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AN ADMINISTRATIVE INTERNSHIP EXPERIENCE AT  
MAPLE SHADE JUNIOR/SENIOR HIGH SCHOOL  
MAPLE SHADE, NEW JERSEY  
1999 - 2000

by  
Frank Jankowski

A Thesis

Submitted in partial fulfillment of the requirements of the  
Master of Arts Degree  
of  
The Graduate School  
at  
Rowan University  
May, 2000

Approved by \_\_\_\_\_  
Professor

Date Approved May 2000

## ABSTRACT

Jankowski, Frank E.

An Administrative Internship  
Experience at Maple Shade  
Junior/Senior High School  
Maple Shade, NJ 1999-2000  
Ronald L. Capasso, Ed.D.  
Practicum and Supervision  
I and II, Rowan University  
New Jersey

The purpose of this study was to develop a plan that would allow teachers in the junior-high at Maple Shade High School to incorporate technology into their lessons on a more consistent basis. The use of technology would improve learning and better prepare our students for the future.

The intern used interview and survey as data gathering techniques for the project. The intern plans brought meaning to the data through a thorough analysis of interview responses. Also, surveys were collected, coded, and analyzed.

Teacher preparation and prior teaching experience were cited as reasons behind the fear of technology. Staff claimed that the interaction between early experiences and system requirements were dual factors that influenced their teaching. Basically, teachers were taught to teach the way they were taught themselves.

Fortunately, much of the data supported the notion that teachers, as a whole, seem to be willing to accept the idea that the students often know more about the computer and its many uses than they do. Technology seems to provide a natural framework for opening the door to increased student responsibility and motivation in the classroom, which in turn impacts student and teacher roles.

## MINI-ABSTRACT

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## ACKNOWLEDGEMENTS

The internship that has been successfully completed by this intern could not have been accomplished without the help of so many caring and supportive friends and colleagues. The intern would like to thank some crucial people for their support, understanding and guidance.

First, I would like to offer sincere gratitude to my family. Special thanks to my beautiful wife, Patti, for helping me to get through all the craziness of the past year. Her patience is one of her greatest traits and it was one that I forced her to rely on quite a bit during the course of the internship. She is a caring, understanding and selfless person and my love for her is endless. A huge thank you to my daughter, Alyssa, for keeping me smiling when things seemed like they couldn't get any more hectic. I also wish to thank my parents, Frank and JoAnn, for providing unconditional support whenever I needed it. Without my family's assistance and support, this internship would not have been the successful and rewarding venture it has been.

I also wish to express my gratitude to the teachers and administrators of the Maple Shade School District and, in particular, the teachers at Maple Shade High School, for their cooperation throughout my experience. They are a staff who have always been there to help me with anything I ever needed while never asking for anything in return. A special thanks to my friends (and colleagues), Joseph Meloche and Lauren Gess, for being both my friends and advisors. The Maple Shade High School staff is a

great group of people who have become more than simply colleagues - they have become my friends.

Deepest appreciation is also extended to the following people from Maple Shade for their guidance, support, advice and understanding: Dr. James Kerfoot, Superintendent of Schools; Mr. Raymond Marini, Principal; Ms. Cheryl Smith, Principal of Steinhauer Elementary School; Mr. Rudy Avisius, Technology Coordinator; Mr. Arthur Hill, Vice-Principal; and the numerous other staff and administrators, without whom I could not have achieved such success during this experience.

The intern would like to offer special thanks to Mr. Richard Keegan, Vice-Principal and Supervisor of Special Education at the high school, for mentoring and supporting me throughout this experience. His guidance and advice have proven to be invaluable over the course of the past year.

Finally, I wish to thank Dr. Ronald Capasso for his guidance and shared knowledge throughout the duration of the internship. Without his wisdom and experience, the year would never have been filled with such leadership growth on the part of the intern. His patience and support have been unending and I feel privileged to have been the recipient of his superior leadership.

Frank Jankowski

April, 2000

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## CHAPTER 1

### Introduction

#### Focus of the Study

Many of today's school teachers fear technology. Although we may recognize the need for an information-literate work force, teachers rarely receive the professional development and support they need to use technologies effectively in their classrooms. Coupled with this fact is that teachers are embroiled in the latest round of learner-centered constructivist reform efforts across content areas.

This study will focus on the steps that must be taken if technology is to be incorporated on a more consistent basis into the lessons of junior-high teachers at Maple Shade High School. This study could prove to be quite significant in that its success would allow Maple Shade students to develop computer literacy and, therefore, feel confident and better prepared to enter the technological world that will face them in the new millenium. Society requires individuals to recognize the need for information, identify and locate it, gain access to it, evaluate it, and finally organize and use it effectively. This project is designed to help our students and teachers to master the steps in the utilization of technology.

The internship study will primarily focus on junior-high-school level students and teachers at Maple Shade High School. Data will be gathered through observations, interviews, and

surveys. Random sampling of students will be used to test the effectiveness of the project. The intern hopes to discover better ways to promote learning through technology at the seventh and eighth grade level for both students and teachers at Maple Shade High School during the 1999 - 2000 school year.

#### Purpose of the Study

The purpose of this study is to develop and implement a plan that will allow teachers in the junior-high at Maple Shade High School to incorporate technology into their lessons on a more consistent basis. The intern believes that most current teachers attended a K - 12 educational system and teacher-training program that emphasized didactic instruction. Those teachers need professional development experiences that address new pedagogies as well as training in the use of technology. If teachers are to develop an integrated curriculum, for example, they must have a knowledge base of the relevant content areas and know the appropriate instructional methods and how to use those methods within and across content areas. Without training under a formulated program, most teachers will remain stuck in didactic methods of instruction.

For the study, the intern will use an action-based research design which will result in a technology plan for junior-high teachers and students at Maple Shade High School. The more consistent use of technology in the classroom by junior-high staff will improve learning and better prepare students for the future.

At this stage in the research the "use of technology" will be defined generally as the use of computers by the teachers and

students for more than simple drill and practice or basic word processing. Instead, this term implies that the computer will be used as an actual learning tool which will facilitate the academic process in some way. In addition, it is hoped by the intern that as a result of their participation in the study, teachers will show an increased motivation to use technology as an instructional support system.

### Definitions

- technology* - any type of computer with related hardware and software.
- staff development* - the training of teachers and related school personnel in order to enhance particular skills; usually used to sharpen areas of weakness.
- technology plan* - a list of procedures that need to be followed so that teachers may begin to feel more comfortable with using the computer as a learning tool in the classroom.
- instructional support system* - any tools of instruction that help to clarify or uphold the objectives of the lesson in the classroom.
- motivation* - the teacher's desire to use technology as a tool for instruction.
- consistent basis* - the use of a computer by the teachers and students for a minimum of three classroom lessons per week.
- junior-high* - the seventh and eighth grades at Maple Shade Junior-Senior High School.

- computer literacy* - the ability to use and understand the basic functions of a computer as they apply to classroom instruction.
- veteran professionals* - Maple Shade High School teachers in the junior-high wing who possess at least ten years of teaching experience.
- integration of technology* - using whatever methods necessary in order to incorporate the use of a computer into the classroom.
- learning environment* - any area of Maple Shade High School such as the classroom, library, computer lab, etc. in which learning takes place.
- technological revolution* - a period of time in which the use of computers and related technology seems to be constantly changing and the adjustment by members of our society that must take place if we hope to keep up with the rest of the world.
- modification* - a change that the classroom teacher makes in order to better incorporate technology into the learning objectives.
- educational technology* - any use of computers that helps the students to attain the goals and objectives of the lesson.
- technology committee* - a group of teachers who devise a plan that will help Maple Shade junior-high teachers become more familiar with ways in which to incorporate technology

into their lessons.

### Limitations of the Study

There are some noteworthy limitations of the internship study. Readers of the study should understand that these limitations should be taken into consideration when reviewing the design of the study, the presentation of the research findings, conclusions, and implications for further study.

The staff and student population of Maple Shade High School is very small when compared to some of the other districts in the southern New Jersey area. Therefore, it may be difficult to generalize some of these findings to some of the larger surrounding districts.

Also, Maple Shade is not a wealthy district. Other schools may have access to computers simply because they have the money to buy more of them. Some wealthier districts may have a computer for every student in every classroom. Due to funding and other factors, this does not seem to be the case in Maple Shade at this point in time.

The study is also limited by its confinement to one building within the district,(the high school). This may make it difficult to generalize the findings to the other buildings within the district since the other buildings are elementary schools with, in some cases, a very different staff and student profile as compared to the high school.

Other possible limitations of the study include the small sample size of the student population, staff scheduling conflicts, and lack of staff availability.

### Setting of the Study

Maple Shade is located in southern New Jersey, across the Delaware River from the Tacony section of Philadelphia, in the southwest corner of Burlington county. The 3.85 square mile town is contiguous with Cinnaminson to the north, Mount Laurel to the south, Moorestown to the east, and Pennsauken and Cherry Hill Townships to the west.

Vehicular traffic arteries provide easy access to areas of employment via Routes 38 and 73. Interstate 295 and the New Jersey Turnpike are easily accessible. Route 537 runs southeast to northwest through the center of the township. Kings Highway and Route 38 provide bridge access to the greater Philadelphia metropolitan area.

The town possesses an intriguing history. For much of its past, Maple Shade was part of Chester Township which was founded in and authorized by English royal charter in 1712. Maple Shade continued as a village within Chester Township until November 1945 when the name was changed to the Township of Maple Shade (Flomenhoft, 1989, pp. 1-2).

The court records in Burlington, New Jersey, dated 1688, give the boundary lines of Chester Township. The lines ran from the Delaware River to the most southerly branch of the Pennsauken Creek, along the road to Northhampton River and over to Thomas Kendall's plantation. The township of Chester was incorporated in 1698 and, at that time, included what is now Moorestown, Delran, Maple Shade, and Cinnaminson. It covered approximately 24,000 acres of fertile farm land (Bisbee, 1955, pp. 24-66).



