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An internship experience in educational leadership at Pyne Poynt Family School

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An Internship Experience in Educational

Leadership at Pyne Poynt

Family School

by
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Abstract

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This study is intended to focus attention on the need for technological training for educators. Teachers do not have the necessary technological skills to effectively impact on student learning. Participants of the study were surveyed and interviewed. All those surveyed were faculty teachers at the school where the intern was assigned. Teaching experience ranged from first year teacher to 30 year teacher. Of the 48 questionnaires distributed, 22 were returned. Results provided information for the intern to determine staff training needs relative to curriculum, past computer knowledge and Internet experience, attitude toward technology, and barriers hindering technology use.

Data collected supported the fact that the majority of teachers felt unprepared to use computers as instructional tools, and few teacher training programs were preparing educators to effectively use the Internet to enrich their classrooms and contribute to their own personal development.

Mini Abstract

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Due to insufficient training on how to use computers as instructional tools, there is a need to concentrate staff development in this area. Continued staff development is crucial to the success of fully integrating technology into the curriculum. Focus needs to be on the students and how technology may be utilized to extend their learning.

ACKNOWLEDGEMENTS

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Chapter 1

Focus of the Study

Problem Statement

Technology is not an option. It is a requirement! It is the responsibility for educators to prepare themselves and their students for the new millennium. Due to insufficient training and teacher attitude on how to use computers as instructional tools, there is a need to concentrate staff development in this area. Students and teachers can effectively utilize technology as a tool for reading, writing, thinking, problem-solving, researching, remediation and communicating. Focus needs to be on the students and how technology may be utilized to extend their learning.

The district offers computer training to teachers in computer literacy. This does not prepare teachers for classroom usage. Teachers are left with the responsibility of creating technological lessons involving one computer for twenty-five students. As a result, classroom computers sit idle, collecting dust.

Isolated workshops are not enough! Teachers need follow-up training and monitoring. Those teachers who have already attended district offered computer workshops may not take additional "in-district" training in the same area.

Product Outcome Statement

Teachers participating in this study will be able to improve student learning as a result of receiving training on accessing the Internet to improve, enrich, and support students' academic growth and development.

Purpose of the Study

This study is intended to focus attention on the need for technological training for educators. Computer networking links schools to the "real world." Students can now literally form a connection to what they learn in the classroom to our global society. Teachers must not only master computer technology itself, but learn techniques for guiding student development. Staff development is needed on integrating the new technology into the curriculum. Telecommunications is vital for survival in the 21st Century.

<u>Definitions</u>

<u>Alternate Education Sites</u>-schools instituted for those students who would benefit more from a setting other than a normal classroom setting; generally classes are smaller, curriculum stresses survival skills and supervision is more intense.

<u>ASSA Census Report</u> -"Application for State School Aid"; funding per school district is determined by October 15 th of each school year; free lunch eligibility is determined by this report.

<u>at-risk</u>-funding for student placement, based on 1) family income, 2) minimum level of proficiency (MLP) on standardized test, and 3) academic achievement; classification for free lunch allocation.

CHIPS-Camden Honors Intermediate Program for Scholars.

Comer Schools-instituted to provide students with social services and extended

school days, needed for family stability and continuity

Family Schools-similar to Comer schools; provide students and families with

social services, for stability and continuity.

Professional Development Schools-established to improve the quality of

instruction at all levels; graduate courses are offered, at no cost to

teachers.

Quarterly Topic Plans-core curriculum aligned with "tested" skills; plans include

text book assignments, chapter tests, pacing guide and Quarter Topic

Tests.

School Improvement Teams-developed to determine the needs of each school

and how state appropriated funds would be spent to meet these needs.

Decisions are made at school level; a team of administrators, teachers,

parents and students incorporate programs and activities to improve

standardized test scores, average daily attendance (ADA), discipline and

parental involvement.

T.E.A.C.H. -district offered staff development in technology.

Title I Funding-allocated monies based on student minimum level proficiency

(MLP) on state mandated tests.

Type I School District-classification for New Jersey School Districts; board

members are appointed by the mayor or other chief executive officers of

the municipality which constitute the district.

Type II School District-classification for New Jersey School Districts; Camden

City is classified as a Type II School District, with an elected board of

education.

Limitations of the Study

Technology courses are isolated and once completed are not monitored

for success. Staff development workshops train teachers on computer usage, in

computer labs. When they return to their classrooms with one computer, they

have difficulty transferring what they have learned into instructional strategies.

Those who have opted to take advantage of the after school, Saturday

and summer classes, are capable of using the hardware and applications

software, but are not able to use these applications as instructional tools. Most

teachers, including computer lab instructors, feel it involves too much work to

incorporate technology into daily lessons, based on subject areas.

Many staff members have limited assess to computers and related

technology. Teachers are limited by computer lab scheduling, software

availability, material and equipment procurement. Teachers do not have the

time in a school day to be trained and are unable, or not willing to remain at

school at the end of the day. As with most staff development, courses are taught

in isolation. Follow-up and monitoring for effective use of courses taught, are

necessary to aid staff in incorporating teaching strategies into their daily

lessons. If students and teachers are to effectively utilize technology as a tool

for writing, thinking, problem-solving, research, remediation and

communication, teachers must change their role from authoritarian to facilitator.

Setting of the Study

Community

Camden City, situated east of Philadelphia, Pennsylvania and west of Cherry Hill, New Jersey, is bordering the Delaware and Schuylkill Rivers. Camden, New Jersey is the fourth poorest city of more than 50,000 people in America. In 1985 approximately 12,500 families of Camden made less than $5,000 annual income. Today the average per capita income is $7,000. More than one-third of the population earn income below the poverty level. The unemployment rate is 20 percent, while nearly 60 percent of its residents receive public assistance. Its children have the highest poverty rate in the United States (Kozel, 1991).

At one time Camden was a proud industrial establishment, whose residents included poet, Walt Whitman and Heavyweight Champion of the World, Jersey Joe Walcott. Industry boomed as a result of manufacturing from General Electric, RCA, and Campbell Soup Company. The largest employer, RCA, which took over General Electric, employed 18,000 people. Once a commercial and industrial center for southern New Jersey, New York Shipyards supplied jobs to 35,000 people during World War II.

Today, Camden is a shrinking municipality, in economic opportunity, tax base and population. Camden now has little industry. There are 35,000 jobs in the entire city and most of these are held by non-residents. Today RCA employs 3,000 workers, with only 65 Camden resident employees. Camden Soups Co., a major source of employment for Camden residents, shut down in 1990. The

city has 200 liquor stores and bars, 180 gambling establishments, no movie theaters, supermarket chains, new car dealerships, or hotels. Of Camden's few restaurants, most are fast food establishments. Of the 2,200 public housing units, 500 are boarded up, with a three year waiting list of needy families (Kozel, 1991).

The city's population has decreased steadily for the past 45 years from 125,000 to 87,000 people. As the population in Camden shrank and the property wealth decreased, its minority population became the majority. Today, fifty-five percent of the city's population is African American, while thirty-five percent is age seventeen or younger.

Crime has soared in Camden in direct proportion to the loss of its economic base. Eighty-eight percent of all murders in Camden County occur in Camden City. Approximately 70% of all crimes are drug related. These statistics counter any attempts to stabilize neighborhoods, attract business vital to Camden's tax base, and educate Camden's children. With Camden City's shrinking tax base for public education, job losses, high levels of unemployment, crime and a poverty rate in excess of thirty-five percent, Camden educators face many challenges, to say the least.

The impact of changing demographics in Camden are reflected in it's schools. As unemployment, poverty, crime and violence increase, its affects may be felt in the classroom. The learning and teaching process is negatively impacted by these affects.

Education

Camden Public Schools provide comprehensive K-12 educational programs to more than 19,700 students. The majority of the student population is minority, low income, and from families with limited educational backgrounds. Ninety-five percent are minority. Ninety-six percent of the student population is identified as "at-risk" or disadvantaged, based on financial need and academic standards. Eighty percent of the student population is living below the poverty level. A third of the families and forty-two percent of the students are estimated to be drug abusers. Fifteen percent of all students have been referred to in-school crisis teams. Thirty percent of high school female students are teenage parents. Forty percent of high school students and fifty percent of Camden's residents have not graduated from high school. The median educational level for males in the city of Camden is 9.4 years and for females, 9.7 years.

