Teacher attitude towards technology: Usage in K-2 classrooms

Lilia Reyes Granillo
TEACHER ATTITUDE TOWARDS TECHNOLOGY
USAGE IN K-2 CLASSROOMS

A Project
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California State University,
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by
Lilia Reyes Granillo
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ABSTRACT

This study examined the daily challenges of teachers in Kindergarten through Second Grade while integrating technology into their classrooms. The purpose of the study was to provide descriptive information regarding how teachers with very young learners manage the use of computers in their classrooms while meeting the many State Standards required by the State of California.

The participants of this study were teachers in grades Kindergarten through Second. Each educator was given a survey to respond to, consisting primarily of open-ended questions. The questions dealt with the barriers they face in integrating technology, how often their students used the computers and the software or programs they most frequently used.

The findings of the study indicate that teachers are tied down with too many standards that must be covered and new programs that need to be implemented every year. For early elementary school teachers to implement sound lessons, with the use of computers, they need more time in their daily schedules, technology support and software that supports learning.
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DEDICATION

I would like to dedicate my Master’s Thesis to my children, Albert, David, and Laura. They have been a blessing in my life. Their continued encouragement gave me the strength to return to school. Also, to my mother Genevieve for her continuous support, and for taking care of my daughter while I was attending my Graduate classes.
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CHAPTER ONE

BACKGROUND

Introduction

Teachers in early elementary education, particularly those in Kindergarten to Second grade must make sure that their young learners are learning the basic skills required to succeed in school. Educators are teaching children at this age beginning phonics, Reading, and beginning Math. Almost every year a new set of curriculum materials are purchased for teachers to begin to use. When this occurs, teachers are inundated with the task of becoming familiar with the new materials, and may decide to put aside for a while the use of the computer.

The reason for this may be that the use of computers in the classroom includes many challenges, such as poor technical support, time to plan effectively, staff development that support technology integrated lessons, and administrative personnel to support a classroom to become technology-infused. The literature review section will give insight as to the opinion of different studies that have been made concerning integration of technology in
elementary school settings. The reports will give different points of view in some areas.

The purchase of computers for classroom usage has been increasing at a steady rate. At the beginning of the technological trend computers were primarily purchased for middle schools and high schools. Now, elementary school classrooms have several computers as well. In this year alone the school site where this study was conducted educators were given two more computers for each classrooms. This brought the total number of computers in early elementary grade classrooms to approximately four to five. Not only are most classrooms equipped with computers but most schools have a computer lab as well. As a result of the significant investment being made in hardware, software, and infrastructure, there is need for evidence regarding the instructional integration of technology in Kindergarten through Twelfth grade classrooms (Baron, Kemker & Harmes, 2003). Providing students with awareness of technology is part of the demand for teachers.

Every year school districts make sure that a good part of their budget is in the purchase of new computers and in providing good technical support to their students.
In the development of integrating technology into instruction, district administrators need to be aware that the primary step in implementing the use of computers has more to do with sound educational strategies that meet the needs of all the learners. It has little to do with technology. Furthermore, a great emphasis has been placed in the past few years on State Standards. Administrators are requiring, and seeing to it that teachers include standards in all their lesson plans. They want to ensure that students are being taught to meet the state requirements at their grade level. In order for educators to fulfill their required expectations support needs to be given. Objectives need to be set and matched with district and state content/skill standards. Once this has been accomplished, administrators can then look closely at how technology can support students in the learning process.

Statement of the Problem

The problem is to address how and if teachers are integrating technology while meeting the daily challenges. One concern has been that teachers need to be given more time to truly incorporate lessons that include the use of computers rather than just have them take up space in their
classrooms. Teachers that do use the computers should use them to support their lessons as an aide to help cover state standards. Survey data suggest that although virtually all faculty believe that technology integration in teacher education is important, their use in technology use is limited (Brush, 2003) Computers in the classrooms are used by faculty for preparing their courses by using word processing, e-mail, gathering resources from the Internet, yet many do not use technologies in actually teaching the courses (2003). Furthermore Thomas Brush (2003) explains that despite the available computer resources more than half of teachers do not integrate technology in their teaching.

In a recent inservice given to educators at the school district where this study was conducted, educators were given the opportunity to become familiar with the many new components of the new Language Arts curriculum materials. Yet there was no mention on how the software was to be used. The presenter was unfamiliar with the software therefore no discussion was made. The new materials are usually equipped with many fantastic resource books and a few good software materials to support the lessons. Yet
teachers are seldom trained on how the recommended software supports learning.

Not only is not having the necessary training in using the software a problem, yet finding the time to analyze the software is difficult. In an article by Steve Dorman (1999), entitled, “Are Teachers Using Computers for Instruction?” a survey was given to teachers regarding their use of computers in the classroom. The survey was entitled, “Fast Response Survey System,” the following barriers, were identified:

1. Lack of release time to learn how to use computers – 82% of respondents
2. Lack of time in class schedule for students to use computers – 80% of respondents
3. Not having enough computers – 78% of respondents

Furthermore Dorman (1999) states that, “Teachers who thought student computer accessibility and time for student use were barriers to instruction were less likely to use computers in instructional activities.

Computers in the classrooms need to be used in a manner that will help children succeed. Computers should not be used as a means of “busy work” for students while the teacher is occupied reading with a group of students.
Purpose of the Project

The purpose of the project is to give insight as to how and if computers are being used in kindergarten, first grade, and second grade classrooms. A survey was given to educators at this grade level where they discussed the programs they use to support their student's learning. The project also gives insight how teachers are integrating technology in their classrooms, the amount of time students are using the computer, as well as, the barriers they face in doing so.

The purpose is to see if they feel that the use of computers is helping them meet state standards, as a flood of standards has engulfed education, (Barron, Kemker, Harmes, & Kalaydjian, 2003). The standards are tied to accountability via funding, student advancement, or certification. The survey will also give insight as to the years of experience educators have in teaching.

Technology should play an integral part of teaching and learning. Though there are many factors or barriers that stop educators from doing so. Teachers in grades kindergarten through second may feel that children at these early grade levels may not benefit from using the computer and therefore may not want to take the time or effort. On
the other hand, they may feel children at this early age can begin to use the computers and begin to develop good tech skills. The Enhancing Education through Technology Act of 2001 requires that state educational agencies "assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability" (No Child Left Behind Act, Title II, Part D, 2402) (Barron et al., 2003). Furthermore, Barron et al. (2003, p. 494) states, "As this Act takes effect and technology standards are being implemented throughout the nation, measures related to technology integration become crucial."