Colestown was located in the present township of Maple Shade at Crooked Lane and the Pennsauken Creek. It was founded in 1676 by Samuel Coles, a hotel owner at the location. The Coles family owned five hundred acres of farm land in the vicinity, some of which was donated for a public school site and some of which was sold to land developers who constructed the section now called Alden Park (DeCou, 1929, pp. 95-99).

In 1860 Maple Shade was called Stiles Crossing, after Robert Stiles, a successful local businessman. The population continued to flourish, especially around the Maple Shade area, so that by 1922 another partition took place. Moorestown broke away leaving just a small part of Chester Township. This provided the present political boundaries of Maple Shade Township, which was named for the abundance of maple trees in the area (DeCou, pp. 113-116).

Brickmaking was a large industry during the early days of Maple Shade. The first town railroad was completed in October 1867; the first fire company was organized in December, 1899 and in 1898 the Merchantville telephone directory listed twelve town subscribers. By 1945 the population was 6,109, and by 1960 the population had doubled to 12,178. The 1990 Census of Population and Housing shows Maple Shade as home to 19,211 residents. This growth is attributable to affordable housing, low tax rate, good schools, advantageous location to the metropolitan areas of Philadelphia and New York, and close proximity to coastal regions (Bisbee, 1955, pp. 41-44).

The economy of Maple Shade has undergone several changes over the course of its history. Although primarily a residential

"blue collar" community, several high-tech firms have recently established roots in the township. Most of the industry is located along Route 73 and consists mainly of small to medium sized businesses. Downtown Main Street boasts a varied collection of shops, restaurants, boutiques, and taverns, all of which contribute to the charm and personality of the town.

A stable population has been predicted for Maple Shade by the Delaware Valley Regional Planning Commission. There is a 6% increase expected between the years 1995 and 2005 and an even smaller increase (.7%) expected between 2005 and 2015. Table 1 shows the potential increase of the Maple Shade community as it is forecasted for the next several years.

Table 1

Population Projection for Maple Shade Township

<u>Year</u>	<u>Population</u>	<u>Forecast</u>
2005	21,330	1995-2005 = 6%
2015	21,470	2005-2015 = .7%

The size of a population in a given community is conditional on the numbers of native residents relative to those who have moved into or vacated the area. The number of births provides a useful indicator of native population trends. Birth rates since 1978 through 1998 have ranged from a low of 235 to a high of 319. The average birth rate for that time is 282. The birth rate, while fluctuating yearly, has been rather stable and has not had a significant impact on school enrollments.

The socio-economic status of the township has seen dramatic changes in the 1980's and early 1990's due to the influx of apartment dwellings within the community. Maple Shade has also become home to many transient residents as well. The ethnic profile of Maple Shade is as follows: 91.4% Whites; 5.6% Blacks; 2.2% Asians; and 0.7% others (NJ State Data Center [NJSDC], 1998, profile 1).

Most of the family housing is in the center of the town. The average home in Maple Shade is valued at \$99,778 (NJSDC, profile 7). However, 46.9% (NJSDC, profile 5) of the residents live in apartments or homes rented at an average of \$557 per month (NJSDC, profile 7).

Maple Shade falls in between two more affluent towns, Moorestown and Cherry Hill. The per capita income in Maple Shade is \$13,221 (Maple Shade, 1998, p.292). Professional and college educated residents comprise 31% of the community while the remainder are mostly employed in the building and service trades (NJEA Research, p.1-3). Maple Shade is a very tight-knit community and, although not wealthy when compared to its neighboring towns, its residents are quite proud of where they live.

The form of government in Maple Shade is Town Council. The Democrats have had most of the control in the town for several years. There are four schools and an organized police force and volunteer fire company. The police force has 36 employees and the fire company has 40 volunteers.

The local community is served by the Maple Shade library. It is a branch of the Burlington County Library. Water and sewer are city based with no private wells (Maple Shade, p.292).

From a civic standpoint there are many organizations which combine community service projects with friendship and recreation for its members. Civic and social clubs in the town include the Rotary, Lions, Jaycees, Knights of Columbus, Kiwanis, V.F.W., American Legion, Happy Hour Club, and 25 Club. The "I Love Maple Shade" group has been very active in revitalizing the community spirit through civic and charitable work.

All major sports for both children and adults are sponsored by the Maple Shade Athletic Association. There are nine widely-utilized fields in the town.

There is an exciting and vast history that accompanies the schools of Maple Shade. The first school, the *Little Red Schoolhouse*, is believed to have been constructed in 1812. The school has been preserved and maintained by the Maple Shade Historical Society. It is located on West Main Street.

A two room schoolhouse, school number one, was built in 1909 on North Poplar Avenue. Two more rooms were added in 1913. In 1926, two wings of four rooms each were added to the original building. School number two, now known as Steinhauer School, was constructed in 1920 and is located on present-day Chester Avenue. The third school, Maude M. Wilkins School, was built seven years later. School number four, Howard R. Yocum School, was built in 1959 (Flomenhoft).

Maple Shade had always been a sending district for high school purposes. Due to overcrowding in Moorestown, many

students had to be transferred to Merchantville until 1972 (Gaul, 1976, p.4). Thus, it wasn't until 1972 that Maple Shade High School was completed to house grades seven through twelve.

There is an established school board, administrative and supervisory structure within Maple Shade. The organizational chart from the Maple Shade Board of Education's Policy Manual lists the community at the head of the organization. Next in line is the Board of Education with nine elected members who must establish policy for the district. Following in descending order are the Superintendent, a contract consultant, and the board secretary. In line of authority under the superintendent is the School Business Administrator, Director of Adult School, Director of the Child Study Team and Child Study Team supervisor, and the principals of the four buildings.

In the four schools the supervisory structure begins with the principals. The high school also has two vice-principals, a coordinator of computer services, an athletic director, a curriculum coordinator, and three area supervisors who deal with the major academic disciplines. Below the supervisors in rank order are the teachers, librarians, nurses, aides, and clerical staff.

There are three main organized associations within the district. The Maple Shade Education Association (MSEA) is the largest recognized bargaining unit and represents all teachers and aides. This is a union shop organization with 100% membership enrollment. Maintenance workers belong to the MSMSA (Maple Shade Maintenance Staff Association). Principals and supervisors belong to the National Association of Secondary

School Principals (NASSP). All other employees are not represented by unions.

The MSEA is an affiliate of the Burlington County Education Association, the New Jersey Education Association, and the National Education Association. The MSEA represents over 90% of the employed staff in the district.

There are four school buildings in the Maple Shade district, three elementary schools and one high school.

Maude Wilkins Elementary School employs (Fall Report, 1998, Personnel) one principal, 22 teachers, one school nurse six classroom aides, nine support staff and has an enrollment of 395 students. The school contains kindergarten through third grade, pre-school handicapped, and special education classrooms.

The Maude Wilkins school contains a 1,596 square foot library; a multipurpose room of 1,872 square feet, used for physical education and seating 96 in assembly; and a small cafeteria of 720 square feet. The school occupies 3.9 acres of property and houses 22 classrooms, including two kindergartens and five special education rooms (Sherry, 1990, pp.8-11).

The second elementary school in the district, Howard R. Yocum Elementary School, employs (Fall Report) one principal, 14 teachers, one school nurse, four classroom aides, and six support staff, and has an enrollment of 224 students. The school contains kindergarten through third grade and special education. It is a fire-resistant, one-story structure and covers seven and one-half acres.

Contained within Howard R. Yocum school are 13 classrooms, including two kindergartens and two special

education classrooms. There is a 1,870 square foot multi-purpose room which serves for cafeteria, physical education, and assembly purposes. In addition, the building also has a 1,008 square foot library, a small room for Title I programs, a small health office, general and principal's office, and teachers' lounge (Sherry, pp. 12-14).

The third elementary school, Ralph J. Steinhauer Elementary School, employs (Fall Report) one principal, 26 teachers, eight classroom aides, 13 support staff, and one school nurse, and has an enrollment of 458 students. The school contains grades four through six and special education. The school covers six acres of land.

Steinhauer School has 20 classrooms, four of which are used for special education. There is a nurse's office, a 876 square foot cafeteria, and a principal's office.

The final school to be built in the district was Maple Shade Junior/Senior High School. The high school employs (Fall Report) one principal, two vice-principals, one Director of Pupil Personnel, three area supervisors, 65 teachers, two school nurses, six classroom aides, one media paraprofessional, and 27 support staff, and has an enrollment of 842 students. The school is a one-story, four-wing structure containing grades seven through twelve and special education. The site covers 25 acres with ample onsite parking and athletic fields.

Other areas of the building include the following: a 5,600 square foot cafeteria; a 3,900 square foot library, which also houses the Media Center; and a 6,200 square foot auditorium (Sherry, pp.18-25).

The Board of Education offices and Child Study Team are also housed within the high school. These offices include the following employees of the district: the superintendent, school business administrator, school psychologist, support staff, child study team supervisor, five counselors, and four CST support staff (Fall Report).

There are specific trends evident when studying the enrollment of the Maple Shade district. Studies by Cubit-Swoyer (1990) and Sherry (1990) indicate trends in kindergarten showing an increase from 1986 to the present. Total enrollment of the schools, however, has decreased approximately 14.4% from 1983 to 1998. Special education enrollments have remained fairly stable since 1986.

It appears from current data that projected enrollments are consistent with observations of birth trends, community population trends, immigration, new housing projects, and past enrollments. Actual enrollment trends since 1983 show grade organization data as follows (Sherry):

1. As the enrollment growth in the primary grades progresses to the intermediate and secondary levels, an increase in the number of pupils at these levels should take place.
2. Enrollments in grades K-3 show a gradual increase from 1985 through 1998.
3. Intermediate grade levels 4-6 have shown a relatively stable pattern from 1983 to 1998.
4. High school enrollment has decreased 30% since 1983.