Since 1895, the residents of New Jersey have made education a concern of the state government. However, the authority and power to educate in the state of New Jersey is shared by several agencies. The New Jersey system of education is based on the concept that allows the exercise of power to be shared by officials at all levels of government. The New Jersey Constitution places absolute responsibility upon the State Legislature (Martinez and Zaino, 1973).

New Jersey School Districts are classified as Type I or Type II districts. In a Type I school district, board members are appointed by the mayor or other chief executive officers of the municipality which constitute the district. Camden

City is a Type II district with an elected Board of Education. The Board consists of nine members who are elected for three year terms. The Board of Education has a primary responsibility of carrying out state policy in regard to education.

All educational school functions of the school district are the responsibility of the Superintendent. The Superintendent derives his authority from the Board of Education and is the chief officer of the school system. There are two assistant superintendents in the Camden School System; one assistant superintendent bears the responsibility of administration and support services and the other is responsible for curriculum and instruction. Administration and support services includes Personnel Services, Federal and State Funding and Department of Human Services. The Assistant Superintendent of Curriculum and Instruction is responsible for Elementary, Secondary and Bilingual Education, Technology and Research, Special Services, Staff Development, and School-to-Work programs. The Superintendent also authorizes the Business Administrator. The Board Secretary administrates the Director of Plant Services, Director of Business Services and Supervisor of Transportation. The Office of Research, Planning and Technology is composed of a director, a supervisor, three administrative assistants, and a computer support specialist. The director is responsible for developing, implementing, monitoring, and evaluating the plan. Acting with the approval and advice of other central administrators, each building principal is the chief administrator of his/her school. All personnel assigned to individual schools are responsible to their building principal.

At present, the district operates twenty-seven elementary, five middle and three high schools, including the Medical Arts High School. In addition, there is one special needs, three alternate education sites, and one adult education school. The school district has devised programs to meet the needs of the students it serves. Federal, state and local funding allocated to Camden City Schools help to address these needs. Funding for "at-risk" student placement is based on 1) family income, 2) student minimum level proficiency (MLP)/Comprehensive Achievement Test (CAT/5) results, 3) grade retention and 4) final report card grade. Federally funded programs such as Title I, allocate monies based on student minimum level proficiency (MLP) on state mandated tests (CAT/5). Allocations for free lunch is determined by the Application for State School Aid (ASSA) Census Report, completed by October 15, of each year. Also in an effort to address these concerns the state of New Jersey has instituted competency based tests. The Early School Proficiency Assessment (ESPA), the Early Warning Test (EWT) and the High School Proficiency Test (HSPT), have been instituted for grades four, eight and twelve respectively. The HSPT is not only a standardized test for state certification, but a requirement for graduation.

Camden School System offers a broad array of experiences in exploratory activities, critical thinking and problem solving programs for the academically talented. Elementary level students are placed in the "CHIPS" program. Beginning with the seventh grade, gifted students may take part in

honors level courses through the completion of high school. Students may choose to enroll in college credited courses while still in high school.

In accordance with federal law, Camden School District offers a comprehensive program for students with learning disabilities. Free and appropriate services are offered in the least restrictive setting suitable for each child. Services include guidance counseling, speech therapy, homebound/hospital instruction and programs which serve the hearing impaired, visually impaired, trainable or educable mentally retarded, and those more profoundly handicapped. The district's professional staff members develop programs for students in conjunction with their parents.

The Camden School District and the Board of Education continuously strive to improve the educational program. Within the past ten years family schools have been instituted to target attention to factors and environmental situations that effect student academic outcomes. Parental involvement has been recognized as a factor that may be directly correlated to a child's performance in school. Programs have been designed and instituted to help families help students. State funding has been appropriated to increase parental involvement, and thereby impact student achievement. K-8 school facilities, family schools and Comer schools were instituted with extended school days, to provide students and their families with services needed for family stability and continuity.

School Improvement Teams were developed to determine indivdual school needs and expenditure of state appropriated funds, to meet those needs.

Decisions were no longer made at the district level. Now a team of administrators, teachers, parents and students made decisions which were intended to improve student standardized test scores, average daily attendance (ADA), discipline and increased parent involvement. Mission Statements were written and goals set.

Staff development efforts have been expanded. Professional Development Schools have been established to improve the quality of instruction at all levels. Teachers are encouraged to further their education, by attending district offered workshops on content area, cooperative learning techniques, critical thinking skills, and technology (Project T.E.A.C.H. allows teachers to receive 100 hours of computer instruction over a 15 month period). Incentives offered by the Camden Board of Education are stipends, graduate credits and computers, to be used as long as one remains with the Camden School System.

Technology was introduced into the district in 1979. The two high schools first used computers in their business classes nearly 20 years ago. The Business Office had a main frame computer used for payroll and accounts payable. As time passed computers were purchased for students and the scope of their use was widened. Administrators began to use computers to alleviate bulky paper storage. Administrators were now using software applications for data base, spreadsheet, and word processing. The district incorporated an extensive staff-training program.

Today students, teachers, and support staff have access to technology in their schools. With the use of software and application programs, computers are used for drill and practice, desktop publishing, word processing and tutoring. The Business Office uses a main frame for payroll, purchasing, budgeting, and accounts payable. Also, a program that resides on the mainframe, but accessed by the schools, is used to take daily attendance on the district's 20,000 students. There is a computer lab in almost every school. These labs consist of 12-20 networked computers, printers, large screen monitors, LCD panels, LC Mediators and telephone lines for Internet. Since there are about 2,000 computers in the district, the ratio is approximately 1 computer per 10 children. Every school library is automated for book search and book checkout. Four schools in Camden are fully wired for voice, data, and video in every classroom.

Pyne Poynt Family School, a subsystem of the Camden City School System, built in 1957, is located on a stretch of land beside the Delaware River in the northern part of Camden, in a neighborhood many abandoned homes, adjacent to a paper plant and an illegal dumpsite (Kozel, 1991). The school is a two story yellow brick building with barbed wire on its roof and evidence of continuous paint over of graffiti.

Some 570 Black and Hispanic children are enrolled here. The grade levels range from grades four through eight. There are three administrators, one supervisor and 80 instructors at Pyne Poynt Family School. The current school enrollment, reflects the composition of the city, fifty-eight percent of the

students are Hispanic and forty-one percent are black (ASSA Report, October 15,1997). Pyne Poynt Family School staff is composed of 64 percent female and 36 percent male. The racial composition of the staff is 64 percent Black, 27 percent White and 9 percent Hispanic.

The principal of Pyne Poynt Family School is the Chief Administrator and all personnel assigned to the building are directly responsible to him. His main function is to implement and enforce the educational goals and objectives of the State of New Jersey and the Camden School Board. The Chief Administrator also has the responsibility of assisting with concerns of the Special Education Department. To accomplish his goal he has the assistance of two vice principals. One vice principal oversees all educational matters relating to grades four, five and six. These responsibilities include, discipline, lunch duty, teacher evaluation, and ordering of educational equipment and supplies. The other vice principal oversees educational matters relating to grade seven and grade eight. These responsibilities include discipline, lunch duty, teacher evaluation, and scheduling. The supervisor conducts staff development workshops, assists teachers with ordering materials, and fulfilling departmental needs.

The function of the Grade Level Chairperson is to act as professional leader of his/her designated grade level. He/she may act as liaison between grade level staff and administration. The Grade Level Chairperson also brings the essential components; students, teachers and instructional materials together for the purpose of realizing educational goals. Building Specialists

monitor the reading, writing and math programs. These individuals help to facilitate record keeping, data analysis, distribution of materials, inservicing of instructional assistants, and staff development.

The classroom teacher is directly responsible to the principal and his administrative staff. The main function of these individuals is to instruct children in accordance with the curriculum adopted by the Camden Board of Education. The role of the intern at Pyne Poynt Family School is Building Math Specialist and Honors Math Teacher.

Importance of the Study

Plans to bring teachers into the new millennium are a reality. Students are involved in technology in spite of teachers. Teachers are the catalyst for guiding students through the learning process. To be an effective educator in the 21st Century, teachers must embrace technology wholeheartedly. By training teachers on instructional usage of the computer, with emphasis on the teachers' ability to apply this knowledge as an educational tool, will give teachers a greater feeling of efficacy. Student academic growth will be evident, as a positive attitude toward technology usage as an educational tool develops.