This project is important to know if educators with students at early elementary grade levels feel that the integration of technology plays a crucial factor in helping children succeed in school. I will discuss the barriers many educators at these grade levels have mentioned during previous studies and presently. The same may not be true for grades in middle school through high school.

According to Dorman (2001), in middle school and high school the use of computers varies. About one-half of
teachers (53%) with computers in their schools use them for classroom instructional purposes. The most frequent student assignments to use computers are for word processing, followed by Internet research (51%), practice drills (50%), and solving problems (50%). In addition, many teachers used computers to conduct preparation and administrative task such as lesson planning and creation of instructional materials. Teachers also reported using the computer for communication with colleagues (2001).

Research Questions

Due to the high demand of expectations teachers encounter yearly, can teachers with young learners meeting those demands while implementing the use of technology in their classrooms? Are computers just taking up space because teachers are tied down to many other demands, making it virtually impossible to plan an effective lesson with the use of technology? What are the most common barriers educators in the early elementary school years face with technology integration? It is important to know if computers are being placed and used in a manner in which school administrators are expecting. Do some teachers plan lessons that include technology?
From my perspective many teachers allow their students to use different software programs. The programs usually seem to be at their grade level. Though teachers are not sure whether the children are actually benefiting from their use. Are students in the schools all given the same chance to learn with technology? Since teachers have different teaching styles, it is important to know how many students actually are allowed to use the computers and to what extend. Are teachers willing to take some risks while meeting the high demands of meeting state standards and incorporating the new materials and assessments required every year? What support do teachers receive?

It is important that computers not be isolated in the classrooms. Instructors must find ways to make the most of them. Currently, as a student gets older, it is almost virtually impossible to get through education without the use of a computer. Students who start developing good computer skills at a young age tend to become computer literate and can benefit from its use at great lengths. In an article written, (Barron et al., 2003, p.493), they quote the U.S. Department of Education as stating, “When students are able to choose and use technology tools to help themselves obtain information, analyze, and
synthesize, and assimilate it, and then present it in an acceptable manner, then technology integration has taken place. The goal of national and state technology standards is to establish a baseline level of technology competence for all students."

Significance of the Project

The fact that more computers are being purchased makes this a significant project. The need to educate more students, in more areas, leads to the need for more automation of instruction and support for teachers. The survey responses with open-ended questions and informal interviews will provide information relative to the use and effectiveness of the impact computers have on educators. The changing roles educators face daily since computers first came into the classroom will be discussed. The project will clarify to some degree whether technology integration in early elementary grades has become a burden, a convenience, or an aide to educators.

Since the cost of computers continues to decrease, many school sites have purchased more computers for classroom use. Despite lower costs, computers are becoming more powerful which allows them to use more interactive
software. In an article by Labbo et al. (2003, p. 304) they state, "While computers are becoming more interactive and use immediate reinforcements, I find that they pale in comparison to one-on-one teaching correspondence with a living, breathing person with whom a child can converse about word-attack strategies and the meaning the material carries for the child in comprehension." Her opinion may not be the opinion of others yet her comments can be right on target, especially for young elementary school children. Computers cannot take the place of educators but they should serve as computer-assisted instruction to support the required state standards.

Teachers’ use of technology has been related to their training and preparation. Many teachers have received more extensive training in technology and therefore feel more at ease in integrating technology while other teachers have had very little training in technology. Technology use in the classroom must support or add value to the curriculum and instructional objectives (Labbo et al., 2003). Though training inservices may be available, most are to improve their level or skill in using a computer. Teachers do not always want to go to technological inservice training merely for the purpose of increasing their knowledge or
skill level on the use of instructional technology, but on learning how they could use technology for more efficient teaching and better learning (Chin, 1993).

Limitations

During the development of the project, a number of limitations were noted. These limitations are presented in the next section.

1. The teachers that participated in this project are from the same school site. Though the school site has the same demographics as many other school sites in California, the results may not apply to other schools as they may differ in size.

2. The teachers who participated in this project are from grades Kindergarten through Second grade only. Their attitude toward technology integration may differ from teachers at other elementary grade levels.

Definition of Terms

The following terms are defined as they apply to the project.

Early Elementary School Grades - Applies to grades from Kindergarten through Second.
Computer Literacy - Teaching students to use the computer and making sure they use it effectively.

Computer Assisted Instruction - The computer is used for drill and practice.

Survey - A questionnaire to determine the participant's attitudes, beliefs, and opinions.

CCC - A software program known as "SuccessMaker." It has different levels of Math and Language Arts.
CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Chapter Two consists of a discussion of the relevant literature. Specifically, today the world looks for technology for all types of support. Educators should look for technology for instructional support. Using technology yields positive results if the proper training and support are in place for the staff and students who are using it (Kelley, 2001). In this section the discussion will be on the responsibilities educators in the early elementary school years face daily, how they perceive computer use in their classrooms, and the barriers that they come across to in having the computer as a support tool. In order to implement technology into classroom successfully, regardless of the relationship, planning should precede purchasing, and training should precede implementation; too few administrators plan, and too few teachers are adequately trained (Czubaj, 2002). Discussion will also be made from the review of the literature as to what is recommended for educators to follow in order to be more
successful and confident in developing a technology-infused classroom.

Within the last decade college students that are acquiring a teaching credential must pass a few courses in technology. These courses are offered so that teachers become competent to integrate technology in their classrooms. Most of the technology classes that are required are basic-skills training classes. Learning how to integrate the curriculum with the use of technology is not necessary to pass basic technology courses. According to Wetzel and Chisholm (1998), computer knowledge, though essential, is not sufficient because technology integration in classroom instruction is "a challenging and difficult process." In other words, just having the basic skills is not sufficient to integrate it with instruction and assessment.

Every year new demands are placed on teachers, including the responsibility of implementing lessons that include the use of technology in their classrooms. Greater emphasis has been put on teachers to cover all state standards in their grade level, as it is now mandatory that No Child Be Left Behind. Almost every year school districts will adopt a new set of curriculum materials for
Language Arts, Math, Science, or Social Studies. Teachers are given very little planning time. In return this makes it almost impossible to plan for educators to integrate technology to the extent it deserves. Yet computers are coming into early elementary classroom more so than ever before. Computers are not just for middle school, high school, and college students.