5. Total school enrollment has decreased 14.4% since 1983.

The projected enrollment over the next five years for the district can be organized as follows:

1. Total projected enrollment increases each year with an estimated growth of 121 pupils over the period.
2. Enrollments in grades K-3 show a gradual increase through the period.
3. Intermediate grade levels 4-6 show a gradual increase over the period.
4. High school enrollments show a gradual increase each of the five years with a potential of 86 additional pupils by 1999-2000.

Table 2 depicts actual enrollment figures for the high school based on the Fall Report:

Table 2

Actual Enrollments from 1994 - 2000

Year	Gr. 7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Spec.Ed	Total
1994-95	140	141	147	125	124	139	80	896
1995-96	138	127	159	134	118	125	75	876
1996-97	155	130	139	137	145	124	78	908
1997-98	127	151	144	130	136	132	114	934
1998-99	149	125	149	144	130	145	82	924
1999-00	150	128	132	148	154	130	108	950

Each of the district's curricular programs tends to have its own unique characteristics. The philosophy of the elementary grades tends to focus on the whole child. The major academic areas of Reading, Language Arts, Spelling, Mathematics, Social Studies and Science are taught as well as Art, Music and Physical Education.

The Developmental Kindergarten Program is designed for children who are five years old but are delayed in some skill areas, particularly language. Participation in this program will hopefully allow the child to succeed in a traditional kindergarten program in the following school year.

Within the elementary program, computer and library skills are considered to be essential in order to succeed. In addition, guidance is offered to primary students and parents through the services of an elementary guidance counselor.

The middle school program has helped Maple Shade students to be better prepared to enter high school due to specific organizational strategies. All students in grades four, five, and six are in a contained classroom with heterogeneous grouping. This is usually the case, with the exception of Reading, when the students are grouped according to their level of ability. The curriculum includes Mathematics (emphasis on problem solving); Language Arts (emphasis on grammar and writing); Science (emphasis on hands-on experiences); Social Studies (emphasizing various regions in the United States); and Family Life Education.

Students at the middle-school level attend Art class two times per week for twelve weeks, Music class three times per

week for twelve weeks, and Physical Education three times per week for the entire year. Each student is scheduled for the computer lab once a week and receives computer instruction for a six week period. Extra-curricular activities include musical productions, a talent show, a spelling bee, and field trips.

The Junior High program, grades seven and eight, is housed within the high school. They have the same administration, teachers, policies and philosophy, but they are physically separated from the high school students.

According to the philosophy of the Junior High, students are placed according to ability within each subject area. Thus, the program is structured according to broad ability grouping. Classes are categorized as advanced, average, or below average.

An accelerated program is offered to eighth graders who have demonstrated academic success in previous years. Such a student is then able to take high school level courses and complete a fifth year of these subjects before high school graduation. The Junior High curriculum also offers cycle courses. These are a series of five-seven week courses in the Fine and Practical Arts. It is believed that through these courses students can better discover their likes, dislikes and interests before entering high school.

Other activities in which Junior High students may participate include assemblies, dances, class trips, Junior High Yearbook, Student Advisory Committee, and the end-of-the-year picnic.

The curricular program at Maple Shade High School supports the notion that this school is one of the few truly

comprehensive high schools in New Jersey. A Cooperative Education Program is offered in addition to normal college-preparatory courses. The Co-op program includes the following: Office Education, Industrial Education, Computer Technology, and Marketing Education. The high school also offers business and general programs.

The high school houses six computer labs. Some are designed for introduction and programming while others are used primarily for word-processing and business courses. Two of the labs are designed for mechanical drawing and drafting.

Advanced and Honors courses are offered to the academically-gifted students. These courses include but are not limited to the following: Advanced Chemistry, Advanced Biology, French, and American Studies. Approximately 50% of the student body is college preparatory (Sherry).

Maple Shade High School offers a vast array of extra-curricular programs from which the students may choose. The extra-curricular program allows the students to be more well-rounded while helping each student to develop socially and to use leisure time wisely.

There are thirty-three varsity, junior varsity and freshman teams which represent the high school at the interscholastic athletic level. There is also interscholastic competition and six intramural programs at the junior high school.

If a student is not athletically-minded, there are several other ways that they can be involved outside of the classroom. There are clubs within the high school which incorporate a wide range of interests including literary, career, civics and drama.

Other activities include the Math Team, Chorus, and the Marching Band. The DECA club (Distributive Education Club of America) has gained a regional and state reputation and has represented the school on a national level. If a student wishes to be involved in student government there are many avenues that can be explored. These include the Senior High School Student Council and the Student Advisory Committee.

It often seems amazing that a fairly small school can offer so many opportunities for student participation outside of the classroom. If none of the previous activities mentioned thus far seem appealing, then a student may enjoy one or more of the following: musicals, assemblies, talent show, dances, Spirit Week, senior trip, prom.

The special education program at Maple Shade High School is, by far, one of the most inspirational and needs-oriented programs in the district. The program is designed to meet the needs of those students in the district who have been classified as having a learning disability.

A psychologist, social worker, and learning consultant make up the Child Study Team. They assist in the decision-making process for programming those students who may need extra support or alternative programming in the classroom. The Maple Shade school district, in accordance with special education and other state laws, recognizes that each student is entitled to an education in the least restrictive environment and is to be mainstreamed wherever possible.

There are many special education programs offered to those students in grades kindergarten through sixth grade. There

are programs for perceptually, orthopedically, and hearing impaired students. Speech therapy and supplemental instruction are also available to special education students whenever deemed necessary.

Special education programs are also available to those students in grades seven through twelve in the high school. Besides similar programs that are offered in the elementary grades, students in the high school can receive additional support in a resource room setting where there may be both a regular and special education teacher.

In addition to these services, other professionals, such as a physician, psychiatrist, neurologist, occupational and physical therapist, and an interpreter of the deaf, service the district.

There are also other special programs that satisfy a variety of situations and needs within the district. Remedial programs are offered in the areas of Reading, Mathematics, and Language Arts. There is a Gifted and Talented Program offered to those students who are categorized as academically gifted. Homebound instruction is available to students who are very sick, whether at home or in the hospital.

The Maple Shade district has always been dedicated to meeting the needs of all students regardless of any special problems they may have. Guidance counselors, student assistance counselors, a student assistance committee, and career specialists are all available to students throughout the school day.

In order to truly understand the Maple Shade school district, one must visualize the overall profile of the staff.

Most administrators have been with the district for more than fifteen years in various roles. Suffice it to say, the administration is quite a veteran staff with a great deal of experience. Ethnically speaking, the administration is an all White staff. According to the Maple Shade Board of Education's 1998 personnel records, all administrators have attained at least a master's level education. Information pertaining to both the administration and the faculty is shown in Table 3.

Table 3

**Administrator and Faculty Academic Degrees**

	BA/BS	MA/MS	PhD/EdD
1994 - 95	62%	38%	0%
1995 - 96	63%	37%	0%
1996 -97	63%	37%	0%
1997 - 98	63%	36%	1%
1998 - 99	68%	31%	1%

Each administrator seems to have similar educational beliefs and all are focused on achieving the mission statement of the Maple Shade school district.

The non-administrative professional staff include all teachers, nurses, child-study team members, and guidance counselors. Board of Education personnel records show that most of these professionals have at least ten years of experience in education and 27% have twenty years of service or more. At the present time, the staff is composed of 46 males and 117 females

(Fall Report).

Non-professional staff are primarily local residents who serve the district in various capacities as both full and part-time employees. The support staff is made up of bus drivers, classroom aides, secretaries, cafeteria workers, and maintenance workers. Each group is a vital part of the school facility and educational process in one way or another. All groups are extremely dedicated to the students and the overall success of the school district.

The student population of Maple Shade experiences some changes due in large measure to the transient population present in the township at any given time. Most of these students reside in the many apartment dwellings in the township. Some of these students also live in local motels until permanent residences can be found. Some of these students come from urban areas and sometimes have difficulty adjusting to the smaller suburban environment. However, through various support programs, especially within the high school, most of these students are successful in their academic endeavors. Currently, 83% of the student population is White, 8% is Black, 3% is Hispanic, 1% is American Indian and 5% is Asian (Fall Report).

The intern will complete the internship at Maple Shade High School. The high school has an enrollment of 842 students and 108 staff. It is accredited with the State of New Jersey and the Middle States Association. Maple Shade High School is dedicated to the attainment of the following goals:

1. To provide educational opportunities commensurate with students' abilities and needs, and to provide a



stimulating and pleasant learning environment within reasonable limits.

2. To expose its students to a variety of educational experiences: academic, vocational, physical and artistic. The range of offerings should stimulate an intellectual curiosity, assist the student in making career choices, develop an awareness of personal responsibilities, establish sound health habits, and provide direction for recreational activities.
3. To prepare the students for worthy citizenship through the encouragement of creative thinking in an effort to meet the challenging world of change.
4. To encourage self-awareness and the values of honesty, integrity and responsibility (Teacher Handbook, 1998/99, p. 51).

Students in grades seven and eight at the high school are required to take a program that is designed to meet the needs of the junior-high student. A typical seventh and eighth grade program may include: Mathematics or Pre-algebra, Language Arts, Reading, French or Spanish, Science, Social Studies, Industrial Arts, Physical Education, and a cycle course.

High school students are required to accumulate 115 credits in order to graduate, according to the *Maple Shade High School Student Handbook* (pp.6-9). In addition, students must pass the *New Jersey High School Proficiency Assessment* (HSPA). In order to meet district requirements for graduation, a high

school student must successfully complete the following curriculum with a minimum grade of D:

1. One credit year of English for each year of enrollment, up to four years.
2. Three credit years of Mathematics.
3. Three credit years of Social Studies and History.
4. Two credit years of Natural or Physical Science.
5. One credit year of Physical Education, Health and Safety for each year of enrollment.
6. One credit year of Fine, Practical and/or Performing Arts.
7. One-half credit year of Career Exploration or Career Development (p. 34).