Organization of the Study

Chapter Two will include a review of the literature as it relates to this study. Findings based on the following will be discussed: 1) teacher need for more consistent training rather than an occasional workshop on technology use; 2) ineffective classroom use of computers; 3) research substantiating

Internet as a viable instructional instrument; and 4) use of technology in the classroom and its impact on student learning.

Chapter Three will describe the research format. This will be done by: 1) analyzing survey results; 2) evaluating feedback from workshops; 3) interviews with participants; and 4) on-going communication with stakeholders. Chapter Four will investigate the findings of the intern's study. This will be accomplished by examining the literature as it relates to the study and reviewing data collected by the intern. Chapter Five will discuss research results and how these conclusions impact on the organization, and its implications for future study.

Chapter 2

Review of Literature

A computer can be a powerful educational tool. Most teachers and students work with limited informational resources, and without the kind of tools students will use in the real world. In too many cases, outdated textbooks determine students' view of the world. Today's students need to be active learners, manipulating, interpreting and synthesizing information from many sources. Classrooms need to be dynamic places. The environment should stimulate students to formulate their own learning objectives. Each student must have regular and on-going access to the world's informational resources (Gooler, 1991). The need to invest in our classrooms and to provide the information and tools our children must have for their survival is vital. Aside from its use as an instructional tool, the computer is the technology of the future.

According to results of the Microsoft/IntelliQuest survey, two-thirds of Americans polled, believe computers have improved the quality of education. Children see computer skills as leading them to a better future ("Survey Says," 1995). Two of the three reasons children use computers are for education-related purposes: children using computers say they use them for homework (76%) and school research (60%). While 85 percent of U.S. schools have multimedia computers, the average ratio of students to computers is 24 to 1, nearly five times the ratio recommended by the U.S. Department of Education ("Computers and Classrooms," 1997). In New Jersey alone the ratio of students

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to computers is nearly 10 to 1 (see Appendix A). Almost all schools in the United States have acquired some computer equipment (Quality Education Data, 1991), and the hardware acquisition trend has continued to increase from the 1970's through the 1980's and now in the 1990's. There is concern however, that much of the computer equipment is under-utilized. Reports indicate that computers sit in unopened boxes in closets or in the back of classrooms, where they are rarely used. Data is available to support the claim that there is hardware and software being acquired at an escalating rate in schools, yet many teachers appear not to know how to use them (Picciano, 1994). Several reasons are cited for why the adoption and use of computers in schools and classrooms has not matched predictions. Primary among the reasons are expense of hardware, lack of adequate software and teacher training.

Although today's schools are rapidly acquiring computers and increasingly relying on them for instructional purposes, training of teachers to use computers in the classroom has not kept up with this trend (Walters, 1992). Computers are continuing to multiply in the nation's public schools, and more of them are multimedia machines. The percentage of schools with Internet access has jumped from 32 percent to 70 percent in the last year. Many students are becoming so proficient in computer use that teachers are having difficulty staying ahead of them. Technology is outdistancing the ability of many to use and transfer the technology to others. Educators must lead, not trail students

into the future. Teachers need more training and time if they expect technology to improve students' learning and help transform education (Woodall, 1997).

One reason for the imbalance is that teachers trained before the 1980's, were not exposed to technology as part of their preservice training programs. Schools of education did not require competency in technology as part of a teacher preparation program. An additional, and perhaps more serious problem is an attitudinal one. Many teachers are uncomfortable and lack confidence in using computer technology. One of the most important reasons that teachers do not use technology is that technology is not easy to implement in the regular classroom (Picciano, 1994). The most persistent obstacle is that teachers are still most comfortable with what they do best, educating students in whole-group fashion within the confines of the traditional classroom (Williams and Smith, 1994).

When personal computers first appeared in classrooms, their instructional use took one of two roles. The first use was to teach about technology itself, including computer literacy and programming language courses. The second use was to support the current curriculum through educational software, such as tutorials, and drill and practice. In most cases computers were used with as little effect to the classroom setting or well established routines. In such setting, the computer did very little to change the curriculum or to truly impact education (Lee, 1995).

Computer literacy courses have evolved from courses that taught about computers and introductory computer programming, to courses that have replaced programming languages with basic software applications. These courses have attempted to address how these skills can be used to support instruction and how the use of computers can be integrated within the curriculum. They have supported teacher views of computers as additional content that needs to be taught within an already crowded curriculum (Lee, 1995). Implementation of technology as an instructional tool is a form of educational change. It can support the attainment of the educational goals that have been identified for success in the information age of the twenty-first century.

Although today's technology reform started about 15 years ago, technology in the schools goes back many more years. The computer assisted programs which existed in the 1960's, evolved into the CD ROM-based multimedia learning resources of today. Network telecommunication has extended connection to learning sources across time and space. The federal government supported technology for schools as early as the late 1950's, through funding from the National Science Foundation and the Department of Education. More recently the departments of Agriculture, Commerce, Defense, and Energy, NASA and the National Endowments for the Humanities, have offered funds for educational technology ("Computers and Classrooms," 1997).

In 1994, federal legislation passed Goals 2000, Educate America Act and the Improving America's Schools Act (IASA), which authorized funds for state and federal educational technology planning. Five million dollars has been distributed under Goals 2000 to 50 states for development of state technology task force and plans. In 1996 President Clinton called for connecting every classroom in America to the information superhighway, with computers, good software and well trained teachers. The White House announced four educational technology goals: 1) All teachers in the nation will have the training and support they need to help students learn using computers and the information superhighway. 2) All teachers and students will have modern multimedia computers in their classrooms. 3) Every classroom will be connected to the information highway. 4) Effective software and on-line learning resources will be an integral part of every school's curriculum ("Computers and Classrooms," 1997).

Over the next five to ten years, distance education will become integrated into the K-12 curriculum. It will no longer be merely an add-on, as it is today, says Melody Thompson of the American Center for the Study of Distance Education at Pennsylvania State University (Hickox, 1997). The Net's educational potential is of special concern to reading specialists because although electronic, the Internet is a system that runs on literacy. Despite the integration of multimedia in computer systems, people continue to use reading and writing skills while interacting with the Internet (Mike, 1996). The Internet deserves our attention.

Teacher Training

No matter how extensive the hardware and software technology resources that support the classroom curriculum, they won't make a significant difference unless it is used with effective teaching techniques. While good teaching will always be more important than good technology, integrating the two will greatly enhance student learning and the power of teaching. "It is humanware, not hardware, that is the key to making technology an effective training tool," reported Andrew Blau, director of the Benton Foundation, a Washington-based nonprofit institution that promotes the use of communication tools in the public interest (Woodall, 1997).

Based on results of an in depth study performed in the state of New York, researchers Mann and Shafer (1997), determined that the success of technology is strongly related to teachers' enthusiasm, initiative, and sense of improvement. Surveys showed most teachers associated computer related technology with school reform and their own professional growth. Teachers' interest in technology is strong when hardware is available, software applications are relevant, and training is provided. Most teachers said they started using technology out of the desire to become better teachers. Middle school teachers were the most skeptical about technology's ability to contribute to both school reform and their own work. (Mann & Shafer, 1997).

Research shows that helping teachers learn how to integrate technology into the curriculum is a critical factor for the successful implementation of technology applications in schools. Most teachers have not had the education

or training to use technology effectively in their teaching. Only 15 percent of teachers reported having at least nine hours of training in education technology in 1994. In 18 states, undergraduate, teacher education students are not required to take courses in educational technology to obtain a teaching license. ("Computer Use Raises Achievement," 1993).

"Goal 1" of President Clinton's National Technology Literacy Challenge reflects the growing recognition that staff development and ongoing technical assistance are prerequisites for effective and sustained applications of technology in education. The importance of teacher training in the use and integration of technology is documented by empirical research conducted in the California schools. The study concluded that at least 30 percent of any education technology should be earmarked for staff development and subsequent follow-up support and assistance. A recent survey indicates that only 16 percent of teachers currently use telecommunications for professional development, while across the country, there exist a rapid increase in school level access to the internet from 35 percent in 1994 to 65 percent in 1996 to 87 percent projected for 2000 ("Computers and Classrooms," 1997).

Teacher development has focused on training in the use of technology. However, learning to use technology is not sufficient for teachers to make a change in their teaching styles. More important than "how to" training is educating "why." This requires a change in seeing computers as instructional and learning tools, not as add-ons or content. Teachers must also construct an understanding of the changing roles of technology, teachers, and students. The

teacher's role is to guide, stimulate, facilitate and support students' learning activities (Lee, 1995). Internet-based learning means that teachers' roles will be transformed, says Mark Steinberger, director of technology for the Port Washington School District. Teachers can no longer teach totally from the text. They will be expected to utilize a mass of new resources (Hickox, 1997).

