS' GUIDELINES FOR INTERNET USAGE

PATERSON DIOCESAN SCHOOLS

Faculty/Staff Electronic Mail and Internet Access Policy

The Internet is an extremely valuable search-and retrieval tool which offers a rich tapestry of information and research material to school employees from their desktop and/or school operated computers.

Employees are reminded that when they browse the Internet or send E-mail containing the school's domain address, they are representing the school as well as the Diocese of Paterson, not merely themselves, in a public medium.

Consistent with existing Diocesan and local school personnel policies outlining proper standards of employee conduct, the following guidelines regarding the responsible use of the Internet and electronic mail are established:

- The computer system is the property of (Name of School) and should be used for school business only.
- E-mail is not to be used in ways which are disruptive or offensive to others, or in ways which could be harmful to workplace morale.
- The information systems available via computer are to be used exclusively for the business of the school.
- All e-mail messages are considered "work products," and are the property of the school. In all cases, but especially where there is a suspicion of inappropriate use of e-mail and Internet access, the school has the right to review messages sent and received by the employee.
- For reasons of privacy, employees should not attempt to gain access to another employee's personal file of e-mail messages without the latter's expressed permission.
- The use of school computers to intentionally access sites which are not work-related or which are morally inappropriate is prohibited.

Faculty are expected to exercise professional judgement and discretion in integrating the Internet into classroom instruction. At all times, access to the Internet should be planned and carefully monitored. All materials and information should be previewed before they are used in the classroom setting for its age appropriateness and suitability to be a part of the instructional program. If there is any doubt about a particular Internet site, the administration should be consulted. In instances that could be construed to be of a controversial nature, administrator's permission is required and parent consent should be sought. Internet filtering software will be installed on student-used computers to preclude student access to inappropriate sites.

Violations of this policy will result in appropriate disciplinary action up to and including discharge.

EMPLOYEE SIGNATURE: _____

PRINCIPAL SIGNATURE: _____

DATE SIGNED: _____

APPENDIX C
QUANTITATIVE SURVEY BASED ON TpB THEORY

School Communications Technology Survey

*Directions: Please answer all of the following questions by circling or **X** your answer, or filling in the blanks.*

Major in College: _____ Graduation date: _____

Grade level(s) you teach: _____

Is your school: Urban or Suburban?

Your age: 21 to 24, 25 to 30, 31 and over

Gender: M F

1. For me, gaining better understanding of communication technology is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
2. For me, doing a good job at school is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
3. For me, having an opportunity to interact with administrators, teachers, and students' parents is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
4. For me, missing other important school work because of doing communication technology is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
5. For me, keeping up with my communication technology is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
6. For me, having and maintaining a running communication with administrators, teachers,
and students' parents is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
7. Gaining more information from communication technology regarding administrators, teachers,
and students' parents is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
8. For me, saving time by using communication technology is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
9. For me, helping my classroom students is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important
10. For me, missing out on personal interaction with administrators, teachers, and students' parents is
not important: -3 -2 -1 0 +1 +2 +3 :extremely important

12. For me, using communication technology on a regular basis is extremely difficult: 1 2 3 4 5 6 7 :extremely easy
13. Most people who influence me at school think that I should: 1 2 3 4 5 6 7 :I should not use communication technology.
14. I expect to use communication technology on a regular basis extremely unlikely: 1 2 3 4 5 6 7 :extremely likely
15. For me, using communication technology is extremely good: 1 2 3 4 5 6 7 :extremely bad
16. If I wanted to, I could use communication technology everyday definitely false: 1 2 3 4 5 6 7 :definitely true
17. Most of my colleagues use communication technology on a regular basis definitely false: 1 2 3 4 5 6 7 :definitely true
18. For me, using communication technology on a regular basis extremely worthless: 1 2 3 4 5 6 7 :extremely valuable
19. I want to use communication technology on a regular basis definitely false: 1 2 3 4 5 6 7 :definitely true
20. It is expected of me to use communication technology on a regular basis definitely true: 1 2 3 4 5 6 7 :definitely false
21. For me, using communication technology on a regular basis is extremely pleasant: 1 2 3 4 5 6 7 :extremely unpleasant
23. For me, using communication technology on a regular basis is possible: 1 2 3 4 5 6 7 :impossible
24. Most people whose opinion I value would approve of my use of communication technology on a regular basis strongly disagree: 1 2 3 4 5 6 7 :strongly agree
25. For me, using communication technology on a regular basis is boring: 1 2 3 4 5 6 7 :interesting
26. I intend to use communication technology on a regular basis strongly disagree: 1 2 3 4 5 6 7 :strongly agree
27. For me, using communication technology everyday would be impossible definitely true: 1 2 3 4 5 6 7 :definitely false