In grades nine through twelve, the elective portion of the program is planned individually. There are recommended patterns of subjects to be taken; however, no fixed "tracks" are required. The basic areas to be considered by the student and guidance counselor are Academic, Business, Vocation and Basic.

The Academic program tries to prepare the student to enter college with the ability to succeed upon entrance. This program is designed to challenge those students who plan to focus on a particular profession. The program can, in turn, be geared toward that profession. Biology II, Foreign Language IV and V, Chemistry AP, and Computer Science are all courses offered in the program.

The Business program prepares students in data entry skills. The district stays involved with several businesses and

allows students to gain valuable experience working in these fields through the cooperative education program.

The Vocational program meets three periods per day, five days per week and is designed to train students with entry level skills in the area of his or her choice. The program finishes with the student entering a work experience program in their senior year. Some of the vocational areas include printing, careers with children, and marketing.

The Basic program prepares students in basic skills and for the world of work. All students must enroll in a minimum of six classes.

A profile of the student population at Maple Shade High School shows that the school consists of a mostly White population with a small percentage of Blacks, Hispanics and Asians. The gender makeup is approximately 50% male students and 50% female students(Fall Report).

As of the 1997-98 school year, approximately 26% of the graduating class went on to four-year colleges, and 42% enrolled in two year colleges or vocational education programs(Fall Report).

The grading policy at Maple Shade High School is fair and consistent. Items entering into a complete evaluation of students achievement include: tests, homework, classwork, participation, attendance, projects, and term papers. In addition, semester and final examinations are given in all grades, seven through twelve, in the areas of English, Social Studies, Mathematics, Science, Foreign Language and Reading.

There are four marking periods in an academic year with report cards distributed at the end of each marking period. Students also receive interim reports midway through the marking period so that parents can be informed of any academic difficulty that their child may be experiencing.

Until recently, students at Maple Shade Junior/Senior High School in grades seven through twelve were assigned letter grades with the corresponding numerical values given on the report card. Now, however, the actual numerical average appears on the report card for each subject. This grading policy change occurred in the 1998-99 school year and appears to have been fairly effective in clearing up grading discrepancies that have occurred in the past.

In order for a student to pass a course for the year, he or she must pass three out of six marking periods with at least two passing grades in the second semester (Student Handbook, p.8).

The Maple Shade school district considers attendance to be a very important part of the educational process. It is believed that frequent absences disrupts the continuity of this process and restricts the student's ability to successfully complete the course of study. Thus, an attendance policy that is applied consistently across the district is a crucial component of success for Maple Shade students.

According to the policy, a student who has excessive absences must be prepared to complete a credit completion program.

A Credit Completion Program is in place to eliminate

"no-credit status". A student must attend all specified sessions and complete all assignments to the satisfaction of the teacher in order to receive course credit(Board of Education, Policy Manual, # 5-110).

There is an outstanding co-curricular program in place at Maple Shade High School. It is considered to be a vital part of the overall educational program. As a result of the program, most students seem to experience a "sense of belonging" to the school that extends beyond the walls of the classroom (Student Handbook, p.46).

Maple Shade students are proud of their involvement in extra-curricular activities with 73% of the student body involved in such activities. The majority of the extra-curricular involvement falls in the area of athletics. There are many activities that a Maple Shade student can participate in during the school year. These activities include the following:

Football	Boys Basketball	Boys Soccer
Wrestling	Baseball	Cross Country
Track	Softball	Field Hockey
Girls Basketball	Girls Soccer	Lacrosse
Girls Bowling	Band & Orchestra	Cheerleading
Intramurals	School Newspaper	Yearbook
Chorus	Student Government	Musicals
Student Council	French Club	Drama Club
DECA	Media Club	Spanish Club
Computer Club	Honor Society	FBLA
Health Club	Math Team	Majorette & Color Guard

All students are encouraged to participate in extra-curricular activities while attending Maple Shade High School. However, all are reminded that these activities should not hinder their academic progress in any way. If grades begin to fall for a student, there is the chance that the student may become ineligible to participate. To be eligible for participation, a student must meet the scholastic requirements set forth by the *New Jersey State Interscholastic Athletic Association* (NJSIAA) (Student Handbook, p.46).

The Athletic Department has proven to be quite successful throughout its twenty year history. There have been championship teams in Cross Country, Football, Basketball, Baseball, Track and Bowling. In addition, the school has been the recipient of the Burlington County Sportsmanship Award eleven times. Outside of the sporting arena, the DECA Club (Distributive Education of America) has received regional, state, and national recognition several times as a leader in marketing education.

The high school administrative structure begins with a principal, two vice-principals, a Director of Pupil Personnel, and three area supervisors. The academic areas of supervision are divided into Mathematics and Science, English and Foreign Language, and Special Education. All of the administrators hold at least a master's degree in their field.

The faculty at Maple Shade High School consists of 62 teachers, one librarian, one nurse, one computer coordinator, and a media paraprofessional. There are 37 men and 29 women on the staff and all but five teachers have tenure. Twenty-five teachers

have their Master's degrees and 41 are at the Bachelor's level. Ethnic profiles indicate an all White staff at the present time.

There is an experienced faculty with over 50% of the staff residing at the maximum level of the salary guide (Fall Report). In addition, the staff demonstrates a great deal of dedication to the school with over 70% involved in co-curricular activities.

A typical school day at Maple Shade High School begins at 7:40 a.m. and ends at 2:15 p.m. for students. Faculty are expected to arrive twenty minutes prior to the beginning of school. In addition, all faculty are expected to stay at least 20 minutes after school officially ends at 2:15 p.m. The school day consists of eight periods. At present time, teachers are asked to volunteer to teach a sixth class if they so choose. Administrators decide, according to district needs and enrollment, who will actually need to teach the extra class. Any teacher who is required to teach six periods is compensated for the additional class according to the negotiated contract.

Faculty are required to attend meetings a few times per month. Department meetings are also held by the area supervisors as needed.

Staff development is considered to be extremely important at Maple Shade High School. There are at least five inservice days built into the academic calendar each year. These days give the professional staff the opportunity to keep abreast of any recent changes in the field of education. It also offers each staff member the chance to learn new instructional techniques while exchanging various professional ideas.

## Significance of the Study

The ability to use technology as an instructional tool is something that today's classroom teacher must be able to do as we enter the new millenium. Technology is all around us and it is constantly changing. Most schools today have substantial amounts of hardware and software. Simply installing technology in schools, however, has done little to promote the kinds of changes that our schools and teachers require. One reason for this shortfall is a lack of appropriate professional development. Basically, teachers fear technology because they haven't been properly trained how to use it for instruction.

The intern strongly believes that technology proficiency is a basic and necessary skill for our teachers, and more importantly, the students that they teach. This project will benefit several distinct groups as well as the district as a whole.

Maple Shade students will benefit since they will become more familiar with computers. They will reap the rewards that accompany computer proficiency such as potential higher academic achievement as well and better preparation for a computer-oriented future. Students will gain valuable confidence in utilizing the computer's "world of knowledge". They will begin to see the computer as an additional teacher in the classroom; one that can expand upon ideas that have been presented by its "human" counterpart.

Most current teachers attended a K-12 educational system and teacher training program that emphasized didactic instruction. These teachers need professional development experiences that address new pedagogies as well as training in



the use of technology. If teachers are to develop an integrated curriculum, for example, they must have a knowledge base of the relevant content areas and know the appropriate instructional methods and how to use these methods within and across content areas.

The project will benefit teachers who may not feel comfortable using a computer on a daily basis for instruction. They will begin to feel more confident and, with new found confidence, will come creativity in the classroom. This is extremely significant since the end result will be an active learning environment that will help to stimulate an increase in student involvement in the lesson.

#### Organization of the Study

Chapter One was intended to provide a detailed illustration of the internship setting, including a detailed profile of the district, its administration, faculty and students. Historical and cultural information was presented from the onset of the district's existence to present day. Also, a comprehensive picture was painted of the actual site location, Maple Shade Junior/Senior High School.

In Chapter Two, the intern will present a review of the literature as it pertains to the goals and objectives of this particular study. This chapter may give credence to the intended goal of the study. It will provide the reader with important information about the research context of the study and support rationale for the importance of the study. The intern's research design will also be presented in this chapter, including instrumentation and the data analysis plan.

Chapter Three will focus on the design of the study. This section will address the five areas related to the research design. These areas include the following: description of the research design, description of the research instruments, description of the sample and sampling technique, description of the data collection procedures, and a description of the data analysis plan.

In Chapter Four, the intern will present the research findings and explain their significance.

Finally, Chapter Five will describe the conclusions that may be reached as a result of the intern's study. Additionally, implications of the study and areas that may require further study will also be addressed in the final chapter.

## CHAPTER 2

### Review of the Literature

#### Problem Statement

According to the Department of Education in the state of New Jersey, teachers must begin to make a conscientious effort to begin to use technology in the classroom. The Core Curriculum Content Standards, adopted by the state in May of 1996, identifies standards in eight content areas and five cross-content workplace readiness skills. One of the skills outlined in the standards specifically focuses on the area of technology, stating that "all students will use technology, information and other tools." (New Jersey DOE, 1996, p.ii).

At Maple Shade High School, district personnel, teachers and administrators, have made every effort to integrate technology into the curriculum. In fact, there have been dramatic improvements in the technology department in the past five years at the high school. Computer labs have been set up in the school and many classrooms are now equipped with one or more computers. Some computers provide e-mail and all teachers have been given an e-mail address. In addition, the Internet is now accessible to all staff who wish to use it (Maple Shade Technology Plan, 1998). The problem is that many teachers do not have enough experience or training with computers that would allow them to use the computer on a consistent basis within the classroom.