Technology inservices are often one shot deals, where teachers are introduced to a particular piece of hardware or software, but have no time to get familiar with it before returning to the classroom. Or they are given more in-depth training in the use of hardware or software, but are given no guidance in incorporating the technology into the curriculum ("Transforming Teaching," 1996). Reports contend that training teachers extensively in how to integrate computer technology into the curriculum, planning learning activities carefully, allowing students to direct their learning experiences, and letting students interact with one another, are factors that maximize the benefits of using computers in the classroom. Positive changes are not immediate, but occur over several years, as teachers become more comfortable with the technology, cautions the report. Teachers are more effective after receiving extensive training in the integration of technology. Such training is non-existent in most districts (West, 1995).

Student Achievement

Based on research and reviews studies produced between 1990 and 1992 on the use of computer related technology in the classroom, when used appropriately, technology has a positive effect on student achievement and on

students' attitude about learning. Studies reveal that using computers fosters greater interaction among students and between students and teachers. Computer use promotes cooperative learning, and enhances students' self confidence and self esteem ("Computer Use Raises Questions," 1993).

In the past, educators had to rely on anecdotal evidence to support the claim that technology boost student achievement. Now, after an extensive study by Dale Mann and Edward Shafer (1997), data is available to support these claims. In schools that had more instructional technology and teacher training, the average increase in the percentage of high school students who took and passed the state's college preparatory exam (New York State Regents exam) in math was 7.5, and the average increase of those students who took and passed the Regents English exam was 8.8. Also, using the reports from teachers and principals to determine the amount of technology available and in use in the schools, researchers found that 42 percent of the variation in math scores and 12 percent of the variation in English scores could be attributed to the addition of technology in school. In the elementary schools, the most significant gains were reported in sixth grade math tests, where a strong relationship between increased technology and higher scores on the state's Comprehensive Assessment was found (Mann and Shafer, 1997). This study was one of the largest in depth studies ever performed on the effects of educational technology. Results indicate that increased technology supports, facilitates, and encourages student achievement.

Based on a study by a Washington-based Software Publishers Association trade group, indications reveal that effective use of technology can have a "significant positive effect" on student achievement and motivation (West, 1995). Andrew Blau, director of Benton Foundation, noted that based on educators responses, students who use technology for well designed research projects are more motivated, more engaged in class, and eventually take more advanced-level courses (Woodall, 1997).

Many ongoing educational technology projects are in the process of documenting and recording measures of student motivation, academic outcomes, and outcomes such as increased skills in problem-solving and collaboration. Evaluations of educational technology are evaluations of instruction enabled by technology, and the outcomes are dependent on the implementation of the instructional design. Effects of educational technology on teachers should be emphasized since teachers remain in the classroom to influence generations of students.

Numerous studies of specific applications of technology show improvements in student performance, student motivation, and teacher satisfaction. James Kulik, a conference participant who has spent more than a decade analyzing studies on the use of computers for instruction, summarized his findings as follows: 1) Students usually learn more in classes in which they receive computer-based instruction. 2) Students learn their lessons much faster with computer-based instruction. 3) Students like their classes more when they receive computer help in them. 4) Students develop more positive

attitudes toward computers when they receive help from them in school. Kulik however performed his study prior to 1990.

More recently, the Software Publishers Association commissioned an independent consulting firm to report on the effectiveness of technology in schools. Research from 1990 to 1995 was included, and 176 studies were analyzed. This report concluded that the use of technology as a learning tool can make a measurable difference in student achievement, attitudes, and interactions with teachers and other students. With respect to achievement, positive effects were found for all major subject areas, from preschool through higher education, and for both regular and special needs students. Studies concluded that student attitudes toward learning and student self-concept were increased consistently in a technology-rich environment. In general, student control was found to be one of the most positive factors relating to achievement when technology was used.

Numerous studies have demonstrated that technology is particularly valuable in improving student writing. Technology has also been shown to have other effects on students. The use of technology in the classroom improves students' motivation and attitudes about themselves and about learning. Technology rich schools report higher attendance rates and lower drop out rates than in the past. Students are found to be challenged, engaged, and more independent when using technology. Students gain a higher sense of responsibility for their work, producing higher quality assignments. Technology energizes students because they often know more about its

operation than do their teachers. Similar results were revealed in the study by Barbara Means and Kerry Olson and their colleagues, which sought to determine how computers can support constructivist teaching at the classroom level. The most common effects were increase in motivation and improvement in academic performance. Overall the researchers reported that the use of technology had positive effects. These effects could be viewed in teacher turnover, student attendance, higher test scores and fewer disciplinary incidents reported ("Computers and Classrooms," 1997).

Chapter 3

Design of the Study

Description of Research Design

One of the many lessons learned from the past two decades of school planning, was placing too little emphasis on computers as instructional instruments, and a lack of teacher training in this area. The district involved in this study has in the past five years wired schools for the Internet. Approximately 3 to 5 schools, out of a total of 33 schools within this district, have been completely wired for the Internet, which represented about 10% of the schools in this urban district. The facility where this study was conducted, has not yet been sufficiently wired for the information highway. Approximately 18 out of 33 classrooms including the computer lab, have been equipped with at least one computer, which is equivalent to 55% of the classrooms within this school. With more than half of the classrooms equipped with computers, many still sit idle or are used ineffectively. Due to insufficient training of teachers on how to use computers as instructional tools, there has been a need to concentrate staff development in this area. Technology has not been effectively utilized by teachers as a tool for improving students' writing, thinking, problem-solving, researching, remediation and communication skills.

The vision of integrating technology in schools has been hampered by numerous barriers. These obstacles included: 1) outdated facilities, including electrical outlets and phone lines; 2) teachers and the support they needed to use technology effectively; 3) lack of computers; and 4) lack of software.

The goal of this project was to: 1) design, organize and begin a formative evaluation and action research process; 2) design and implement a survey for teachers; 3) develop a format for gathering machine usage data; 4) collect examples of innovative technology lessons; 5) train teachers; and 6) evaluate the progress of the training sessions.

This intern, created an environment in which teachers received the support they needed by providing the following: 1) strong leadership; 2) staff development and technical support; 3) availability of technology; and 4) broad participation. Faculty teachers received training during after school workshops. Additional assistance was provided for teachers who needed help during instructional time. The lab teacher, the intern and the teachers in training, worked cooperatively to develop innovative lessons which incorporated technology and the Internet to enhance student learning. Resources were made available for technology equipment and software. Research was conducted via Internet, interviews and survey analysis to determine participants' needs.

A 10-week, after school training session was established. Individual inservice classes had a specific curricula focus and application, such as writing across the curriculum. However, process was emphasized as opposed to

content. Content paralleled teachers' personal interest or needs. Teachers were introduced to various software applications, instructional techniques, peripherals and technology equipment. Each week the training location changed depending upon the availability of computer equipment. Teachers' needs were met through reinforcing subject matter, motivating learning through fun, relevance and success.

Teachers who participated in this study were able to improve student learning as a result of receiving training on effectively utilizing computers in the classroom, and accessing the Internet to improve, enrich, and support students' academic growth and development.

Design of Research Instrument

A comprehensive survey was developed. The survey included questions regarding the faculty's history, instructional use of technology, Internet experience, attitude toward technology, and barriers hindering technology use. The survey was produced after a thorough review of existing surveys on K-12 computer usage, and technology education requirements for new teachers. Items in the questionnaire were based on previously published surveys. The intern also interviewed staff members to ascertain their technology needs and interests.

To get base-line information from teachers before they received technology training, a survey of 14 questions was developed and incorporated into the training program. An evaluation instrument was developed to document the innovative uses of the computer in the classroom, as a result of

the training. A total of 22 surveys were summarized for the initial 10-week training period. Implications from the survey indicated that subject area disciplines varied and a wide variety of computer-background skills existed.