28. How much control do you believe you have over using communication technology in school?

no control: 1 2 3 4 5 6 7 :complete control

29. It is mostly up to me whether or not I use communication technology in school

strongly agree: 1 2 3 4 5 6 7 :strongly disagree

30. For me, using communication technology on a regular basis will help me to gain a better understanding of its uses

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

31. For me, doing well at using communication technology on a regular basis will help me to do a better job at school

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

32. For me, using communication technology on a regular basis will give me an opportunity to interact with administrators, teachers, and students' parents

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

33. Using communication technology will cause me to miss other important school work

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

34. For me, using communication technology on a regular basis will help me to have good communications with administrators, teachers, and students' parents

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

35. For me, using communication technology on a regular basis will help me to keep up with my communications with administrators, teachers, and students' parents

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

36. Using communication technology on a regular basis will help me to get more information from administrators, teachers, and students' parents is

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

37. Using communication technology on a regular basis will help me to save time in communication with parents, teachers, and administrators

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

38. Using communication technology on a regular basis will help my students in the classroom

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

39. Using communication technology on a regular basis will make me miss out on personal interaction between administrators, teachers, and students' parents

extremely unlikely: 1 2 3 4 5 6 7 :extremely likely

40. How often are the computers in your classroom not working?

very rarely: 1 2 3 4 5 6 7 :very frequently

41. How often do you have access to a computer at school?
very rarely: 1 2 3 4 5 6 7 :very frequently
42. How often does school place unanticipated demands on your time?
very rarely: 1 2 3 4 5 6 7 :very frequently
43. How often do you feel that communication technology is more time consuming than other forms of communication?
very rarely: 1 2 3 4 5 6 7 :very frequently
44. If I had no working computers in my classroom, it would make it more difficult to use communication technology
strongly disagree: -3 -2 -1 0 +1 +2 +3 :strongly agree
45. Having access to a computer at school would make it easier for me to use communication technology
strongly disagree: -3 -2 -1 0 +1 +2 +3 :strongly agree
46. If the school places unanticipated demands on my time, that would affect my use of communication technology
strongly disagree: -3 -2 -1 0 +1 +2 +3 :strongly agree
47. For me, communication technology is more time consuming than other forms of communication
strongly disagree: -3 -2 -1 0 +1 +2 +3 :strongly agree
48. My administrators think that I should use communication technology on a regular basis
extremely unlikely: -3 -2 -1 0 +1 +2 +3 :extremely likely
49. My colleagues think that I should use communication technology on a regular basis
extremely unlikely: -3 -2 -1 0 +1 +2 +3 :extremely likely
50. My students' parents think that I should use communication technology on a regular basis
extremely unlikely: -3 -2 -1 0 +1 +2 +3 :extremely likely
51. Generally speaking, how much do you care about what your administrators think you should do regarding communication technology?
not at all: 1 2 3 4 5 6 7 :very much
52. Generally speaking, how much do you care about what your colleagues think you should do regarding communication technology?
not at all: 1 2 3 4 5 6 7 :very much
53. Generally speaking, how much do you care about what your students' parents think you should do regarding communication technology?
not at all: 1 2 3 4 5 6 7 :very much

Thank you. Please return this survey via the enclosed envelope by Tuesday, February 28.

APPENDIX D
INFORMED CONSENT



Communication Technology Survey

Dear Teacher:

My name is Molly Hupcey, and I am a fourth grade teacher at St. Patrick's School in Chatham, New Jersey. I am a doctoral candidate at Seton Hall University in the College of Education and Human Services, Department of Educational Leadership, Management and Policy.

In the process of writing my dissertation, I need to survey teachers. This survey is voluntary but I would much appreciate it if you fill it out and send it back in the self addressed stamped envelope.

As you know, communication technology (email, homework webpages, or school webpages) is being used in homes, schools, and work places throughout the United States. People are using the computer to do communication technology more than before.

During your college experience, you might have taken some type of computer course in order to get certification in New Jersey. This computer course may have focused on how to integrate technology into the classroom for students' learning or even communicating with students' parents, colleagues, and administrators (principal, vice principals, superintendent)

For this 53 question survey, which should take you about 10 minutes, please read the following statements carefully and answer honestly. The questions in this survey are based on Icek Ajzen, "Theory of Planned Behavior" in which a rating scale of 7 places is used. You circle the number that best describes your opinion.