The intern believes that teachers are not ready to use the available technology. Many of Maple Shade's veteran teachers did not have access to computers while attending school themselves

and thus many feel out of place when trying to incorporate a computer into their lesson. Paper, pencil, books, chalk and perhaps an overhead projector are the learning tools they are accustomed to using in the classroom.

Suffice it to say, Maple Shade has made a tremendous investment in hardware and software as per the technology plan that was established. However, the intern believes that there are not sufficient resources to assist the teachers to incorporate technology into the classroom on a consistent basis. The intern recognized this need and set out to develop a plan that might allow this to happen. With the help of staff and administration, the intern hoped to set this plan in motion and help teachers to feel more comfortable using technology as part of their daily lessons.

#### Supporting Studies

According to the Office of Technology Assessment (OTA), many teachers in today's schools do not receive the training in the area of technology that would allow them to use it effectively in the classroom (Office of Technology Assessment, 1997). Teachers can often feel illiterate when it comes to integrating a computer into the lesson simply because they haven't been trained on how to do so. There seems to be a lack of technology-based professional development for today's classroom instructor as we enter the technological new millenium. Instead, many workshops are focusing more on how students learn as opposed to training teachers to teach using newer technologically-based strategies (NCTE, 1988; National

Commission on Social Studies in the Schools, 1989; NCTM, 1989; NSTA, 1989).

Basically, teachers are not being shown how to use available technology as a learning tool in the classroom. A study by Fulton (1988, p.34) concluded that almost two-thirds of all teachers have had less than ten hours of computer training. According to this study, the hours of training centered primarily on word-processing skills instead of computer literacy itself.

Another study in the intern's search addressed the concerns of computer integration into college courses (Greene, 1996). This study was conducted in order to determine how often computers were used as a learning tool in the college classroom. Greene found that many professors cited the number one reason for reluctance to use computers during their instruction as time constraints. They claimed that there simply wasn't enough time to delve into computer-related activities. Simpler and traditional teaching tools were much easier to find and could be incorporated much more quickly.

A second downfall discovered in the Greene study (p.45) was that many college professors simply didn't have access to the hardware that would be necessary to complete the lesson objective. The financial constraints associated with budgets of some smaller schools can often hinder the ability to purchase the required hardware and software.

One study by Buschsbaum noted that teachers in fields of quantitative study such as math and science were much more likely to move into computer instruction; while teachers in other areas were somewhat more reluctant to do so. Another

conclusion of the same study indicated that computers did not divert the attention of the students away from the traditional subject that was being taught (Buschsbaum, 1992). The study leads the intern to believe, therefore, that computers may be more easily integrated into some subject areas as opposed to others.

Niederhauser tells us (1996, p.72) that early software producers used principles of instructional design to develop tutorial and drill-and-practice programs. As the computer came into its own, more complicated educational tasks were required of the teacher and the student. "Software developers thought teachers would require little training to use computerized instruction with their students." However, according to the study, the initial purpose of the computer in the field of education was as a teaching machine that would take over many instructional responsibilities and even eventually replace the teacher in the classroom.

Some studies in the literature review indicated that computers actually made a teacher's job more difficult instead of easier. A study conducted by Bitter and Yohe (1989) examined the state of computer usage in elementary schools. The study was designed with the intention of making recommendations about future integration of technology into the classroom. The conclusions of the Bitter and Yohe study indicate that time and support are essential if computers are to be effectively integrated into the classroom. When these two factors were not considered, according to the study, teachers claimed that they did not feel confident with ideas being taught in their classroom.

In addition, when the teachers in the study did not receive proper training in technology their job was said to be a much more difficult task. Basically, the teachers and their students were unsure of the material (Bitter and Yohe, 1989, p.15).

It is clear from the research that there are many factors to consider when trying to implement a technology-enhanced curriculum within the classroom. In a study conducted by Stoddart and Niederhauser (1996) many other barriers were realized when considering an integration program. For example, some traditional staff development issues must be addressed. Providing the necessary time for professional development for teachers can present a problem. Should the training take place during regular school hours? If so, are substitutes readily available? Another question raised in the study involved teacher compensation. How will teachers be compensated if professional development occurs outside their regularly scheduled day?

Other studies in the literature dealt with the overwhelming importance of the teacher in the classroom who regularly uses technology during instructional time. One study involving three small school districts in Indiana found that the teacher is the most important ingredient for success when using technology. Research findings showed that the computer and software were secondary when making considerations for a technology plan. Important elements of a successful program were: training being conducted in the school where student instruction took place, extensive training of a few teachers rather than superficial training for many people, and developing expertise before putting the technology in the classrooms. This

study is particularly relevant since the same elements should also be considered when instituting such a program at Maple Shade High School. It also focused on ways to develop lesson plans to use technology in the traditional curriculum (Russell, Sorge & Brickner, 1994, p.66-70).

The importance of the purpose of the intern's study is supported by the literature in several instances. One study mentions that principals must take an active role in supporting teachers as they develop information age classrooms. Administrative support is necessary if teachers are expected to take an active role in improving their knowledge of the computer. According to the study, only with technological and information literate teachers, supported by knowledgeable and forward looking administrators, can we help our children become productive participants in the information society (Bennett, 1996, p.22).

Most of the studies that the intern reviewed point out the fact that teachers need training and support if they are expected to change their instructional practices and address the needs of a more technological society. Recent studies tell us that many schools across the country are spending vast amounts of money on technology resources. The problem seems to be that they are not spending the money in the right areas. There is no doubt that spending money on hardware and software is an important step. Allotting funds for the networking of computers and for Internet access is equally important. However, these same studies further suggest that school districts need to make a commitment



to help teachers gain the knowledge and skills necessary to teach in a computer-integrated classroom (Hawes, 1997, pp.28-31).

As part of the internship study, the intern will explore ways we can bring technology into the classroom. Many teachers, including many from Maple Shade High School, completed their professional training before the technological age in education. However, those same teachers are expected to use technology on a regular basis with their students even though they themselves feel intimidated by it. Only when teachers become comfortable with the technology will students reap the benefits.

A separate section of the literature focused on those teachers who had actually been through computer-oriented inservices. In one study, many teachers felt enlightened after the workshop. Some claimed that they were just starting to feel more comfortable using a computer to actually teach, as opposed to the old "drill and practice" routine. Advice was given on how to conduct a technology in-service. In this area of literature Rebecca Clemente, a professor at Kent State University (Clemente, 1991, p.28-29) offered the following advice: establish a collaborative approach to training by asking the teachers to assess their own needs. She also encouraged on-site training during which teachers teach other teachers. Finally, Clemente suggested that no training would be complete without follow-up (p.29).

A study by Armstrong, Davis and Young (1996, pp.81-84) indicated that teachers can eventually become more comfortable using a computer on a regular basis in the classroom. "Teachers who were so intimidated by computers that they avoided being in

the same room where they were discussed have become lead teachers in their schools in the area of computer technology."

The study suggests that in order for technology to be successfully integrated into the classroom at the middle and high school levels, there must be a model for staff development.

The first step to be taken, according to Armstrong, Davis and Young, is for principals to address a number of questions, among which are the following:

- \* What type of professional development works to help teachers understand technology?
- \* How does professional development involving computers affect the teaching/learning environment?
- \* What are the potential obstacles in the process of technology integration?
- \* How can principals support this process?

As part of the study, Computer Assisted Teacher Talk (CATT) was established to be used for the 1993-94 school year. CATT was a program to help teachers learn to use computers to foster a love of learning in their students (Armstrong, Davis and Young, 1996, p.81). The program was designed in order to expose students to the use of computers as a tool for learning. Students in the study were unable to learn from computers because their teachers were afraid to use them. Staff development workshops were used more readily to reinforce how little teachers actually knew about computers rather than actual training. The workshops made it sound extremely complicated to use the computer as a learning tool in the classroom (p.82).

A review of the results of the study showed that the design of a technology workshop must lend itself to adult learning theories. There must not be professional isolation and teachers should be allowed to work together as the training takes place.

Further review of the Armstrong, et al study indicated that administrators should become involved in training with teachers, not only to learn the computer skills, but to build trust and become a member of a community of learners. The facilitators should have a great understanding of professional development and how to support it. Principals must know the needs of their individual staff members in the technology area. Basically, if a program such as CATT is to succeed, teachers who "graduate" from the program would need to return to create similar classrooms (p.88). The study based on the CATT program contains many elements that help to support the ideas proposed by the intern's project.

Several studies in the literature stressed the importance of teachers being lifelong learners. As mentioned previously, many teachers in our schools today did not grow up with a computer in their household or in the classroom. Today, computers have become commonplace for the students that we teach. The intern believes that we must find a way to bridge the technological gap that currently exists between the teacher and the student. When the teacher is a lifelong learner, students will be the ultimate beneficiaries.

A study by Hoffman echoes the idea that teachers need support if they are to use technology effectively in the

classroom. Students must have the opportunity to have significant technology experiences in the classroom as we enter the new millennium (Hoffman, 1996, p.89).

According to the Hoffman study, many teachers are not motivated to take technology seriously. Those teachers often see some of their colleagues teaching without a computer and, therefore, believe it to be an unnecessary element in the classroom. After all, Hoffman says, it would probably take a great deal of time and effort to catch up with the current trends in technology and it just doesn't seem worth it to those teachers (p.90).

The study further suggests that there may be other reasons that teachers are reluctant to use technology in the classroom. Some simply don't have a computer in their classroom. Some don't have access to the software that could serve their curriculum and their students. Others may have the software but don't know how to integrate it with what they are currently teaching. Still others believe that their current methods of teaching won't coincide with the newer methods that involve technology.

Many teachers simply don't feel comfortable using a computer themselves, let alone trying to teach students with one. According to Hoffman, teachers have many fears about teaching a lesson or unit with a computer. They worry that if something goes wrong in the lesson there might not be anyone there to help. Some worry that if the computer breaks they will have no way of completing the unit. The latter is especially true if there is a system breakdown and it takes a long time to fix it.