Sampling Technique

Sampling did not present a problem since the intent was to survey a typical range of teacher educators. Forty eight surveys were distributed and twenty-two teacher responses were collected. The respondents' computer and Internet experience varied from individual to individual. All those surveyed were faculty teachers at the school where the intern was assigned. Teaching experience ranged from first year teacher to 30 year teacher. Implications of the survey indicated that the mix of teachers who had participated in the training program was inclusive to most groups and levels of teachers. It was apparent that little could be assumed related to what teachers already knew about computers or the Internet. Since the intern was only able to train at most 25 participants, teachers who did not respond to the survey, were not essential for a reliable evaluation.

Data Collection Approach

A self developed questionnaire was distributed to faculty teachers. The Likert format assessment instrument was developed for participants of the study. Responses determined the effects of the treatment on teacher efficacy, teacher attitude towards computer use as an instructional tool and it's impact on student learning. The instrument ascertained data concerning teachers': 1) past

computer experience; 2) knowledge of Internet; 3) attitude toward computer use; 4) expectations for technology usage; and 5) interest in receiving training.

Surveys were placed in faculty mailboxes. A cover letter, describing the purpose of the survey, accompanied the questionnaire. A follow-up request for completed surveys was conducted during staff meeting. Respondents returned surveys to the intern personally or through her in-house mailbox. Verbal interviews were conducted in isolated cases.

Data was analyzed by the intern. Of the 48 questionnaires distributed, 22 were returned, which was 46% of the surveys distributed. Results provided information for the intern to determine staff training needs relative to curriculum, past computer knowledge and Internet experience. Although data suggested that teachers made very little use of information technology in the classroom, it also suggested that teachers believed technology is an important, even critical aspect of both K-12 education and teacher education. Only two classrooms were wired for Internet, and ironically the teachers of these two classrooms did not complete the technology survey.

Data Analysis Plan

The evaluative process documented the effectiveness of technology training as it impacted teacher use and student learning. The design of the evaluation was an analysis with three primary types of data including: 1) teacher survey and interview data; 2) machine usage data; 3) and documented classroom usage. The evaluation process was both formative and comprehensive in nature, and included research questions about the following:

1) frequency and patterns of Internet usage by teachers and students after teacher Inernet training; 2) sharing of expertise; 3) impact on teacher roles; 4) teacher attitudes regarding the impact of Internet usage; 5) and teacher confidence using computers for instruction.

Data collected supported the fact that teachers thought information technology was separate from other aspects of teacher education, such as subject matter content and professional teaching skills. They felt it was someone else's job to integrate technology into the curriculum. This created a barrier to integration. The majority of teachers felt unprepared to teach with computers, and few teacher training programs were preparing educators to effectively use the Internet to enrich their classrooms and contribute to their own personal development.

As increased teacher awareness and a positive attitude regarding computer usage as an instructional tool developed, student academic growth was evident. By training teachers on computers, a variety of teachers became involved, expectations about computer use increased and teachers being trained had a greater feeling of efficacy. Students' ability to research information, write, edit, interpret and apply information improved, and students' level of learning increased. Innovative uses of technology by teachers participating in the study was evident. Developing computer network skills increased communication, improved the quality of lesson plans, and contributed to positive perceptions regarding the usefulness of the computer as a teaching

tool. Internet has indeed, provided a chance to break down classroom walls and to make available the vast sources of information around the world.

The underlying purpose of this project remained unchanged, to help students receive the maximum benefit of the resources being brought to bear on their behalf, and to help bring them into the 21st century of education, through an effective integration of computer use and the Internet into the classroom. For teachers, technology and Internet communications meant: 1) the chance to develop a professional community with other educators; 2) technical assistance in achieving a standards-based curriculum; and 3) an expansion of their pedagogical repertoires to serve students' diverse learning styles. For students, it meant: 1) more learning resources, more readily available; 2) information on demand and immediate feedback; and 3) a context for learning that engages and empowers them. For the society as a whole, it meant: 1) home and business connections with schools; 2) life long learners; 3) technological literacy for social and economic progress; and 4) the communication essential to democratic living.

Formative evaluation data revealed that students and teachers alike found technology and the Internet to be tools that cross disciplines, allowing them to obtain more timely information and to communicate with others more effectively and efficiently. A participating teacher's enthusiastic comment indicated the value gained, "Everyday someone seems to find something new and interesting on the Internet."

Chapter 4

Presentation of the Research Finding

What Information Was Found?

Despite the availability of telecommunications access on the part of this school district, practical and effective application of these technologies is limited. The design of the evaluation is that of an impact analysis with three primary types of data including: (1) teacher survey and interview data; (2) machine usage data; (3) and documented classroom computer usage. The evaluation is both formative and comprehensive in nature, and includes research questions about the following: frequency and patterns of computer use, including Internet usage by teachers and students after computer training, sharing of expertise, the impact on teacher roles, and teacher attitudes about the impact of computer usage on schools, and strengths and weaknesses for involving technology in education.

Two surveys were distributed. The first survey was to determine the number of teachers who were interested in staff development on technology, type of computer usage by teachers and teacher attitude toward computer use. The multiple-choice questionnaire (see Appendix B) assessed the perceptions of teachers' technology needs. A total of 22 surveys were analyzed by the intern. The return rate for the initial survey was 47 percent.

Table 1

Computer Skills

% of Participants

100
90
80
70
60
50
40
30
20
10
0

Strongly Agree   Agree   Somewhat Agree   Disagree

Responses

▨ Keyboarding   ▧ Wordprocessing   ▨ Games
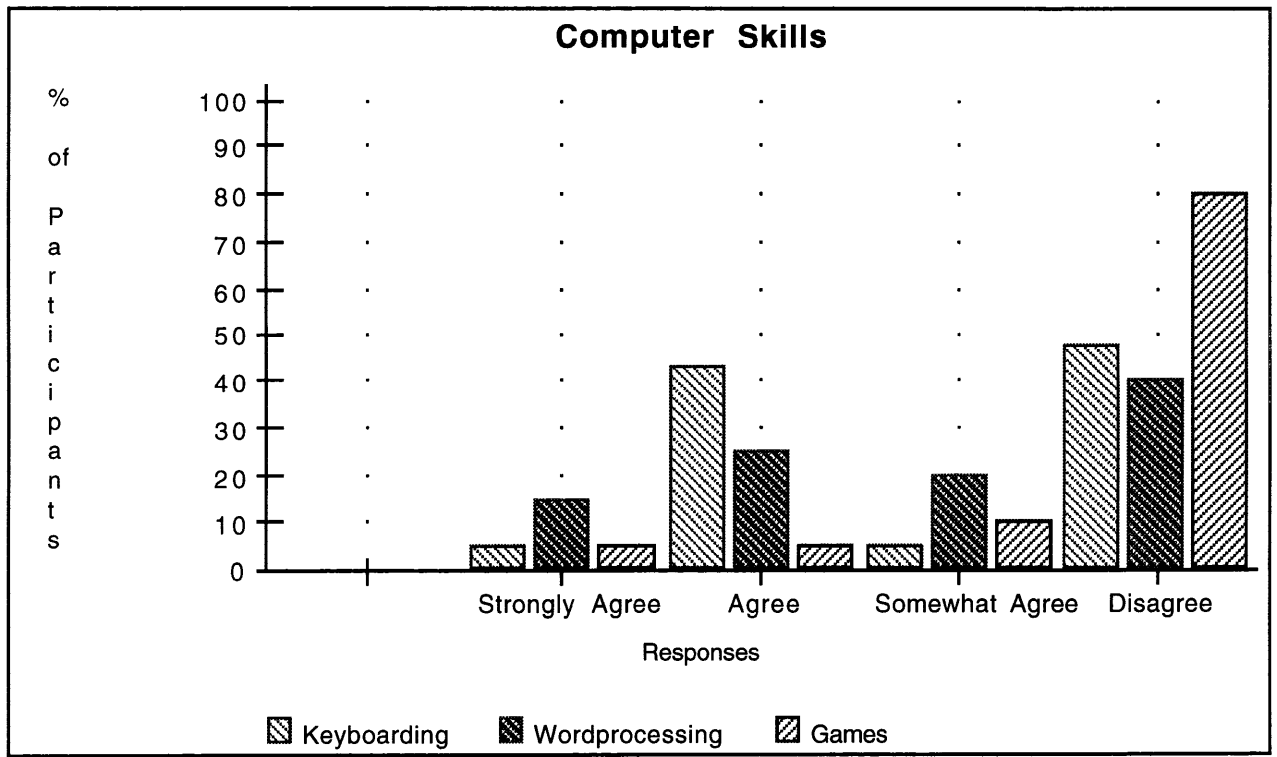
Table 1 shows that 53% of participants have limited keyboard skills;

60% of participants' computer skills are restricted to word processing; and 21%

of respondents stated that they use their computers for games only.