Responsibilities of K-2 Teachers

Teachers now find themselves struggling to cover all the standards every year, meeting the daily demands of their students at this early age, meeting the demands of the parents, and meeting the daily challenges at their school site. In addition there are weekly staff meetings, grade level meetings, and other committee meetings to attend. Aside from this, some educators are taking classes towards a Credential or Degree. It is difficult to keep everyone happy, but it needs to be done. Teachers are living in a time of general uncertainty where rapid changes in professional practice are commonplace (Wheeler, 2001). Some of the factors are technological innovations. Teachers must also complete the move from being lecturers to becoming organizers and enablers. Wheeler states (2001,
p. 13), "It is crucial for teachers to encourage critical thinking skills, promote information literacy, and nurture collaborative working practices to prepare children for entry into the world of work." Moreover, it has been shown that the use of computers in education can generally help to improve memory retention, increase motivation and generally deepen understanding (Wheeler, 2001).

For a teacher in Kindergarten through Second grade the day begins with greeting parents and students. At this early age students are beginning to understand what is expected of them. At the school site where this study was conducted teachers must explain to the children what each standard means in a language they can comprehend. Every week educators post the standards they will be covering for the week or day. Standards must be found on the classroom board and in their lesson plans. There are many Language Arts, Math, Science, Social Studies, and Technology standards that must be covered within a nine-month span. Good attendance for both students and teachers is a crucial component in order to have a successful school year.

At the early elementary grade levels educators need to give their students individualized attention, especially to those students that are academically low. According to an
article by the Office of Technology Assessment (1998) the use of the computer will:

1. Allow the teacher to give more time for individualized instruction;
2. See their students accomplish tasks using computers as tools;
3. Help to make a subject more interesting using computer-based technology;
4. Provide a means of expanding and applying what has been taught;
5. Present more difficult concepts;
6. Expect more from their students;
7. Cover more material in a shorter time.

The successes computers bring educators reported by this article can be debated as it may not be as simple as it looks for some educators. The open-ended survey used in this project will directly ask educators if the use of the computer has given them more time to work individually with their students.

Computer knowledge, though essential, is not sufficient because technology integration in classroom instruction is "a challenging and difficult process (Wetzel, 1998, p. 381)." Teachers will not automatically
perceive how they should use computers to expand and strengthen student learning (1998). What teachers do with computers depends on their own experience they have had with them.

Computers can be wonderful supportive tools for educators even at this early age. The problem is on finding the time, support, and training to feel better about using the computers with their young learners. Most schools are equipped with educational software that is usually found in their media center. How does a teacher go by in selecting software that will support state standards without having to spend a great deal of time? Teachers need to become familiar with the software that is available (Labbo 2003). The software used must be developmentally appropriate for students in order to have an impact on their learning. The programs need to be carefully analyzed to see if they are serving the intended purpose and whether they can/should be used independently or with a teacher present to facilitate.

Apart from all the responsibilities educators face they need to have good leadership and technical support. Administrators must allow teachers time to adapt to computer usage in their classrooms. Many teachers are
still novices. According to Mulqueen (2001, p. 252), teachers who considered themselves resistant to integrating technology made comments such as, "What if I look foolish in front of my colleagues or students? What if I cannot make this program work? How long will it take before I feel like an expert? How do I fit this into my already crazy schedule and life? How will I find time to cover the curriculum if we’re doing so much research? These responses clearly show some personal resistance to change. Whatever the case may be for educators to refrain at times from implementing the use of computers in their classrooms it is clear that the abundance of work given to them is a barrier.

There are many teachers that do feel confident about integrating technology. Those teachers have usually had good training skills and have been motivated in its use. These teachers have learned to shift responsibilities to technology-infused classrooms. In a recent visit to an elementary school, (Wepner & Tao, 2002), there were classroom teachers that were enthusiastic about technology that they found their own ways of including it in their teaching. As an example, (Wepner & Tao, 2002), Kim, a first and second grade-looping teacher, used the software
program Math Keys Unlocking Whole Numbers, Volume I (Houghton Mifflin) to review mathematics concepts. Students gathered in front of the class to face the large television monitor as Kim sat at the computer to give students different examples of arrays. Five rows of six frogs were displayed on the screen. "What's another way of expressing this number?" Students raised their hands. "Six rows of five frogs." Kim then instructed students to work in pairs at their computers to continue practice with different arrays." Kim explained that she used technology so that students would have confidence with the computer and begin to have an understanding of basic keyboarding skills (2002, p. 643).

Administrators probably feel that if computers are provided for curriculum support then educators should no longer find themselves spending time lecturing to the whole class or working with the children in small group work to cover all the state standards in their grade level. Yet this is not true. Changes in content should be modified from relying on textbooks to the use of many other types of resources, including the use of computers. It has not been an easy and acceptable practice for all the educators. In an article by Manning & Manning (1995), they state that
a mature teacher friend recently said, "I feel as intimidated about technology in a classroom as my grandparents would feel if they came to my house and had to operate modern conveniences such as the dishwasher or the satellite television system." Manning & Manning further state (1995), that if our great ancestors were to enter the world today they would learn to cope and adjust as teachers need to acquire the needed skills to fully utilize technology in their classrooms. Educators can expand their own learning by creating new opportunities for their students to incorporate technology skills.

Jane Maslin (2002, p. 631), a reading teacher wrote in an article that, "Ongoing professional collaboration is our most effective staff development. Our job is a difficult one; it is only by sharing that it becomes manageable. But more than manageable, we all become far more effective instructionally. Incorporating technology into our literacy education curriculum has allowed us to introduce students to the literacy elements of the future, including reading electronic texts and technology-based authoring, and involve them in the writing and production of online and multimedia resources. Technology integration has also provided teachers with the opportunity to truly mentor
students by engaging the teachers in authentic writing and modeling processes. The benefit of this kind of modeling is well known." When educators integrate technology into the literacy education curriculum they address many student learning needs while giving teachers and students opportunities to collaborate in literacy development and writing.

In a survey given to fifty-four teachers on the perceptions of elementary teachers’ use of technology Chin (1993) states; "elementary teachers perceive positively their knowledge and comfort level of instructional technology use. However though they knew how to use the technology, they seldom used it." The viewpoint of the teacher depended on the type of administrative leadership. Chin (1998, p. 320), found that the more the administrators stressed the importance and encouraged the use of instructional technology, the more teachers engaged themselves in understanding its use, developed skills to use it, and integrated its use into the curriculum.

Even though educators face daily the challenges imposed on them, they try to adapt as time goes by. They realize that the computers are to be used to support learning; yet how successful have they been so far? In an
article by Bob Blaisdell (2003, p. 20) he quotes Todd Oppenheimer a book writer as stating, "At this early stage of the personal computer's history, the technology is far too complex and error prone to be smoothly integrated into most classrooms." "While technology business is creatively frantic, financially strapped public schools cannot afford to keep up with the innovations." He concludes, "Putting computers in classrooms has been almost entirely wasteful, and the rush to keep schools up-to-date with the latest technology has been largely pointless." Mr. Oppenheimer believes that despite technology's lack of success in U.S. classrooms, many Americans still prefer to invest in computers rather than in teachers.