Furthermore, teachers rarely have the dozens, sometimes hundreds, of hours it takes to become comfortable with digital technology (p.90).

On the positive side, some teachers may actually overcome their fears and try to use some technology in the classroom. However, this may happen less frequently since teachers often don't receive the recognition they deserve for trying the new methods. Verbal praise from administrators can have a huge impact on the teacher's decision of whether or not to continue to teach with technology (p.91).

There are eight basic elements to consider when trying to create an environment in which teachers receive the support they need for using technology in the classroom. They are as follows:

1. Administrative support
2. Staff development and technical support
3. Availability of technology
4. Technology use plan
5. Technology coordinator
6. Facilities and maintenance
7. Assessment
8. Broad participation

All administrators must show strong leadership if teachers are to succeed in their technology efforts (Vitchoff, 1989, p.23). Teachers need to believe that the leaders of the school expect them to use technology in the classroom. As time goes on, teachers will begin to use it on their own (Becker, 1992).

Hadley and Sheingold (1993) also recognize the importance of administrators praising and sometimes rewarding those teachers that attempt to use technology in the classroom. Opportunities for professional development and financial rewards are possible methods for accomplishing this. Administrators can also motivate teachers to adopt technology by "framing its use in school restructuring and tying it to curricular goals" (Davis, 1991; Sheingold, 1993).

There is no doubt that technology does complicate teaching. Staff development and technical support are extremely important if teachers are expected to use new technologies. Research suggests that teachers learn these new skills through self-study, conferences and workshops on their own time, college courses, inservices offered by the district, non-service courses offered by the district, coaching from other teachers, and on-site instruction by consultants. According to the study, teachers need approximately five to six years of staff development in this area (Hadley and Sheingold, 1993, p.92).

Some studies in the review of the literature agree on how to schedule staff development. Glenn (1993) proposes a method in which teachers, over time, train one another. The technology training is done for a small group which goes on to teach the next year's group, and so on and so on. Other studies concur with this effective system (Russell, Sorge, and Brickner, 1994, p.56).

Availability of technology is another element to consider when trying to create a technological school environment. Issues such as quantity, quality and access must all be considered.

Simply put, if the computers aren't available, teachers and students can't use them.

In today's schools Carvin (1997) reports that "as the size of schools increases, the number of computers per average classroom (30 students) decreases"(p.2). This study suggests that numbers range from 3.7 computers per classroom for small schools to only 1.6 per classroom for large schools. Rural communities tend to be above the average and urban communities are consistently below it.

Support factors can be formalized by the development of a technology use plan. According to the research, this plan should usually be long-range and involve staff development and evaluation (Vitchoff, 1989; Paul, 1994; Russell, Sorge, and Brickner, 1994).

The literature consistently recommends hiring a district technology coordinator if there is the hope for teachers to integrate computers into their lessons. This person would be a staff specialist whose principle role is to coordinate technology planning and development. Research suggests that the hiring of a technology coordinator can lead to greater use of computers, more use of software, and greater use of computers as learning tools as opposed to drill and practice (Becker, 1992, p.95).

Another key element that must not be forgotten is the actual maintenance of the computer facilities. If equipment is consistently broken or repairs take too long then teachers again may be reluctant to use the technology.

Once again, there must be broad participation in the effort to create an environment in which computers are a mainstay.

Site-based decision making is a must in this type of situation. Principals and other administrators, parents, teachers, technology coordinator, superintendents, and school boards must all be actively involved in the process (Becker, 1992, p.96).

In conclusion, a review of the literature shows that computers and technology are a current reality and that teachers must be supported in their efforts to integrate the technology into the classroom. Integrated in-service training, according to the literature, would be much more effective than traditional computer-literacy training. Also, administrators should carefully assess their teachers' and students' needs as they organize their thoughts on creating a technology-filled school environment.

Finally, the standards presented by the New Jersey Department of Education seem to be supported by the literature. These standards should, and can be, met by the students if teachers are provided with the resources to allow them to help their students. The study conducted by the intern should add knowledge to this topic since few studies have focused directly on the issue of integrating technology into the classroom on a more consistent basis.



## Chapter 3

### Design Of the Study

#### General Description

The intern hoped that, as a result of the study, teachers in the junior-high at Maple Shade High School would use technology in their daily instruction on a more consistent basis. The type of research was action-based since the intern hoped to bring about a change in the overall attitude of the teachers toward the use of technology. The intern believed that more consistent use of technology in the classroom by the staff would improve learning and better prepare students for the future.

The design was based on the input and actions of the junior-high teachers. Through observations, interviews, and other techniques the intern developed and implemented a plan that would allow teachers in the junior-high at Maple Shade High School to feel more comfortable in using a computer as a regular tool of instruction, not unlike a chalkboard or overhead projector. Data was gathered before, during and after the implementation of the intern's technology plan.

#### Development of the Research Instruments

In designing the questionnaire for the study, the intern tried to keep the number of items to a minimum while also trying to word the questions in a way that each would be interpreted the same way by every respondent. The intern believed that if the questionnaire was too long then many

teachers might not take the time to complete it. The intern also kept in mind the data analysis procedures while developing the questionnaire. The intern tried to include only questions that were pertinent to the data analysis.

During the design of the questionnaire, the intern decided that open-ended questions would not be appropriate. Those types of questions would probably make it difficult for the intern to analyze later since the same question could be interpreted in different ways by different people. While developing the research instrument, the intern also tried to avoid using any kind of ambiguous wording. Only terms and phrases that were clear-cut in meaning were used. If the intern believed a term was ambiguous in any way then the term was defined as part of the question.

Another important instrument that was developed and designed by the intern was the Likert scale during the second half of the study. This scale was designed in order to measure the attitude of the teachers toward the use of the computer as a teaching tool. The intern actually developed this tool after speaking to several staff-members who had already voiced their opinion on the mandatory use of computers in the classroom. The intern was informed that all teachers would be required to teach one "technology-oriented" lesson according to the state standards outlined in the Core Curriculum Content Standards. Many teachers were not happy and even a bit fearful of having to complete such a task. This, coincidentally, made the creation of the Likert scale a little easier to design. The intern only had to walk about the school

and listen to hear the issues that needed to be included in this instrument.

Likert scales are usually designed so that approximately half of the items are worded positively, where agreement indicates a positive attitude, and half are worded negatively, where agreement indicates a negative attitude. During the development of the Likert scale the intern tried to avoid any kind of response bias. Although the intern had a good idea of who seemed to be pro-technology and who was con, the scale was developed in a way such that any type of bias would hopefully be counterbalanced.

A follow-up survey was also constructed by the intern, then explained and distributed by the intern at a brief faculty meeting. This survey was designed with the notion that teachers may provide more feedback about the technology plan once it had been implemented. The survey focused on how teachers were feeling about using technology in the classroom since the project was now over. Would they continue to use technology on a more consistent basis in the future?

Observations were done on a regular basis over the course of the project by the intern. The observations were usually conducted in an informal way and were often followed up with one on one interviews with various members of the junior-high faculty. The intern kept a detailed record of the observations and it became a crucial part of the research itself.

It is often said in the area of research design that the final outcome can be no better than the measures used to

collect the data. Thus, the intern based the instruments on measuring techniques that have been available for years. The intern did not try to reinvent the wheel. It is important to try to use measures that are as valid and reliable as possible. The intern attempted to do this.

It is virtually impossible to guarantee that all instruments used by the intern were valid. However, in the test of face validity, the observation technique appeared to be a valid assessment of a teacher's attitude and connotations toward the use of technology in the classroom. The intern did administer a preliminary check of the research instruments in order to reveal any ambiguities or weaknesses that may have been present.

#### Description of Data Collection Procedures

The intern began data collection by trying to discover how much experience the junior-high faculty had in the area of technology. A questionnaire was distributed to the teachers to determine who was familiar with a basic personal computer and who was not. This was an effective tool since teachers were allowed to respond to some open-ended questions about their use of technology. These responses, combined with other technology-related questions, helped to paint a picture of the junior-high staff and their dealings with technology within the school building. This also allowed teachers to provide information to the intern about their concerns of trying to use the computer in the classroom on a daily basis. Data collected at this stage in the study would

prove to be invaluable in gaining insight into the actual reasons that teachers had behind their fears of technology.

An inservice on the integration of technology was given to junior-high teachers in October, 1999. All teachers were encouraged to attend the technological training session. However, for the purpose of the study, the intern only focused on the junior-high staff while doing observations during the training. Fortunately, the Director of Technology at Maple Shade High School, along with the intern's field mentor, were there to guide and assist the intern during this session. The training consisted of hands-on experiences through all steps of the necessary process. Individual attention was given and handouts were used to help the teachers learn. The goal was to ease their anxiety of computers and to help them feel more comfortable and confident during their experience.

During the inservice and as a follow-up procedure, interviews were conducted with staff members. At this time the intern hoped to allow teachers to further elaborate on their initial concerns about the use of technology in the classroom. The intern was able to begin to brainstorm with the teachers about possible ways to alleviate these concerns. These "idea sessions" were very exciting , both for the teachers and for the intern!

The intern created an evaluation form to be used at the conclusion of the inservice and at the end of formal interview sessions. Teachers were asked to return it to the intern's mailbox as soon as possible.

Most of the interviews conducted by the intern during the data collection process were semistructured. Thus, some of the questions the intern asked each respondent were identical, but some were different. The intern also asked additional questions in an effort to probe for more information concerning the respondent's answer to an earlier question.

Through the interview process, the intern hoped to discover more detailed information about why some teachers were so reluctant to use the computer as a tool for learning in the classroom. The intern tried to follow an interview protocol, which consisted of the original questions written by the intern in addition to a list of probing questions to ask and the conditions under which the intern planned to ask them. During the interview process the intern also provided a form to the respondent on which he/she could note answers. The intern felt this was best since a great deal of notetaking by the intern may have inhibited or distracted the respondent.