Table 2
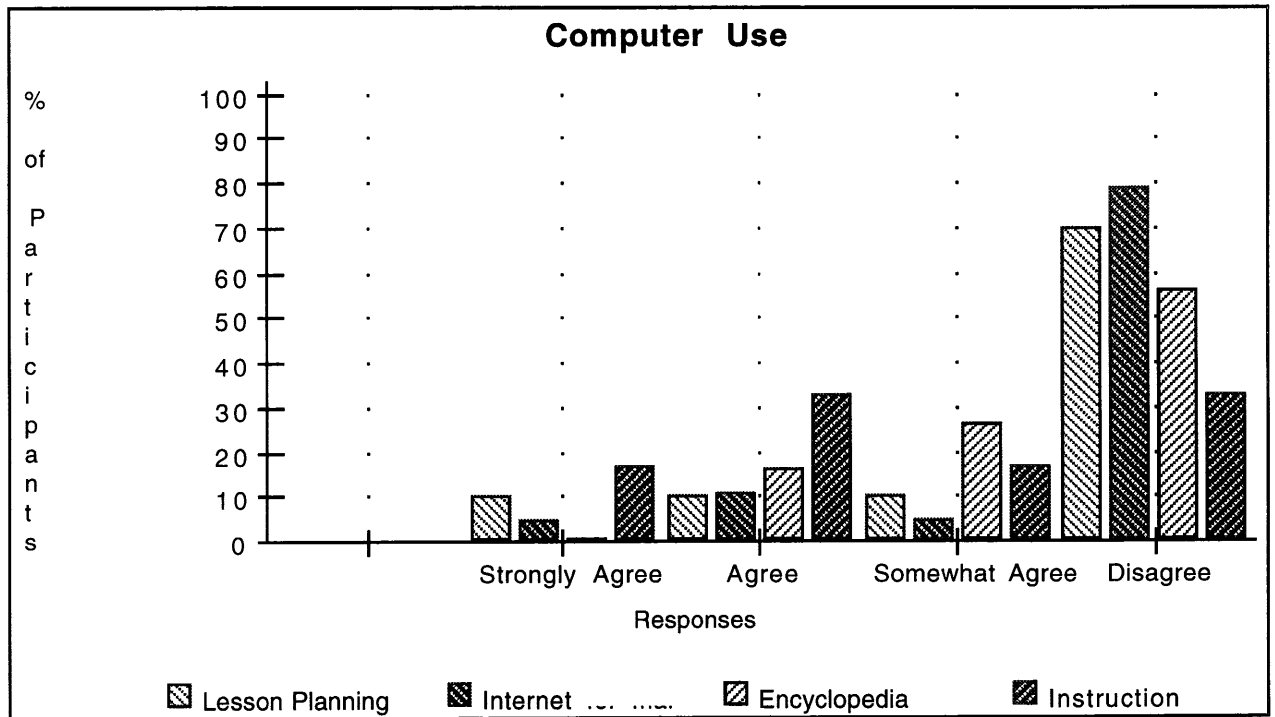
Computer Use

Table 2 reflects extended computerl use. 30% of respondents use computers for lesson planning and grading; 22% limit Internet use to sending mail; 42% use CD ROM software for research; and 66% use computers for instructional purposes.

Table 3

Teacher Perception

% of Participants

| | Strongly Agree | Agree | Somewhat Agree | Disagree |

Responses

◫ Success and Skill   ◪ Developing Skill

Table 3 reflects the beliefs of respondents, that the success of each "connected" classroom depends on the individual skill of the teacher, and developing computer skills is necessary for increased communication, improved lessons and contributes to positive perceptions of its usefulness.

Table 4

Teacher Interest in Training
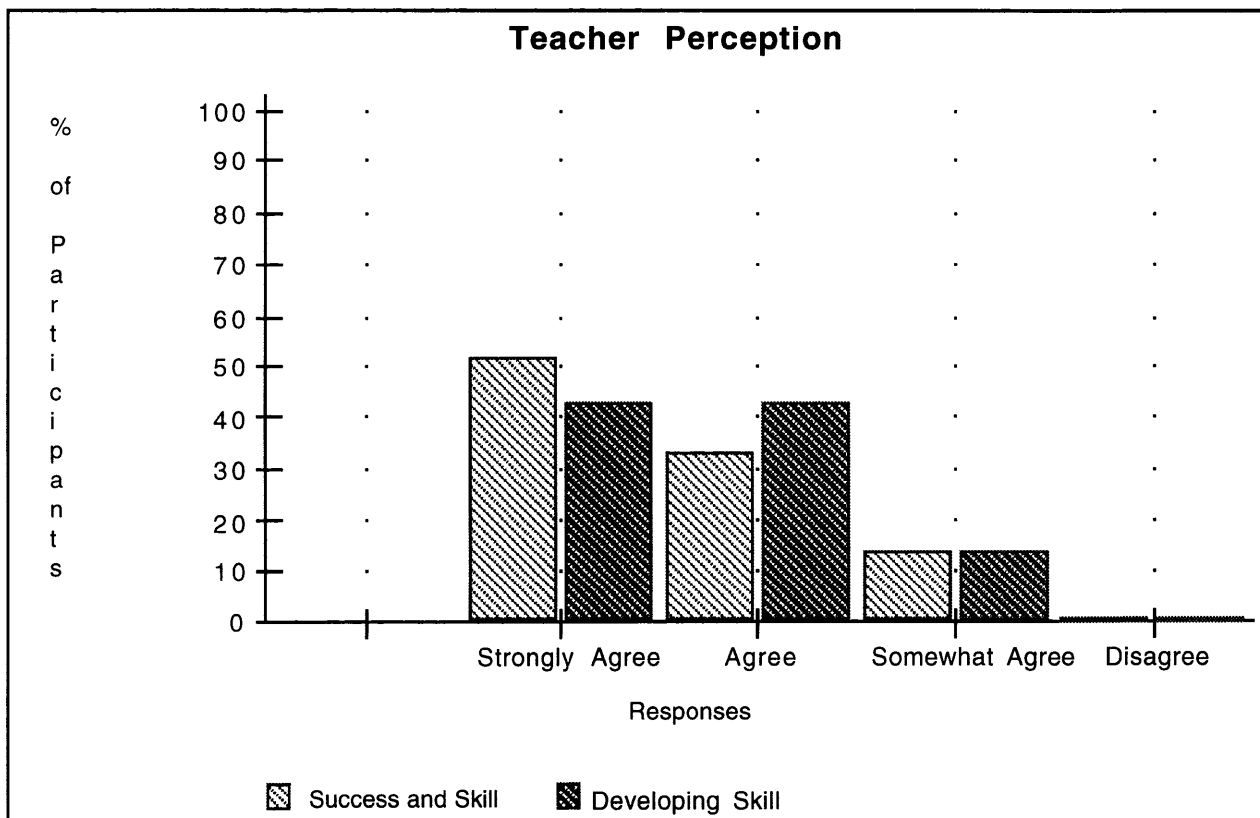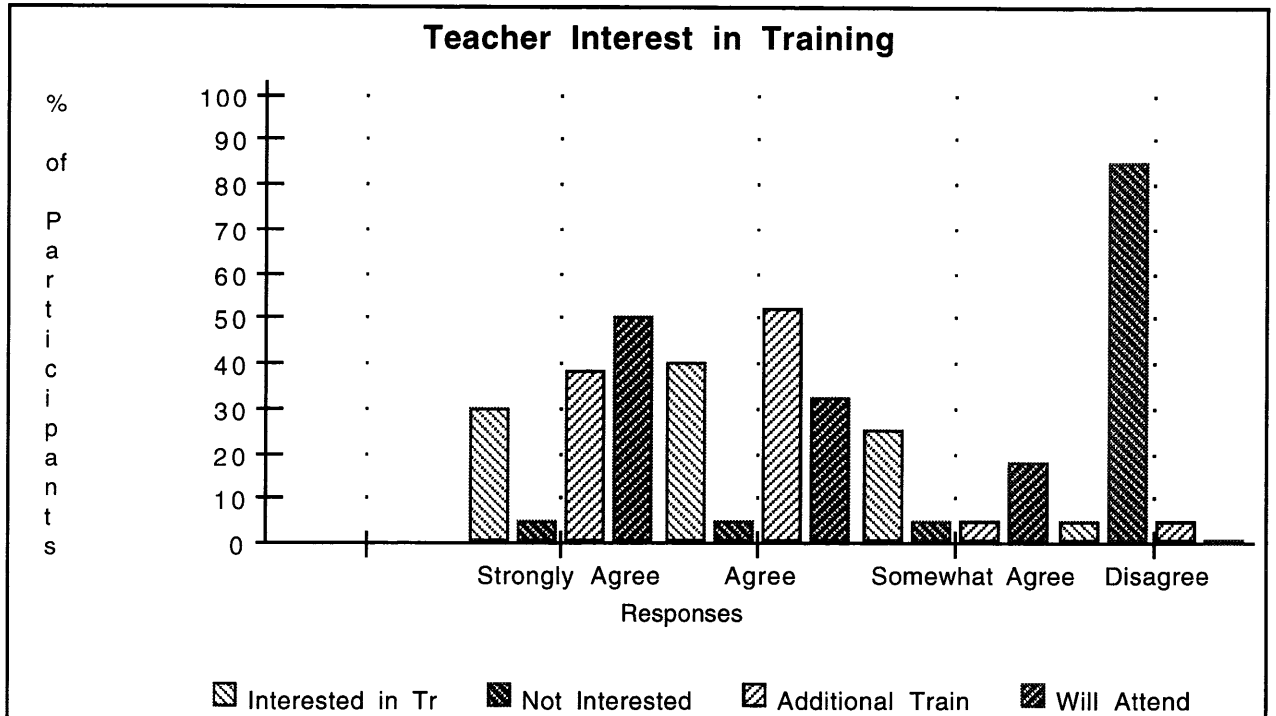
Table 4 reflects teachers' interest and desire for technology training. Ninety five percent of respondents would like to learn more about researching the "net" and using technology in the classroom, but do not have the time. Fourteen percent of respondents are not willing to learn new classroom management techniques; 95% have had training in the fundamentals of computer use, but need further training, to effectively integrate technology into the curriculum. If offered training at the school site of the respondents, 100% would be interested in attending training on computer use in the classroom.