Barriers in Technology Integration

There has been much discussion on why the integration of technology continues being a barrier for many educators. The issue of computers in elementary schools has been debated since computers first appeared in elementary schools. As computers continue coming into classes and taking up space in classrooms teachers need to find the time to plan lessons that make them feel at ease in having their students use them. The use of computers involves how
Children are taught and how they learn. Computers first started being used in elementary schools in 1965 when the Elementary and Secondary Education Act brought new money into schools for technology (McCabe 2002).

As computers are more steadily coming into the classrooms, they become less of a novelty. Unfortunately, some elementary teachers fail to fully infuse computer-based technology in their classrooms. With computer-based technology’s entrance into the classroom, the accolades for using computers for instruction and learning, and the steady decline in the prices of computers, there has been a steady growth of the number of computers purchased for classroom use (Jaber & Moore, 1999). According to William Jaber and David Moore, computers and telecommunications today are a fact of life as basic electricity. They have altered the daily work of large businesses and industry. Yet why is it that with all the talk of school reform and information technologies over the last decade, computers are used far less on a daily basis in classrooms than in other organizations.
Yet with the widespread numbers of computers in public schools, the acceptance and use of computers would appear to be widespread.

In order for teachers to adjust well to using computers they should attend staff development workshops. The teachers, who most often participate in staff development workshops about computers, are teachers of subjects that use computers most often (Ravitz, 1999). Yet the need met for help in curriculum integration, while not frequent to most teachers in elementary schools, is being met for only about one-third of those teachers who report a need for it. When the support comes, less than one-fourth says that the support is either excellent or very good (1999). Overall, 38% of teachers report that at least once a month they need help in integrating computers into a lesson they are planning. Of those teachers who report such a need, only 15% claim to always get it, and only 12% more say that support is “mostly” available (1999). High School teachers were less likely to report a need for technical or curriculum support for technology than are teachers in the lower grades (1999).
In addition, staff development and teacher expertise on bells and whistles does not demonstrate competency in making sure that it is used well. According to Mary Ann Zehr (1998), States are turning toward the more long-term and complicated work of integrating technology in the curriculum. It is important to get a critical mass of computers; the real question is how is it going to be used? Everybody is asking the same question, Can we be sure this is a good way to spend money and what should we be buying to get the most educational value out of technology? (1998). The technology planning has to be part of the larger education planning; that’s happening now more than it used to, but perhaps not as much as we would hope (1998).

One very important concern during the past decade has been that most teachers are unfamiliar with software applications that help in integrating computer activities and the literacy curriculum effectively. Educational software needs to be aligned with conventional literacy goals, new literacy objectives, and children’s individual instructional needs or that contributes to an overall theme or unit (Labbo, 2003). Children who cannot read independently required software that will read the text
aloud, use descriptive animations, or offer other levels of interactive feedback.

Time has always been a factor for educators. Training teachers to use technology in the classroom cannot be done over night. In an article by Labbo et al. (2003), it states that staff development is a major factor in the success of technology integration and can help prevent computers from being just one more failure in attempting to assist students. In this article (Labbo, 2003), an educator was quoted as saying "I talked to my principal and my school technology committee requesting an approach to staff development that has a track record of effectiveness. I respectfully reminded them that staff development that works involves more than one workshop." Furthermore this teacher comments that "Such development requires demonstrations of effective computer use, ongoing mentoring and modeling, hands-on training, sanctioned time to reflect on computer-related activities, giving and receiving targeted feedback, and sustained grade-level collaboration." Clearly teachers need time for professional preparation not only in technology but in other areas as well.
Primarily, it is the principal’s role to nurture environments, which encourage teachers to use new technologies in ways that will improve learning (Allain, 2001). Some of the common barriers of technology integration that school administrators face include the leaders technology abilities, teacher resistance, and a lack of realization as to why leadership is necessary in this area (2001).

As time progresses, there have been higher demands for teachers to become computer literate. According to McCabe (2002), teachers should be competent in the following areas to be considered computer literate:

1. Read and write simple computer programs
2. Use educational computer programs and documentation
3. Use computer hardware terminology
4. Recognize the limits of solving educational problems using the computer
5. Discuss the historical development of computer technology for education
6. Discuss the moral and human impact issues relating to societal and educational use of computers

The expectations listed by McCabe (2002) were recommended by the Association of Computing Machinery, which was
developed in 1980. Upon reading this it is undoubtedly unfair for the average teacher to become a computer expert in the above-mentioned expectations. Teaching computer literacy means teaching students to use the computer and making sure they use it effectively (McCabe, 2002). If using a computer means that it takes more time or money to achieve your goals than the computer is not being used effectively. The computer should serve as a classroom tool and as a subject of instruction.

Advice on Technology Integration

Though there are many high demands that early elementary teachers must face daily. They must believe that the integration of technology would be more effective as the students gain more experience. Problems children encounter at the computer can be solved in a variety of ways (Wetzel, 1998). Often, another student, such as the partner or a student with more experience can help solve problem as they arise, so the teacher would need to intervene less frequently.

The methods and purposes of computer use may differ radically from district to district or from school to school. Computer use can at times enhance learning for all
students and sometimes it simply confers a new technological sheen on the low-level programs that have long been a staple of education in the United States (Burnett, 1994). Furthermore Gary Burnett (1994), states that whatever kind of technological programs educators decide to develop, the primary consideration should be the purpose of using the technology. Burnett (1994) states, good technology programs:

1. Emphasize cooperative learning models, allowing heterogeneous groupings of students to work together collaboratively;

2. Emphasize high-level problem-solving skills while also reinforcing basic skills;

3. Support interactions between students and teachers rather than use computers as “teaching machines” to supplant the teacher;

4. Create interactive learning environments built around real-world problems;

5. Be adaptable to a variety of learning styles.

In addition, Burnett (1994) points out, that it is essential that programs be designed to ensure equitable and substantial access for all students, and function as an integral part of a well-planned pedagogy.
It is recommended that when teachers are unfamiliar with the software they should allow some time to explore it. The software programs should be aligned to the state standards of the grade they are presently teaching. The type of software teachers will want to use in their classroom will depend upon many factors; for example, the students, grade level, the teacher's beliefs about literacy learning and instruction, time, context, and so on. Developing a rubric is one way for teachers to actively engage in reflection and knowledge construction as they explore issues related to technology, and specifically software (Maslin & Nelson 2002).