#### Description of Data Analysis

The data of the study was analyzed in several ways. The results of the questionnaire based on the attitude scale toward technology were reviewed and analyzed first. The questionnaire was coded and the final responses graphed in order to easily see which factors contributed most to the teachers' fear of technology.

The attitude scale, a fifteen item questionnaire, was constructed specifically for this study, because review of existing instruments that assesses attitudes toward

technology have often proven to be ineffective in obtaining the true "feelings" of teachers toward the use of a computer in their classroom.

Content validity was established for this scale by the process of expert judgment. The technology coordinator, working along with several staff who were very experienced with the use of a computer in the classroom, reviewed the items for relevance. They also helped to classify the items as assessing either general attitudes toward the use of technology in the classroom or a blatant bias against the use of technology as a result of a bad experience(s) with a personal computer themselves. All items included in the final form of the attitude scale were judged to be content valid by the intern.

Some of the data in the study could not be expressed in numerical form. This data was presented in terms of number (symbolized by  $n$ ) and percentages. During analysis, this data had to be converted in order to be more easily understood in the presentation of the research findings. In addition, other data, such as responses to some interview questions, had to be interpreted at face value by the intern.

Following the questionnaire analysis, the interview responses were checked next. The intern attempted to interpret the information gathered during the interviews and subjectively assign meaning and provide definitions for any ambiguous terminology. The intern did not believe that a statistical test of significance was warranted by such a limited population.

Data gathered after the inservice on technology was also analyzed and possible conclusions drawn about the significance and relevance of the inservice according to the staff that participated. Again, the questionnaire was charted and the information described in detail.

Finally, a list of experiences and processes along with several professional competency objectives were provided to teachers so that they could provide feedback to the intern. These lists were reviewed by the intern in order to determine what experiences the junior-high staff possessed and what competencies they hoped to acquire. This analysis proved to be a collaborative effort between the intern and the staff. Verbal feedback during the final analysis procedure proved to be invaluable in tallying and interpreting the final results of the study.

As the data analysis procedure unfolded, the intern learned how the values and attitudes of the junior-high staff toward technology in the classroom could be described and how change could be promoted in the most effective way. In this section of the study, the intern demonstrated and described the type of evidence that was gathered in order to prove that the project was having an impact on the practice of the use of technology in the classroom on a more consistent basis.



## Chapter 4

### Presentation of Research Findings

#### Introduction

At Maple Shade High School, district personnel, teachers and administrators, have made every effort to integrate technology into the curriculum. In fact, there have been dramatic improvements in the technology department in the past five years at the high school. Computer labs have been set up in the school and many classrooms are now equipped with one or more computers. Some computers provide e-mail and all teachers have been given an e-mail address. In addition, the Internet is now accessible to all staff who wish to use it (Maple Shade Technology Plan, 1998). The problem is that many teachers do not have enough experience or training with computers that would allow them to use the computer on a consistent basis within the classroom.

This study focused on the steps that had to be taken if technology was to be incorporated on a more consistent basis into the lessons of junior-high teachers at Maple Shade High School. This study proved to be quite significant in that its success seemed to allow Maple Shade students to develop computer literacy and, therefore, feel confident and better prepared to enter the technological world that will face them in the new millenium. Society requires individuals to recognize the

need for information, identify and locate it, gain access to it, evaluate it, and finally organize and use it effectively. This project was designed to help our students and teachers to master the steps in the utilization of technology.

The internship study primarily focused on junior-high-school level students and teachers at Maple Shade High School. Data was gathered through observations, interviews, and surveys. Random sampling of students was used to test the effectiveness of the project. The intern hoped to discover better ways to promote learning through technology at the seventh and eighth grade level for both students and teachers at Maple Shade High School during the 1999 - 2000 school year.

As part of the internship study, the intern explored ways of bringing technology into the classroom. Many teachers, including many from Maple Shade High School, completed their professional training before the technological age in education. However, those same teachers are expected to use technology on a regular basis with their students even though they themselves feel intimidated by it. Only when teachers become comfortable with the technology will students reap the benefits.

A study by Armstrong, Davis and Young (1996, pp.81-84) indicated that teachers can eventually become more comfortable using a computer on a regular basis in the classroom. "Teachers who were so intimidated by computers that they avoided being in the same room where they were discussed have become lead teachers in their schools in the area of computer technology." The study suggests that in order for technology to be

successfully integrated into the classroom at the middle and high school levels, there must be a model for staff development.

The first step to be taken, according to Armstrong, Davis and Young, is for principals to address a number of questions, among which are the following:

- \* What type of professional development works to help teachers understand technology?
- \* How does professional development involving computers affect the teaching/learning environment?
- \* What are the potential obstacles in the process of technology integration?
- \* How can principals support this process?

During the research, the intern found that there were more problems to this age of technology than solutions. The most evident problems were keeping up with the advancement of technology, having educated and qualified people in the technology positions, and integrating the current curricula with the available technology. The other major problem, and the eventual focus of the intern's thesis, was that teachers resist the technology that is available to them. The intern's research suggests that most teachers are still using the behaviorist approach of teaching with little or no supplemental materials. The majority of staff members are not combining computers or any other technology on a consistent basis with their subject matter.

The Maple Shade School District seems to have the same problem with their faculty as was evident throughout the intern's research of the literature. The majority of staff members are still teaching with chalk and blackboard, along with conducting their classes in a behaviorist manner. According to the results of the intern's study, it appears that the Maple Shade School District has made, in the past, the same mistake that many other districts have made in their attempts to integrate technology. There have been problems with the purchases of hardware and software (budget), conflicts on the set-up of computer labs, and confusion in the determination of what brand of computer to use in the school. However, the results of the study also indicate that, as time passed, the district has learned from its past mistakes. The technology department has developed, expanded, and flourished in recent years. Many of these problems have been straightened out. Today, the Maple Shade technology department is solid in both availability of resources and quality of resources.

In developing a plan for the more consistent integration of technology by the staff of Maple Shade High School, the intern was able to establish ten criteria. These criteria are based on survey and interview responses conducted over the course of the study. In order to have an effective technology plan, the following guidelines should be in place:

1. Call for a yearly review - teachers cannot be expected to effectively incorporate technology into their daily lessons if it is outdated. Because of the speed with which

technology is changing, the five to ten year plans simply do not work. Therefore, a yearly review for revision and annualization is in order.

2. **Focus on applications, not technology** - before starting your technology purchases, form an internal analysis to discover what precisely your staff, student body and administration need. This will cut down on any standardization of purchases and help determine the type of hardware and software that is needed.

3. **Go beyond buying technology to teach about technology** - include as much variety of technology as possible. Expose the students and staff to video, multi-media and audio technology as well as the standard word-processing and data-basing.

4. **Technology is more than computers** - there are many other types of technology that have appropriate uses in education. Include as many types of technology in a plan as possible.

5. **Stress integration of technology into the curriculum** - have the teachers ask themselves the question, "What am I teaching now that I could be teaching using some of the technology available to me?" Another questions might be, "What should I stop teaching in order to teach something about the computer?"

6. **Tie integration plans to staff development plans** - staff development must go hand in hand with technology development. The teachers must be made aware of what is

available to them in order for them to integrate it with their particular curriculum.

7. Make technology part of the daily cost of doing business - the most common problems of technology are often the availability of funding and/or the availability of time. School districts and teachers themselves must make accommodations to structure their time in order to be educated in the newer technology and be willing to take some additional time to try and learn it. The districts, however, must realize that instead of adopting new textbooks, monies would be better spent on software and developing media centers.

8. Effective technology plans have critical attributes based upon research - through a survey of Minnesota schools, four critical factors in successful use of computers by teachers were identified: on-site technical support (which Maple Shade supplies), access to adequate hardware, access to appropriate software, and long-term staff development and inservice.

9. Effective technology plans are developed by staff members who will, in turn, implement the plan - zero in on the staff members who are particularly enthusiastic about technology and let them be your voice to the not-so-enthusiastic. If one purchase of equipment is made for an enthusiastic member, then it may spread like wildfire.

10. Effective technology plans focus on a vision of the future - create a positive vision for the future. Do not focus on any of the negative. If a plan is thought through with the staff and the administration acting as a team, then everyone

will feel that they are a part of the movement toward achieving success.

According to the results of the intern's study conducted at Maple Shade High School, most staff members are still working on trying to change their teaching styles in order to better incorporate the technology into their lessons. The state of New Jersey, with its Core Curriculum Content Standards, as well as department supervisors are demanding that this happens. The majority of the staff at the high school were taught by teachers who used a didactic style of teaching in which one person (the teacher) runs the classroom through lecture or drill and practice. The push of belief to mix up the styles from didactic to constructivist is one of the major reform movements. This change is one that many, especially the seasoned veteran professionals, simply can't get accustomed to. Most staff members realize that the constructivist approach assigns the teacher more of a guidance supervisor role. It allows for more computer and group activities to take place instead of class time being dedicated to lecture and drill and practice.

Many aspects of work are changing at Maple Shade High School in order to better incorporate computers and technology. This, in turn, has allowed many staff members to notice a parallel change in the nature of schoolwork. This seems to indicate that computers will eventually come to be seen as necessary tools for students and teachers, but the other more powerful uses of computers for educational purposes will develop more slowly as computers become even more common in

schools and homes. All of these uses of computers tend to stray from the traditional view of didactic education that many teachers at the high school have a difficult time getting away from. During the research, several teachers have stated that using computers entails more active learning, and this change in practice will eventually shift the belief toward a more constructivist approach.

Along with the change of the teaching styles arises another problem of how to incorporate some of the software available at Maple Shade High School. Teachers are finding that they are using the computers more now than in recent years. However, most see it only as a different type of drill and practice tool. Instead of using the ditto or the textbook, teachers are using the computer. This problem arises partly from the need to retrain teachers. It seems that availability of time and money are crucial issues in this area. To make matters worse, much of the software available is geared toward drill and practice instead of conceptual understanding. The study suggests that districts must create a curriculum that will reflect the future.