Your name will not be used in this study. Your answers are completely confidential and will only be seen by me to collect the data and afterwards will be shredded. Your participation is of voluntary nature and you may refuse to participate or discontinue participating at any time. There are no correct responses. I am merely interested in your point of view. Consent to participate is indicated by returning the enclosed questionnaire to me.

Contact information: If any questions about the research contact me, Molly Hupcey, the principal researcher at (973) 377-8202; 61 Riverside Dr, Florham Park, NJ 07932, any further questions can be asked to Dr. Finkelstein my faculty advisor at Department of Educational Leadership, Management and Policy in the College of Education and Human Recourses, Seton Hall University, South Orange, NJ 07079 or (973) 761-9397 or the IRB office, Dr. Mary Ruzicka at Office of the Institutional Review Board, President Hall, Seton Hall University, South Orange, NJ 07079 or (973) 313-6314.

Thank you for your time.

Molly Hupcey

College of Education and Human Services
 Department of Education Leadership, Management and Policy
 Ed 973.761.9397
 400 South Orange Avenue • South Orange, New Jersey 07079-2685

APPENDIX E
QUESTIONNAIRE SCORING KEY FOR INDIRECT AND DIRECT MEASURES

Appendix E: Questionnaire Scoring Key for Indirect and Direct Measures

Question Numbers	Response Format	Items requiring reverse scoring	Items requiring internal consistency analysis	Items requiring multiplication, Question #'s	Statistics Required	Construct measured
30 to 39	1 to 7			1 x 30; 2 x 31; 3 x 32; 4 x 33; 5 x 34; 6 x 35;	Multiply each then add = Ab Ab = Sum (b)(e) Range from: -210 to + 210	Behavioral Belief Strength (b)
1 to 10	-3 to + 3			7 x 36; 8 x 37; 9 x 38; 10 x 39;	+ in favor - against (To compare with others then find the mean)	Outcome Evaluations (e)
48 to 50	-3 to +3			48 x 51; 49 x 52; 50 x 53;	Multiply each then add = SN SN=Sum (m)(n) Range from: -63 to +63	Normative Beliefs Strength (n)
51 to 53	1 to 7				+ social pressure - no social pressure	Motivation To Comply (m)
40 to 43	1 to 7			40 x 44; 41 x 45; 42 x 46; 43 x 47;	Multiply each then add = PBC PBC = Sum (p)(c) Range from: -84 to +84	Control Belief Strength (c)
44 to 47	-3 to +3				+ feels in control - does not feel in control	Control Belief Power (p)

Continue of Appendix E: Questionnaire Scoring Key for Indirect and Direct Measures

Question Numbers	Response Format	Items requiring reverse scoring	Items requiring internal consistency analysis	Items requiring multiplication, Question #'s	Statistics Required	Construct measured
12 15, 18, 21 23, 25	1 to 7	15, 21 and 23	12, 15, 18, 21, 23 and 25 (after recoding) Needs high internal consistency		Means	Attitudes, Direct Measure (DM AB)
13, 17, 20, 24	1 to 7	13, and 20	13, 17, 20, 24, (after recoding) Needs high internal consistency		Means	Subjective Norms, Direct Measure (DM SN)
16, 27, 28, 29	1 to 7	27 and 29	16, 27, 28, and 29 (after recoding) Needs high internal consistency		Means	Perceived Behavioral Control, Direct measure (DM PBC)
14, 19, 26	1 to 7				Means	Generalized Intention

APPENDIX F
LETTER TO SUPERINTENDENTS REQUESTING PERMISSION TO SOLICIT
PARTICIPATING TEACHERS

**Molly C. Hupcey
61 Riverside Drive
Florham Park NJ 07932
973-377-7308**

July 18, 2005

Dear Frank Petruccelli,

I am currently in the process of writing my dissertation and I need to survey first year teachers (teachers that have graduated from college in the past two years). As you know, communication technology (email, homework webpages, or school webpages) is being used in homes, schools, and work places throughout the United States. People are using the computer for communications more than before. My dissertation revolves around this topic.

I will present my proposal to the Seton Hall IRB review board. The topic is "A Study of Beginning Teachers' Use of Communication Technology Employing the "Theory of Planned Behavior". The survey will entail mailing out survey forms to new teachers just starting out and those who have worked for a year. I would like to send them out in November/December and am starting to gather the contact addresses now. With your help, I need your permission to solicit them and to compile a list of the names of teachers who fill this requirement and the schools they work at. I will then mail forms to the school and ask permission for them to participate in my survey. Participation in this study is voluntary and unpaid.

For this 53 question survey (which should take about 10 minutes) names will not be used in the study and answers are completely confidential.