Administrators play an important role in having elementary school teachers integrate technology. Principals are aware of the many demands teachers at these grade levels must meet. The support they offer their staff will greatly influence how motivated educators become with planning effective lessons with technology integration. Wepner & Tao (2002), list several recommendations administrators should consider:

1. Administrators need to concentrate on getting equipment and technical assistance for their teachers. Identifying resources, whether through
networking, grant opportunities, or budgetary requests.

2. Administrators need to offer professional development opportunities that include coursework, hands-on presentations, tutoring, mentoring, and coaching. Professional development needs to be systematic so that teachers have experience with practical and innovative applications of technology.

3. Teachers should be given time to work with technology. Whether it is additional periods during the week or shortened days, teachers need designated time slots for working individually and with others to prepare lessons with technology. There should be a lead technology teacher, "techno tutor," or technology specialist should be available in each building to work regularly with teachers.

4. Administrators need to be aware of shifting reaching practices when technology is used. For example, less teacher talk and more student interaction typify a classroom that uses technology regularly for problem solving and exploration.

Administrators need to identify ways to hold teachers accountable for using technology only after teachers commit
to using it and all variables are in place: state-of-the-art equipment, professional development, immediate technical assistance for troubleshooting, and round-the-clock classroom support.

Even when teachers are not skeptical about the appropriateness of educational technology and are willing to learn, they can take as much as five or six years to become sufficiently comfortable with computers to be able to use them effectively in their classrooms (Burnett, 1994). Schools must be able to invest in long term inservice training, including both formal and informal training, as well as time for teachers to simply "mess around" with the computers.

Educators need to be able to shift responsibilities within their grade level when needed. They must collaborate closely with their colleagues and form a strong grade level team to be able to teach effectively. They should be able to communicate with each other how technology affects instructional planning (Wepner, 2002). Wepner further states that educators need to be aware of resources to share with both inservice and preservice teachers that help with lesson planning with technology. For example, Education World, http://www.educationworld.com, created by
a group of educators offers lesson plans, ideas for thematic units, lists of resources, and links to other websites. The website http://www.4teachers.org, created for and by teachers as well, includes lessons for integrating technology and teacher-made sites of class projects.

Teachers have reacted both positively and negatively to computer-based technology. According to an article put out by the Office of Technology Assessment (OTA, 1995) states, that some of the positive reactions have resulted from:

1. Exploiting the potential of interactive technology
2. Changing teaching style
3. Assisting classroom management
5. Spending more time with individual students is also cited as a reason for teachers to exploit the computer's potential (OTA, 1995). Computers in the classroom have allowed instructors to present material that is more complex and expecting in return more from students.
Summary

The literature important to the project was presented in Chapter Two. The main principles of effective technology use would be teacher involvement. The use of computers alone will not greatly enhance any curriculum. Technology is merely a tool not the teacher. Teachers should be aware that they usually use technology as a supplement to, rather than replacement of, literacy instruction. If children become computer literate, integration of computers in the elementary classroom becomes easier. Computers in the early elementary school classrooms can be an excellent supportive tool if used appropriately.

Due to higher expectations from educators, administrators need to offer teachers the assistance and support that is needed to meet these higher demands. The concerns and worries teachers may have can differ from an educator that has gained experience in using technology to one that has little or less experience. As the use of technology continues to have a great impact on education it is important to know what barriers early elementary educators face in implementing technology to support their lessons.
To some educators computers in the classroom may be used as an effective instructional aide that supports student learning, to others it may be a tool that only they use to create documents, such as newsletters, lesson plans, worksheets, while to some educators the computers may not be useful to use with such young learners. According to Steve Dorman (2001), he states that teachers who have fewer years teaching are more likely to use computers than teachers who had the most years of experience.

The amount of experience an educator has in the classroom can be a positive or negative factor in computer usage in the classroom. In an article (Mulqueen 2001) a study had been previously done by McKenzie (1998), in which the concerns of educators with less experience were, "How long will it take before I feel like an expert? How do I fit this into my already crazy schedule and life? How will I find time to cover the curriculum if we’re doing so much research? While educators with more experience might ask themselves, “What if the network shuts down in the middle of class? What if the Internet is slow? Why if my students lose their work?"
CHAPTER THREE

METHODOLOGY

Introduction

Specifically, this study sought to gain insight of the experiences that early elementary school teachers face in integrating technology while meeting the many demands they are expected to meet daily. In past studies there has been a lot of discussion on the barriers teachers face. In one study Gary Burnett (1998), stated that that it can take educators five or six years to become comfortable to effectively use technology in the classroom. In another study the issue was concerning the preparation teachers have in integrating technology-enriched lessons. According to William Mulqueen (2001), teachers would feel better prepared to use technology if they received curriculum-integration training than if they just received basic-skills training.

This study was written to provide information not only the barriers early elementary school teachers face in technology integration, but also how computers are being used in their classrooms, the software programs they feel more comfortable using, and the advantages in having...
computers in their classrooms. The project is also intended to focus on the amount of time students spend on the computers per week, and what support classroom teachers have in technology integration.

Participants

The school site chosen for this study meets the demographics of many schools within the school district and the State of California. There are approximately 60% English Language Learners and it is located in a low socio-economic community. Approximately 95% of students are on a free or reduced lunch program. There are approximately 650 students presently enrolled in the school. The school has students from Kindergarten through Fifth grade.

In the district where the school site is located there are eleven schools with the same demographics; 50 to 60 percent of English Language Learners, approximately 600-700 students are enrolled in the schools, approximately fifteen educators in each school that teach kindergarten, first grade, and second grade. All schools are Title 1 schools.

Title 1 funding lays a critical role in the landmark education act more popularly known as No Child Left Behind. Title 1 is federal money used to support additional
staffing and programs to meet the needs of low-income, low achieving, and other designated students with special needs. According to the California Department of Education, Title 1 schools helps the following students meet state academic content and performance standards:

- Low-achieving students who attend the highest-poverty schools
- Limited-English proficient students
- American Indian students
- Migrant students
- Neglected, delinquent, or at-risk children and youth
- Students with disabilities
- Young children who need additional help in reading

At the time of this study the school employed three female Kindergarten teachers, six female First grade teachers, and five female Second grade teachers and 1 male second grade teacher. The majority of the teachers had been teaching for over seven years. One Second grade teacher is working on a Clear Credential, and 1 Second grade teacher is a long-term substitute teacher. At the time of the study the school employed three long-term substitute teachers.
Instrument

In order to understand how teachers felt about integrating technology in early elementary school classrooms, a mixed-method approach was used that included a two-page survey with open-ended questions. By using both survey and interviews this study was able to triangulate the attitudes of the early elementary school teachers.