Twenty four certificated staff members and two non-certificated members are participants of the after school technology workshop. Based on the intern's observation, two participants are "comfortable" with their computer skills. This represents 8% of the participants. Four of the participants have "basic" computer skills. This represents 15% of the participants. Three have "limited" technology skills, which is 12% of the participants. The remaining 17 participants have no computer skills. Sixty five percent of the participants have little or no computer skills. Those with limited skills do not possess the knowledge needed to transfer these skills to an instructional level.

The school district in which this study is being conducted, has offered computer training for the last six years. Two participants have taken advantage of this opportunity. Only 8% of the participants have attended district offered workshops. As a result of interviews with participants, respondents said they felt more comfortable taking the computer classes at their home site, with their peers. They felt it was an inconvenience for them to go to another site for training.

A second survey was conducted to determine specific technology skills of participants of the technology workshop (Appendix C). Of the 26 participants of the after school technology workshop, twenty one returned their surveys. The average teaching experience of these respondents is 20 years. Thirty eight percent of the participants have at least one computer in their classroom. Fifty nine percent of the participants have computers at home. Subject area and grade level of participants vary.

Table 5

Technology Skills

% of Participants

| | 100 | 90 | 80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 | 0 |

(bar chart showing No Experience, Little Experience, Comfortable, Mastered across categories: Basic, WP, DB, Spdsheet, Dktop, Per, Multi media, Internet, Web Pg)

Responses

◩ No Experience ◼ Little Experience ▨ Comfortable ▩ Mastered
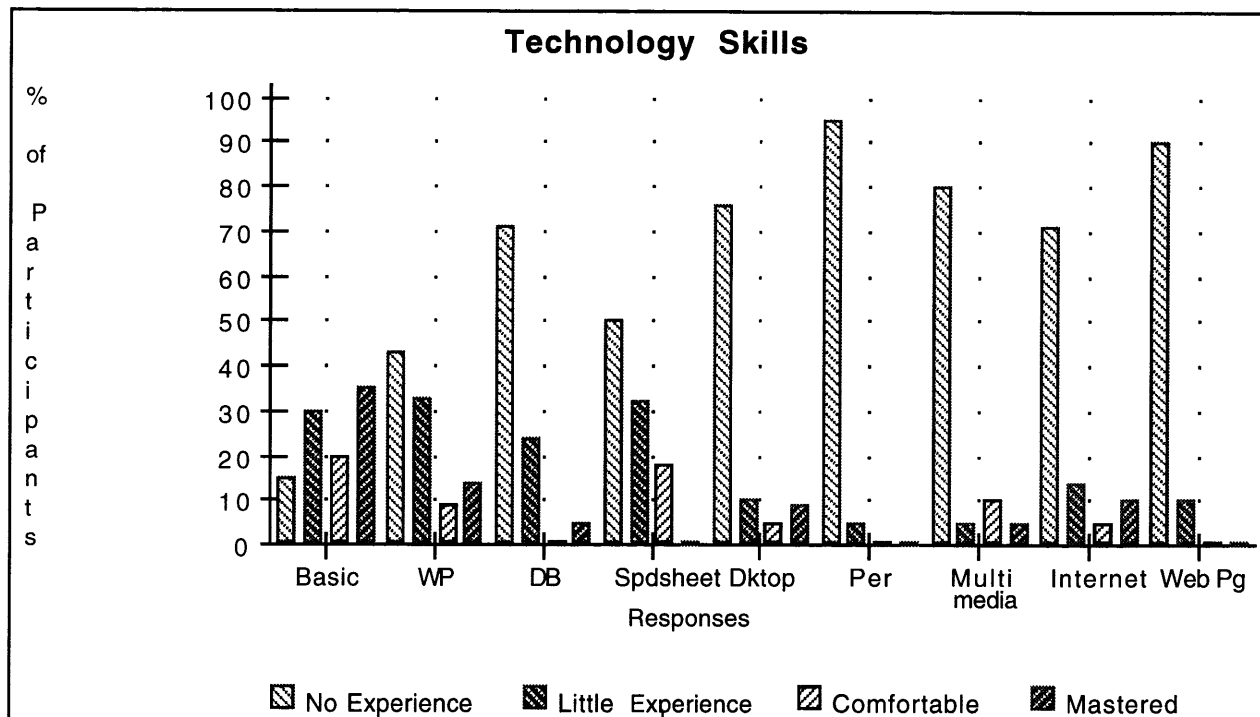
Table 5 reflects 45% of the participants have little or no computer knowledge. Seventy six percent of the respondents have little or no knowledge in word processing; twenty out of twenty one participants have little or no experience with database, this number represents 95% of the participants; 90% responded to little or no computer experience with spreadsheets; None of the respondents feel comfortable or have mastered the use of peripherals; 86% have reflected a lack of experience with multimedia and presentation applications; 86% said they had little or no knowledge of Internet usage, and all of the workshop participants have little or no experience with Web Pages.

Surveys also reveal that seven out of twenty one respondents use the computer as a managerial tool. This number represents 33% of the trainees. Five out of twenty one, or 24% of the respondents use the computer for drill and practice. Seven participants responded that they use technology to support the curriculum. Thirty three percent of the participant use technology to support the curriculum.

What Did the Information Mean?

Teachers must not only master computer technology itself, but learn techniques for guiding student research. Training is needed on integrating the new technology into the curriculum.

Recent educational and technological developments are challenging educators to redefine traditional approaches to teaching and learning. Findings suggest that developing computer network skills increases communication, improves the quality of lesson plans, and contributes to positive perceptions regarding the usefulness of the computer as a teaching tool.

Implications from the training sessions indicate that a variety of teachers are becoming involved; a wide variety of computer skills exist; keyboard skills are a potential problem; and cooperation among administration and central office is high. As a result of exposure to computers and Internet, teachers are sharing their expertise with other teachers.

Chapter 5

Conclusions, Implications and Further Study

Major Conclusions

The Project

Most faculty members surveyed were, in fact, regular computer users. Detailed descriptions of usage patterns indicated that most teachers have assess to basic personal computing resources at home, and at school, and have mastered the basic technology well enough to make it a productive part of their academic life. Mastery however, is generally limited to word processing, and perhaps one or two other applications. There are very few "power users" among the faculty who use computer technology available to them in various ways. Data and observations suggest that teachers have a moderate level of general computer skills. While teacher educators have taken up the routine computer application of word processing, that skill has not generally been a launching pad for integration of information technology into the teacher education curriculum. Indications suggest that teachers do not feel comfortable teaching with instructional uses of technology.