Since my survey needs to be statistically valid, I need to contact a large number (over 200) of teachers that fit this description. Therefore, I will need as many dioceses as possible to help me with lists of names of new teachers from the 2004-2005 and 2005-2006 school year and the schools they work for.

Gratefully yours,
Molly Hupcey

**Molly C. Hupcey
61 Riverside Drive
Florham Park NJ 07932
973-377-7308**

July 28, 2005

Dear Sr. Dominica Rocchio, S.C., Ed.D;

My name is Molly Hupcey and I am a fourth grade teacher at St. Patrick's School in Chatham, New Jersey. I am a doctoral candidate at Seton Hall University in the College of Education and Human Services, Department of Educational Leadership, Management and Policy. Through the Diocese of Paterson, I have a scholarship in order to support my education.

I am currently in the process of writing my dissertation and I need to survey first year teachers (teachers that have graduated from college in the past two years). As you know, communication technology (email, homework webpages, or school webpages) is being used in homes, schools, and work places throughout the United States. People are using the computer for communications more than before. My dissertation revolves around this topic.

The Superintendent of Schools for the Dioceses of Paterson, Frank Petruccelli, has already authorized this study within the diocese. He has advised me to also contact the other dioceses in New Jersey to obtain the information I need to complete my study and make my survey viable.

I will present my proposal to the Seton Hall IRB review board. The topic is "A Study of Beginning Teachers' Use of Communication Technology Employing the "Theory of Planned Behavior". The survey will entail mailing out survey forms to new teachers just starting out and those who have worked for a year. I would like to send them out in November/December and am starting to gather the contact addresses now. With your help, I need your permission to solicit and to compile a list of the names of teachers who fill this requirement and the schools they work at. I will then mail forms to the school and ask permission for them to participate in my survey. Participation in this study is voluntary and unpaid.

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Gratefully yours,

Molly Hupcey

**Molly C. Hupcey
61 Riverside Drive
Florham Park NJ 07932
973-377-7308**

July 28, 2005

Dear Sr. Dawn Gear;

My name is Molly Hupcey and I am a fourth grade teacher at St. Patrick's School in Chatham, New Jersey. I am a doctoral candidate at Seton Hall University in the College of Education and Human Services, Department of Educational Leadership, Management and Policy. Through the Diocese of Paterson, I have a scholarship in order to support my education.

I am currently in the process of writing my dissertation and I need to survey first year teachers (teachers that have graduated from college in the past two years). As you know, communication technology (email, homework webpages, or school webpages) is being used in homes, schools, and work places throughout the United States. People are using the computer for communications more than before. My dissertation revolves around this topic.

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For this 53 question survey (which should take about 10 minutes) names will not be used in the study and answers are completely confidential.

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Gratefully yours,
Molly Hupcey

**Molly C. Hupcey
61 Riverside Drive
Florham Park NJ 07932
973-377-7308**

July 28, 2005

Dear Rev Michael J. Corona;

My name is Molly Hupcey and I am a fourth grade teacher at St. Patrick's School in Chatham, New Jersey. I am a doctoral candidate at Seton Hall University in the College of Education and Human Services, Department of Educational Leadership, Management and Policy. Through the Diocese of Paterson, I have a scholarship in order to support my education.

I am currently in the process of writing my dissertation and I need to survey first year teachers (teachers that have graduated from college in the past two years). As you know, communication technology (email, homework webpages, or school webpages) is being used in homes, schools, and work places throughout the United States. People are using the computer for communications more than before. My dissertation revolves around this topic.

The Superintendent of Schools for the Dioceses of Paterson, Frank Petruccelli, has already authorized this study within the diocese. He has advised me to also contact the other dioceses in New Jersey to obtain the information I need to complete my study and make my survey viable.

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For this 53 question survey (which should take about 10 minutes) names will not be used in the study and answers are completely confidential.

Since my survey needs to be statistically valid, I need to contact a large number (over 200) of teachers that fit this description. Therefore, I will need as many dioceses as possible to help me with lists of names of new teachers from the 2004-2005 and 2005-2006 school year and the schools they work for.

Gratefully yours,
Molly Hupcey



**Catholic Schools Office
of the Paterson Diocese**
777 VALLEY ROAD
CLIFTON, NEW JERSEY 07012
(973) 777-8211
SERVING PASSAIC, MORRIS and SUSSEX COUNTIES

OFFICE OF THE SUPERINTENDENT

July 25, 2005

Dear Molly:

I do remember that you are working on your Doctoral Dissertation on the use of communication technologies in the classroom. We certainly want to be of whatever assistance you need to complete your Dissertation. I have therefore asked Jane Sudol, School Office Secretary, to forward the names and the school addresses of all the beginning teachers in the diocese.