There were several steps that were used to support the findings and argument. The survey was developed through in-depth literature review. The articles regarding the research topic were retrieved through California State University San Bernardino's databases; primarily, EBSCOhost, ERIC, and Wilson Omni. Some of the barriers that were listed in the articles were not having enough computers, poor technical and administrative support, not having enough time to integration technology-enhanced lessons, and software that supports lessons.

The survey and questions the participants responded to included inquiries they could easily respond to. The survey given to the educators had ten questions. (See Appendix A). The areas included:

1. Grade level - Kindergarten classes in the schools
within this district have thirty students while first and second grade classrooms only have up to twenty students.

2. Experience in teaching - Experienced teachers do not have the same concerns as a first of second year teacher may have. New teachers may be worrying about being evaluated, taking night courses for a credential. In the other hand, many teachers who have been teaching for more than five years might feel more at ease in their positions, but may not have had training in the use of technology.

3. Teaching assignment - A long-term or part time instructor may have different concerns than a permanent teacher. A long-term substitute teacher or a part-time educator may not be as concerned or have access to materials to properly plan lessons that involve integrating technology.

4. Number of students in the classroom - Students that are in a class setting with thirty students might probably spend less time on the computer than students in classrooms with twenty students. Yet there could also be a difference in the experience in managing computers by the instructors.

5. Number of computers in the classroom for student
use - It is important to know if classrooms are adequately equipped with the technology that is needed to support student achievement.

6. Time the average student spends on the computer - The results of the given on the survey will show whether students in grades K-2 are using the computers in the classrooms.

7. Questions seven was an open-ended questions in asked the participants to list the software they use in their classrooms? Examples were given that are mostly known to be used within the school district. It would be interesting to know if some teachers are using only one program while others may be using various programs.

8. Barriers in technology integration - The examples given on the survey were ideas taken primarily from the literature review. Not having enough software, lack of time in school schedule, lack of adequate support, lack of technology training or adequate staff development training.

9. The ninth question asked was to what extent has the use of computers in the classroom changed their instructional practice. Whether it allowed for less time lecturing, more time with individual students, and more time for group work, etc.
10. The last question was on any additional comments the participants wished to express. This question was listed to allow for more information to better support this study.

The purpose of these questions dealt with different issues that need to be clarified for a better understanding of the study. The duration it took the educators to complete possibly did not exceed twenty minutes. The reason for a shorter survey was so that the teachers completing would not see it as an additional burden. If the survey were very lengthy, they would probably be discouraged.

The Institutional Review Board of California State University San Bernardino approved this research. By consulting an expert in the field of technology the survey established face validity.

Administration

The surveys were accompanied with an attached letter that explained that the purpose of the study was to complete a Masters' Thesis while gaining information on how they felt about having their students use computers. (See Appendix B). In addition, this study was conducted using a
time frame that allowed for timely and effective data collection.

At the time of the study there were three Kindergarten teachers, six first grade teachers, and six second grade teachers who were given surveys. The surveys were placed in the teachers' mailboxes. Of the fifteen surveys given out ten were returned. Within a week six educators had returned the surveys to the teacher conducting the research and participated in informal interviews. Two educators returned the survey to the teacher's mailbox without initialing or signing their names. The last two surveys were initialed or signed by the participants and were returned via students from their classrooms.

For a more in-depth understanding about how educators use technology and how they felt about using it with their students, informal follow-up interview sessions were conducted with the six participants who personally returned the surveys. The interviews were held at different times of the day. There were two educators from each grade level.
Data Analysis

As the surveys were returned, they were kept in a safe. The ten educators who returned the survey either wrote their name on the front or initialed the survey. The participants had a choice to remain anonymous, as the data collected was confidential.

After collecting all the surveys they were separated by grade level. Each survey was given a letter to identify the respondent. There were two kindergarten teachers that returned the survey; they were labeled with the letters A and B. There were three first grade teachers that returned the survey; they were labeled with the letters, C, D, and E. The remaining five teachers were second grade teachers; they were labeled with the letters F, G, H, I, and J.

The questions used to gather the data were validated as the responses gathered coincided with each other in several areas. In the Discussion of the Findings how the data coincided will be further evaluated.

To analyze the educational technology surveys Microsoft Excel was used to categorize, analyze, and sort the results of the surveys that were completed by the teachers. The document included a descriptive profile of the educators which were the first six key components of
the survey; educators grade level of instruction, amount of years teaching, number of students in the classroom, number of computers for educational support, and the amount of time an average student spends on the computer.

The first two columns listed the educators who responded to the survey by assigning them a letter. This was to protect their identity. The first column listed the teachers from letters A through J; the second column listed their grade level. This way the results of each respondent were easier to view and analyze. To analyze the open-ended questions two different Microsoft Excel documents were used. The headings above included the questions seven and eight in the first document and questions nine and ten in the second document. (See Appendix C).

Summary

Once the survey had been collected and analyzed it was clear to see how educators felt with integrating technology in a classroom of young learners. The open-ended questions helped open the bridge to have the participants discuss more in-depth their feelings of technology integration in classrooms with K-2 students. The discussion of the findings will be discussed in the next chapter.
CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

Included in Chapter Four is a presentation of the result of completing the project. The findings of the surveys and interviews are presented in this chapter, followed by the discussion of the findings. Of the fifteen surveys that were given to early elementary school teachers, ten of those were returned. Of those ten teachers six participated in informal interviews as well. Two surveys were from kindergarten teachers, three were from first grade teachers, and five were from second grade teachers.

The findings of the first six questions on the survey will be discussed followed by a profile of the teachers and the responses of the survey. Then questions seven and eight, nine, and ten will be listed, which are open-ended questions and responses to informal interviews.