Technology usage is rated as very important but computers sit idle. Teachers want to use computers but do not have the technical skills and are unaware of how to use computers effectively. Various faculty members

participating in the study separated information technology from other aspects of teacher education, such as subject matter content and professional teaching skills.

As a result of interviews, observations and data analysis, the intern, who planned to emphasize effective use of technology in the classroom, was forced to adjust the lesson planning to accommodate the majority of participants of the study. Most of the training revolved around basic computer usage. Future workshops will be planned to accommodate staff development on using technology for instructional purposes. Teachers need a comfortable level of competence prior to using computers for instruction.

The Intern's Leadership Development

The intern improved leadership ability in the area of technology by:

a) developing a training workshop for teachers. The workshop was conducted after school for a ten week period;

b) aquisitioning stipends for participants to motivate trainee attendance;

c) adjusting schedules to meet trainees' needs. Training was originally planned for "team meeting" periods, but this limited training to teachers based on grade level, and subject areas;

d) developing skills necessary to conduct a needs assessment. Surveys were analyzed, interviews were conducted and technology inventoried;

e) guiding teachers in critical evaluation of learning materials, such as lesson planning;

f) guiding teachers through integrating core curriculum standards;

g) guiding teachers through evaluating software;

h) encouraging cooperative learning activities;

i) collecting and analyzing data;

j) integrating teacher support teams with other staff members;

k) administering feedback to teachers for improvement;

l) evaluating data to modify training sessions;

m) developing evaluation instruments used for training sessions;

n) analyzing feedback from workshop evaluations;

o) conducting ongoing communication with participants of the training workshop;

p) initiating the acquisition of, and receiving internet cards for the "information highway;"

q) forming a technology committee for the ordering of technology equipment and appropriate software;

r) installing district mandated applications programs on classroom computers;

s) exposing teachers to instructional techniques using technology;

t) broadening teachers' awareness of technology resources;

u) solving problems associated with computer training and

v) developing time management skills.

Organizational Change

As increased teacher awareness, and a positive attitude regarding computer usage as an instructional tool develops, student academic growth will be evident. By training teachers on computer usage, a variety of teachers have begun to become involved, expectations about computer usage has increased and teachers being trained are displaying a greater feeling of efficacy. Students' ability to research information, write, edit, interpret and apply information will improve, and students' level of learning will increase, as a result of training.

At the completion of the proposed plan, data was analyzed from the initial survey and compared to responses from the post evaluations as an indicator of organizational progress. Reflections on the entire teacher training workshop provided additional feedback pertaining to the project's effectiveness. Teachers were enthusiastic about learning. Participants were exposed to various aspects of technological usage. Trainees can now see the potential for opening a new world of knowledge to their students. Instructional use of computers however remains limited in classrooms.

Major Implications of the Study

Teachers consider information technology an important aspect of education. Faculty attitudes do not seem to be a barrier to information technology in education. One explanation for faculty reluctance to work with information technology is anxiety. Other barriers to using instructional technology were limited resources, background, and support. Many resources

are needed to support the use of technology in education. Hardware and software are obvious needs, but other types of resources such as time, support and training, are also important. In some cases hardware and software resources may be available, but individuals may not understand or be aware of the equipment and software resources needed to integrate technology. Hardware and software resources are, of course, critical components of any effort to integrate technology into teacher education. Another resource, faculty time, is also critical. Teachers simply do not have the time available during a school day to master computer skills, view new software, incorporate teacher application programs, or investigate technology equipment, with an already full teaching schedule. Continued staff development is crucial to the success of fully integrating technology into the curriculum. Resources, including equipment, software faculty time, and support for educational uses, may be an indication of another type of barrier, leadership. Leadership doesn't mean speaking positively about the potential of technology in education, it is finding the ways and means to express that potential, to impact student success.

The Need for Further Study

Teachers can visualize the possibilities of using technology, for personal use, but not yet for instructional purposes. Teachers' growing feeling of efficacy is evident. More training however is needed for teachers to feel confident enough to utilize computers in the classroom. It will take more than one ten-week training session to prepare teachers to effectively impact student learning through the use of technology. Faculty teachers recognize a need for significant

staff development efforts to improve their technology skills. Much of the training available through district staff development, emphasizes general computing skills, but the need is most severe for topics on technology integration. More support, and staff development that emphasizes approaches to integrating technology (as opposed to training on specific software and hardware) are needed to help the teacher become comfortable with technology and learn to effectively integrate it into everyday teaching activities. If teachers are to become technology-using educators, in-service and staff development opportuneness will play an important role.

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Appendix A

Technology Survey of New Jersey Schools
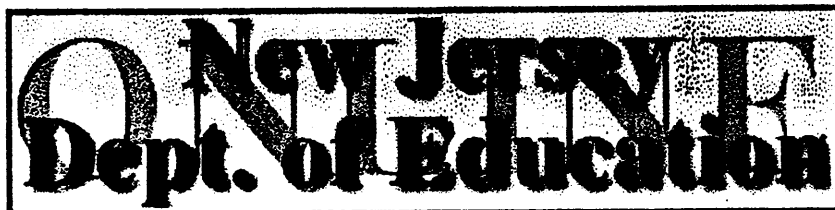
Technology in Our Schools

Summary
Technology Survey of New Jersey Schools

School Year 1996-97

Based on responses from 50% of public schools and 40% of non-public schools

The number of students in New Jersey schools compared to the number of computers available for instructional purposes is often expressed as the student:computer ratio. The New Jersey ratios are:

School Type	Student:Computer Ratio
Public Schools	6.9 : 1
Non-Public Schools	10.1 : 1
Public and Non-PublicSchools Combined	7.1 : 1

22% of the computers in New Jersey public schools (27% in non-public schools) are older computers such as Apple II, IIc, IIe, GS, or 286 PCs or earlier that are not powerful enough to access the Internet or to run current software. If these low-end computers are excluded from the analysis, the revised student:computer ratios are as follows:

School Type	Student:Computer Ratio
Public Schools	9.0 : 1
Non-Public Schools	14.6 : 1
Public and Non-Public Schools Combined	9.5 : 1

Access to the Internet

School Type	Percentage with Internet Access	Avg. No. of Classrooms with Internet Access per School
Public Schools	72%	3.8
Non-Public Schools	52%	2.9

The five counties with the most favorable student: computer ratio for public schools are:

County	Student:Computer Ratio
Hunterdon	4.3 : 1
Warren	4.9 : 1

Mercer	5.1 : 1
Cape May	5.5 : 1
Salem	5.7 : 1

The five counties with the <u>least</u> favorable student: computer ratio for public schools are:

County	Student:Computer Ratio
Essex	9.4 : 1
Passaic	9.0 : 1
Hudson	8.0 : 1
Ocean	7.8 : 1
Middlesex	7.6 : 1

Additional information is available in the *1996-97 New Jersey Technology K-12 Survey Report.*

Appendix B

Technology Survey

Technology Survey

I. Staff Information

Directions: Please complete the following survey. Responses are intended for research only, and will remain confidential.

How many years have you been teaching? _____ years.

Do you have a computer in your classroom?_____

If you answered yes, how many computers do you have in your classroom? _____

Respond to each statement by selecting one of the following :

strongly agree, agree, somewhat agree and *disagree:*

1. My computer skills are limited. _____

2. My computer skills are restricted to wordprocessing. _____

3. My computer skills are restricted to games. _____

4. I use technology for lesson planning and /or grading. _____

5. I get "on line" to send mail. _____

6. I use technology for research, using CD ROM software. _____

7. I use technology for research through exploring the Internet. _____

8. I use technology for instructional purposes. _____

9. The success of each "connected" classroom will depend on

    the technology skill of the individual teacher. _____

10. Developing computer skills increases communication,

    improves the quality of lessons, and contributes of the

    computer as a teaching tool. _____

11. I would like to learn more about researching the net and

    using technology in the classroom, but I do not have the time. _____

12. I am not willing to learn new classroom management techniques. _____

13. I have had training in the fundamentals of using computers,

    but I need further assistance to effectively integrate the new

    technology into the curriculum. _____

Name   (optional)_____

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