You are correct, we will not be hiring the number teachers you need to complete your survey. I have attached a list of the respective dioceses in the state where you can make a similar request.

If you need any further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Frank A. Petruccelli".

Frank A. Petruccelli, Ed.S.
Superintendent of Schools

Attach



Archdiocese of Newark

OFFICE OF
 THE SECRETARY FOR
 EDUCATION / SUPERINTENDENT OF SCHOOLS
 171 CLIFTON AVENUE
 NEWARK, NJ 07102

Molly C. Hupcey
 61 Riverside Drive
 Florham Park, NJ 07932

August 11, 2005

Dear Ms. Hupcey,

The Superintendent of Schools Office of the Archdiocese of Newark will be glad to assist you in your project of surveying new teachers for your Doctoral Dissertation: **Beginning Teachers Using Communication Technology.**

This office will supply you with a list of new teachers and the schools in which they are employed, as soon as we have the information available.

Please contact Sister Ann Kavanagh at 973-497-4273 in mid-September in order to obtain the needed information.

Best wishes for a successful completion of your dissertation.

Sincerely,

Sister Dominica Rocchio, S.C., Ed.D
 Secretary for Education / Superintendent of Schools

ARCHDIOCESE CENTER

171 Clifton Avenue - Post Office Box 9500 - Newark - New Jersey 07104-0500 - (973)-497-4000



Office of Catholic Schools ~ Diocese of Camden

Mailing Address: 631 Market Street, Camden, New Jersey 08102

Phone: (856) 756-7900 ext. 6286 or 6288 Fax: (856) 756-0225

October 27, 2005

Molly Hopcey
61 Riverside Dr
Florham Park, NJ 07932

Dear Molly,

The Superintendent of Schools of the Diocese of Camden will be glad to assist you in your project of surveying new teachers for your Doctoral Dissertation: *Beginning Teachers Using Communication Technology*.

Thank you and have a great day!

Sincerely,

Sister Dawn Gear
D. N. S. H.

Sister Dawn Gear, G.N.S.H.
Superintendent of Schools

Location: 15 North Seventh Street, Camden, New Jersey



DIOCESE OF METUCHEN

Department of Educational Ministry

October 31, 2005

Dear Principal,

I have given Molly Hupeey permission to contact the schools in our Diocese who have first year teachers. Molly is working on her Doctoral Dissertation and needs to survey first year teachers. Participation in this study is voluntary and unpaid.

Any assistance you can give her would be appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Msgr. Michael J. Corona".

Msgr. Michael J. Corona
Executive Director/Superintendent
Department of Education

MJC/jao

APPENDIX G
PREVIOUS CASE STUDY SURVEY: TEACHER SURVEY ON TEACHER'S EMAIL
SURVEY

* All surveys were orally done and filled in by the researcher.

Teacher:

Grade:

1. How will you integrate email into your daily routine? When would you check it? What will you use it for?
2. What do you feel is the appropriate response time to a parent email?
3. How do you think email is a better form of communication with parents? How is it worse?
4. Would you eventually want email to replace paper-based communication with parents?
5. Do you think email could become a burden?
6. If Parent-Teacher Email Use Guidelines were to be drawn up, what issues need to be included?
7. Would you be interested in a course on email use and etiquette?

ENDNOTES

ⁱ Indirect questions were paired together. To find the indirect measure of attitude, the behavioral beliefs questions (items 1-10) on a -3 to +3 scale and outcome evaluation questions (items 30-39) on a 1 to 7 scale were paired. The pairs were then multiplied and added together to form the indirect measure of attitude. The possible score range or scale for this question was -210 to +210. The negative score meant the participant did not hold a favorable attitude toward communication technology, whereas a positive score indicated the participant did hold a favorable attitude. To find the indirect measure of subjective norm, the normative beliefs questions (items 48-50) on a -3 to +3 scale and motivation to comply questions (items 51-53) on a 1 to 7 scale were paired. The pairs were then multiplied and added together to form the indirect measure of the subjective norm. The possible score range for this question was -63 to +63. The negative score meant the participant felt no social pressure to use communication technology, while a positive score meant the participant felt social pressure to use communication technology. Lastly, to find the indirect measure of perceived behavior control, the control belief power questions (items 44-47) on a -3 to +3 scale, and control belief strength questions (items 51-53) on a 1 to 7 scale were paired. The pairs were then multiplied and added together to form the indirect measure of the perceived behavioral control. The possible score range for this question was -84 to +84. The negative score meant the participant did not feel in control of their use of communication

technology, whereas a positive score meant the participant felt in control of their communication technology use.¹