Presentation of the Findings

The first six questions of the survey provided descriptive information of the survey participants to this study.
<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grade Level</th>
<th>Type of Position</th>
<th>Years Teaching</th>
<th>Number of students in the class</th>
<th>Number of computers in the class</th>
<th>Time Average Student Spends on Computer per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>K</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>28</td>
<td>4</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>B</td>
<td>K</td>
<td>Regular Full-Time</td>
<td>3-4 years</td>
<td>30</td>
<td>3</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>C</td>
<td>1/2 class</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>17</td>
<td>4</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>19</td>
<td>7</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>18</td>
<td>4</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td>Long-Term Sub</td>
<td>1-2 years</td>
<td>19</td>
<td>4</td>
<td>45 Minutes to 1 Hour</td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>20</td>
<td>4</td>
<td>45 Minutes to 1 Hour</td>
</tr>
<tr>
<td>H</td>
<td>2</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>18</td>
<td>4</td>
<td>1½ hours</td>
</tr>
<tr>
<td>I</td>
<td>2</td>
<td>Regular Full-Time</td>
<td>3-4 years</td>
<td>20</td>
<td>4</td>
<td>Less than 30 minutes</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>Regular Full-Time</td>
<td>More than 5</td>
<td>18</td>
<td>4</td>
<td>More than 1 ¾ hours</td>
</tr>
</tbody>
</table>
The profile shows that two educators that participated in the survey were kindergarten teachers, three were first grade teachers, and five were second grade teachers.

Seven of the participants had been teaching for over five years. Of those seven teachers two had been teaching for over twenty years. Two educators had been teaching three years and the other educator had been teaching only one year. Nine out of ten participants are full-time teachers while only one was long-term second grade substitute teacher.

Teachers A and B, which both teach kindergarten, had 28 and 30 students respectively in their classrooms. First and Second grade teachers had an average of nineteen students each. It is important to know the class size as it could indicate a barrier in the use of technology. A student that is in a class setting with thirty students has less of a chance using the computer than a student in a classroom of twenty students.

The responses given state that eight teachers have at least four computers for students to use in their classrooms. One kindergarten teacher has two computers and one second grade teacher has seven computers. During an
interview with Teacher D she stated that only two of the computers were new and the others were old Apple computers which the students used to play games on.

Educators were also asked about the amount of time their average student spends on the computer per week. All of the kindergarten and first grade teachers stated that their students spend less than thirty minutes on the computer per week. Of the five second grade teachers three stated that their average student spends between forty-five minutes to one hour on the computer. Teacher J, a second grade teacher, noted that her average student spends more and one and a half hours on the computer per week. According to these results the younger a student is the less time he uses the computer.

During an interview with Teacher A, a kindergarten teacher, she stated that her students had not even begun to use the computers this year. She said they would begin using them the following semester, as she was busy with teaching them basic letters and numbers. This educator has been teaching for many years, yet she also commented that it was too difficult to integrate technology as Kindergarten was already on a minimum day, plus there were too many ‘extras’ that needed to be done every week which
gave her little time or energy to evaluate software programs.

The first open-ended question dealt with the type of programs or software that the participants felt comfortable using with their students. The results indicated that seven out of ten educators used in their classrooms more to support learning was CCC, which is an abbreviated name for the program 'SuccessMaker.' The program 'SuccessMaker' is aligned to State Standards and is teacher and user friendly. It helps children at a young age become computer literate. Though this program seems wonderful, some participants expressed that the server is constantly down or the information required to run the program is constantly being erased. They found it time consuming to have to re-enroll their students every time this happened. Some of the other programs that educators most commonly use were Harcourt Brace's 'Math Zoo Zillions,' and 'Math Carnival Countdown.' According to Teacher H, these software programs were purchased with the new Math curriculum materials they received the previous year and that all the elementary schools in the district were given these software programs to use to help support learning. Teacher H also stated that she attended a full-day training
in using the new curriculum materials last year and no indication was made on how to use the software, therefore, she had to figure it out on her own.

During an interview with Teacher B, she mentioned that in place of having her students use software programs at this young age, she has her students use a laminated copy of the computer keyboard for them to practice high-frequency words (See Appendix D). The replies that were given helped in determining which programs, if any, educators felt more comfortable using with their students.

Educators were also asked on the barriers they had in technology integration. The responses to the barriers found in integrating the use of computers helped in determining where support is mostly needed. The responses varied from grade level to grade level. Yet there were similarities in some cases. Kindergarten teachers felt that the lack of time to integrate technology was their greatest barrier. Time has always been a concern for educators because of the many demands in the day. In addition, children in the early grades constantly need more one-to-one attention. One first grade teacher stated during an informal interview, "With new programs being implemented every year I don't have enough time or energy to dedicate
to technology as I would like to." Another first grade teacher felt that she did not feel 'techie' enough to use technology in her classroom. She felt she needed more training, but because she had two small children of her own she was unable to attend classes after the workday. This is a common scenario found in many school sites. Many young teachers are not only trying to meet the demands of their job, but in addition have young children of their own to care for. Young teachers also find themselves completing courses to get a teaching credential.

A second grade teacher seemed upset with the fact that from the four computers that were in her classroom two were quite old. She stated, "The old computers are not functioning well and keep freezing in the middle of a lesson, and there is a lack of technical support."

Computers that freeze in the middle of lessons seems to be something almost all educators have faced. Experienced educators would have ready supplemental materials or lessons when this occurs.

The survey participants were also asked an open-ended question on whether the use technology has changed their instructional practice. With more computers coming into classrooms, educators who taught for several years find
themselves changing their instructional practices. Surprisingly there were three educators, those with the most experience, that felt technology did not change their instructional practices. They all commented that they had worked it into the time they have centers, which had already been established. Two other educators also said their students use computers during group time.

The last question given to the participants was if they wished to make any additional comments. The comments the participants made coincided partly with the barriers found in technology integration. One teacher commented that he wished he had more time to use technology in the classroom. Yet felt it did not relate a lot to standards but did relate to ‘real-life’ learning. Another educator felt there are programs that are great to use and helpful to review, but not enough time to implement correctly.

Discussion of the Findings

The findings of the project indicate that teachers with the youngest learners, those teaching Kindergarten have their students use the computers less than those teaching Second grade. Children that are in kindergarten and first grade are learning the basic skills necessary to
help them succeed in school. They do not have the patience to sit at the computer for long periods of time. Children at this very young age also tire easily. The data collected also indicated that the majority of educators have their students use the computers during centers time, which allowed them to work with groups or with students on a one-to-one basis: Yet other educators felt that while they are working with individual students and with the groups the computers were used as a means to keep the kids busy or as a reward for good behavior.

The primary purpose for educators to use computers during centers times should be to allow them to work with individual students and groups. A center with technology integration usually keeps the student busy as some children may feel they are playing games yet they are learning. As previously stated in an article (Maslin et al., 2002), how educators may select to setup a center depends on the beliefs educators have on literacy learning, the grade level the child is, how dependable or responsible a student at this age may be, and the time in the day that allows for technology to support lessons. In this study the most common barriers were lack of time to plan technology lessons effectively and adequate technical support.
The most common program used by educators was C.C.C., which stands for Computer Curriculum Corporation also known as, 'SuccessMaker.' The reason the survey participants selected this software program was because it was highly recommended throughout the school district and is installed in all the elementary schools within the district. It is recommended for grades K-12. It is ideal to use with English Language Learners as well. The program consists of different courses in Reading, Math, and Language Arts. The recommended courses for English Language Learners for grades K-2 are Discover English and First Adventures Bookshelf. In Discover English children develop English Language proficiency from lessons that include children’s literature, poems, stories, chants, and folktales. In First Adventure Bookshelf there are six different book titles for children to read at these grade levels.

Summary

The findings indicate that teachers continue to have many barriers in integrating technology. As stated previously by the Office of Technology Assessment (1998), the idealistic of computer usage is that the computer should provide a means of expanding and applying what has
been taught, help make the subject matter more interesting, and cover more material in a shorter time. Unfortunately this is not the case for many as there are still teachers who don’t feel confident in having their students use the computer because they themselves lack appropriate training.

The use of computers in the classroom may not be as beneficial as having the computers in upper elementary classes. In addition, teaching computer skills to students that have never used one may be very time consuming. With all the daily tasks and demands teachers have, taking the time to teach young children skills is not easy.

In areas where most respondents had the same concerns, may be a good starting point for administrators to look into. One possible way may by conducting a simple school site survey to all the teachers. The survey could be as the one given in this study. After receiving the results back the principal should meet with the technology committee and discuss ways in which may be beneficial to help the educators become more successful in technology integration. The committee should list the strengths and weaknesses per grade level. By doing so they would have a clearer picture where the most help is needed. If the most help is in technical support, then the principal needs to
bring the needs of her staff to a district level meeting. Or the principal should contact the district's technology department to find out how he can better support his staff. If the barriers are on finding software that supports learning, the technology committee should try out different types of software or programs and recommend those that are most closely aligned with state standards.
CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

Introduction

Included in Chapter Five was a presentation of the conclusions gleamed as a result of completing the project. Further, the recommendations extracted from the project are presented. Lastly, the Chapter concludes with a summary.

Conclusions

The conclusions extracted from the project reveals the importance of the feelings and barriers teachers face in trying to implement technology into their classrooms.

1. There was an overall response that technical support is still greatly needed to integrate technology. The major concerns have been that computers freeze in the middle of lessons and the server may be shut down when lessons have already been planned.

2. There is a feeling that more time is needed to plan lessons. Teachers' responses indicate that they wish they could have their young learners use
the computer more effectively, but time does not permit for this to happen.

3. There are too many standards that must be covered, and the software that is used does not indicate which state standards it supports.

Recommendations

The recommendations resulting from the project follows.

1. Due to higher expectations from educators, administrators need to offer teachers the assistance and support that is needed to meet these higher demands. Administrators must allow time for teachers to attend staff development that is ongoing so that teachers gain the necessary experience with practical and innovative applications of technology.

2. Though it is difficult to truly measure if teachers have the skills to incorporate the use of computers, whether they are hesitant or reluctant in technology integration, administrators must have a planning team whom teachers can discuss their concerns with.
3. It is important that district administrators look more closely into the components that accompany new curriculum materials. They must make sure that if the materials include software to support learning, software correlates with the state standards.

4. Though many educators have the students use the computers for drill practice and worksheets that possibly supports learning; administrators should provide teacher’s software and programs that match the standards for the grade level. Especially those standards that are more commonly used in state tests.

Summary

Chapter Five reviewed the conclusions extracted from the project. Lastly, the recommendations derived from the project were presented.

The support teachers need to integrate technology must first come from school and district administrators. Administrators should see to it that each classroom is equipped with the necessary computers each grade level or teacher feel would support their students. Teachers’ feelings about integrating technology and meeting life’s
daily demands, as an early elementary school teacher, should be met with careful planning. Administrators and technology planning committees will have their hands full within the years ahead, yet we must be confident that the best is yet to come. An educators positive attitude, willingness to take some time to evaluate all the great software and programs that are being created daily, can be very successful with the use of technology in the classroom.
APPENDIX A

INSTRUCTIONAL TECHNOLOGY SURVEY
Instructional Technology Survey for K-2 Teachers

1. What Grade Level do you teach?
   Kindergarten     First     Second

2. How many years have you been teaching?
   Less than a year   1-2 years   3-4 years   5 years +

3. How do you classify your teaching assignment?
   Regular Full-Time   Regular Part-Time   Long-term sub

4. How many students are in your classroom? _____

5. How many computers for student use are in your classroom? ______

6. Approximately how much time does your average student spend on the computer every week?
   Less than 30 minutes   45 minutes-1 hour
   1 ½ hours-2 hours     More than 2 hours

7. What applications or programs do your students use most (ex. CCC, AR, Houghton Mifflin Software, Harcourt Brace software, Zoo Zillions, Carnival Countdown), or any other programs?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

65
8. What barriers have you found in integrating technology in your classroom? (ex. Not enough software, lack of time in school schedule, lack of adequate technical support, too many standards to cover, lack of technology training, early grades possibly is more teacher to students interaction than computer use, etc.)

9. Has the use of technology in your classroom changed your instructional practices? (ex. Less time lecturing, more time with individual students, group work, etc.)

10. Any Additional Comments You Wish To Share:
APPENDIX B

LETTER TO SURVEY PARTICIPANTS
DEAR EDUCATORS IN GRADES K-2,

I am currently working on my Master's Thesis in Instructional Technology. I am hoping you will take a couple of minutes in completing the attached survey. The topic of my survey is on how teachers feel about integrating technology while covering all the required state standards, in addition to the many demands found when having such young learners in the classroom. Your name will not be used at any time during the research project. Please feel free to fill out only those questions that you wish. Any additional comments will be greatly appreciated. If you are interested on the results of the survey, you may view my project upon its completion.
APPENDIX C

KEY TO PROFILE OF PARTICIPANTS
<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grade Level</th>
<th>What Applications or Programs do your students use most?</th>
<th>What barriers have you found in integrating technology in your classroom?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>1/2 class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

"MY VERY OWN 'PC' LAPTOP"
My Very Own "PC" Laptop

[Keyboard Diagram]

1. 2. 3. 4. 5. 6. 7. 8. 9. 0.

- + = [equals]

Q W E R T Y   U I O P [ ]

A S D F G H J K L ; .

Z X C V B N M < > ?

Control Option

My Very Own "PC" Laptop
REFERENCES


Journal of Instructional Psychology, 29 (1), 15.