Maple Shade School District must provide more training and explanation with the computers and encourage their faculty to take some chances, incorporating the computer more in everyday lessons instead of using it strictly as a game for reinforcement. The district must also emphasize the total integration of computers throughout all the subjects in school. For example, in business, students must learn how to operate a database. Since business is teaching a database concept, then some of the other subjects should also use databases. Perhaps a



history teacher could have a lesson or unit on databasing the Presidents of the United States.

In creating this type of curriculum, the districts should be cautious about two very important items. First, the workload of teachers is at capacity now, and the retraining of teachers will create more of a workload and a possible increase in burnout. Second, these curricula should not emphasize technology to the point of creating robots instead of people at graduation. We want students that are able to think critically when they leave us. The integration of technology into everyday learning should help us to focus on higher-order thinking skills. Upon entering the new millenium, we must think transformationally, teach transformationally, and learn transformationally.

Besides the retraining problem for the district, there is also the issue of economics. Maple Shade school district is not a wealthy district by any stretch of the imagination. As the software companies develop more conceptually-g geared software we can expect prices to increase. This economic problem is two-fold. First, the problem of a lack of funding for the school often causes them to purchase substandard software, which, in turn makes the software companies emphasize what the market will buy. The second part of this economic predicament is that the wealthier districts who can afford the technology will purchase it. This will create a different quality of education for those districts and a lesser opportunity for the poorer districts as a whole.

The ability to use technology as an instructional tool is something that today's classroom teacher must be able to do as

we enter the new millenium. Technology is all around us and it is constantly changing. Most schools today have substantial amounts of hardware and software. Simply installing technology in schools, however, has done little to promote the kinds of changes that our schools and teachers require. One reason for this shortfall is a lack of appropriate professional development. Basically, teachers fear technology because they haven't been properly trained how to use it for instruction.

The intern strongly believes that technology proficiency is a basic and necessary skill for our teachers, and more importantly, the students that they teach. This project will benefit several distinct groups as well as the district as a whole.

Maple Shade students will benefit from the intern's findings since they will become more familiar with computers. They will reap the rewards that accompany computer proficiency such as potential higher academic achievement as well and better preparation for a computer-oriented future. Students will gain valuable confidence in utilizing the computer's "world of knowledge". They will begin to see the computer as an additional teacher in the classroom; one that can expand upon ideas that have been presented by its "human" counterpart.

Most current teachers attended a K-12 educational system and teacher training program that emphasized didactic instruction. These teachers need professional development experiences that address new pedagogies as well as training in the use of technology. If teachers are to develop an integrated curriculum, for example, they must have a knowledge base of the relevant content areas and know the appropriate instructional

methods and how to use these methods within and across content areas.

The research findings will also benefit teachers who may not feel comfortable using a computer on a daily basis for instruction. They will begin to feel more confident and, with new found confidence, will come creativity in the classroom. This is extremely significant since the end result will be an active learning environment that will help to stimulate an increase in student involvement in the lesson.

The high school houses six computer labs. Some are designed for introduction and programming while others are used primarily for word-processing and business courses. Two of the labs are designed for mechanical drawing and drafting. The intern found that teachers sometimes find this to be frustrating. Although all labs are Internet accessible, some labs are rarely available without long-term planning on the teacher's part. The intern found that what some may see as teacher reluctance to integrate technology into the classroom, is actually not true at all. Instead, many times the computer labs simply aren't available. Simply put, there are too many students and classes and not enough computers.

There were other findings that were significant to the study. Most would agree that technology and its use in the classroom has the potential to give our kids the greatest educational opportunities available. However, until school districts admit that they don't have all the answers and are willing to go out and get the proper assistance, the educational world will be chasing its own tail for a long time. The intern has

found that planning is what is really needed. Planning out in great detail a strategy that takes input from everyone will help to cover every detail. All staff members should be permitted to suggest ideas concerning the types of computers, hardware, software, type of lab, and even the color of each computer. After all, staff and students are the groups that must be considered first since they are the ones who should be using the technology most. Getting input from the staff, from surrounding districts, from a professional company, and from the Maple Shade community will create better relations and help to drive down the cost of such a plan. Once a thorough blueprint is drawn, the district must review it again. The time spent on preparation will help all staff members to feel more comfortable using the technology as well as save thousands of dollars and hours in development.

Another important discovery involving the staff's "fear" or reluctance to use the technology available to them is closely related to the findings mentioned previously. According to the survey responses, an important step in developing a technology plan is to make sure that every one of the faculty is involved and consulted as to what is expected of them and how they are to be prepared and kept abreast of the latest technology. Discussions of workshops and inservice days will be necessary as well as discussions of procedures for computerizing gradebooks, lesson plans, and attendance. Many of these procedures are already in place. In several instances, the faculty was not consulted nor involved in the decision-making on these key issues.

if everyone is striving for the same goal, the transition and the benefits of the technology department will enhance the students' educational experience. Teachers tend to feel anxious about using a new tool in their everyday instruction if they were not consulted about which tool it is that they will be using. Training is crucial if teachers are to be made to feel comfortable using this tool on a daily basis. We must remember that many teachers in our classrooms today did not see the computer being used as a tool of instruction when they were in school. Thus, it is fairly normal to fear the unfamiliar or, without inservice training, the unknown.

According to the survey, staff members scoring high in the constructivist philosophy presented data that supported a student-centered focus of teaching rather than a teacher-centered focus. After hours of training and inservice, these same staff stated that they would be willing to try new things with technology and discover new ways to teach. Some already use the computers in the computer lab regularly and wish there were more available for their students. One faculty member stated that because she had to share the lab on occasion, she had to "figure ways to actively engage students who may not be using that equipment so they won't feel left out."

The survey also evoked other ideas on how to better integrate technology into the classroom. Staff claimed that they had often used hands-on activities in the classroom in the past but not nearly as much as when they were able to use the technology available to them. Although staff stated that using the computer for hands-on activities presented many new

challenges. Teachers now need to be more creative. While teachers have had their students make predictions and investigate them in the past - now when they do an investigation they must use the Internet and electronic resources. This adds a whole new twist to the art of teaching and learning and, at the same time, makes some teachers a bit apprehensive. Claims of possibly not knowing how to surf the Web as well as the students were also mentioned in the survey.

Ninety-one percent of the Maple Shade staff valued technology as a resource for motivating their students. They are glad that students can do things they could not do before, just as they see themselves doing things in teaching that were not possible before technology entered the classroom. The data suggests that teachers using technology are allowing their students to collaborate more effectively. As a result, teachers are beginning to work more collaboratively with other teachers. Thus, to get the teachers to use the technology on a more consistent basis we must continue the collaborative process. Teachers sometimes feel stuck in the classroom. In the past, they may get to share some ideas at workshops on occasion. However, as far as interactive, collaboration of teaching methods, sharing simply didn't always occur. The research suggests that teachers must go beyond simply sharing what they did in the classroom. Instead, they must begin to work on projects and activities together. Technology can bring teachers together to work on the same project.

Teachers that are using technology in the high school believe their philosophy has changed somewhat over the past

several years. One staff member stated that his "goals have been supported by what he can do with the technology". Some are using less direct instruction and spending less time using textbooks.

The results of the study also indicate that there are teachers at Maple Shade High School who enjoy being considered as traditional. Most of these teachers have a great deal of experience, usually at least twenty years in the classroom. They are not comfortable with a computer and rank high on the constructivist teaching scale. According to this group, discipline is the most important factor for teaching to be effective. They claim that the core ingredient in learning is discipline. New teachers are said to show a lack of discipline in the classroom. This, according to this group, is often the reason that their students do not learn. It has nothing to do with alternate teaching methodologies, such as the integration of technology.

According to the survey, the traditional group feels that teaching fads and activities have come and gone. There appears to be a need to get back to the basics. One faculty member noted with dismay, "Maple Shade should be in the Guinness Book of Records for the most education programs adopted and discarded in the past 20 years - it's amazing!" The survey and interview responses indicate that traditional beliefs about teaching have only gotten stronger over the years for this group of veteran professionals. This group uses direct instruction, focusing on the textbook as a primary guide, testing with multiple choice and short answer tests to evaluate students' progress. They claim none of this has been affected by computer use. Projects are

often seen as a bad idea since it is believed that students lose focus in such activities. Projects, especially collaborative ones, are seen as a waste of classroom time.

The traditional teachers reported that they closely monitor and supervise students in their work, and this also has not changed with computer use. They emphasize that close monitoring of students is particularly important when they are working on the computer. Although computers are used on rare occasions in their teaching, it happens mainly when it is forced upon them by their supervisor. These teachers believe that we need the textbook as an anchor. The text gives the basic and most important information that needs to be learned. The traditionalists point out that they made it through school with very little computer instruction in the classroom. They feel that if they could learn with minimal technology integration then so can their students.

A survey question asked teachers to indicate how closely their beliefs corresponded to one of a pair of questions:

*"I mainly see my role as a facilitator. I try to provide opportunities/resources for my students to discover or construct concepts for themselves."*

Versus:

*"Students really wouldn't learn the subject unless you go over the material in a structured way. It's my job to explain, to show how to do the work, and to assign specific practice."*



In their responses to this question, the Maple Shade staff was very supportive of the constructivist viewpoint (facilitator). The data suggested that usually staff members give students freedom to find their own sites on the Internet. Staff claim that teaching is also learning. The research suggests further that teachers aren't simply there to dispense information. Instead, they must work cooperatively with their students and learn from each other. Thus, a key to helping teachers to feel more comfortable using computers on a daily basis is to find a way to encourage this cooperative learning.

Another finding of the study indicates that teachers are less reluctant to use the technology available to them as long as they didn't need to drastically change their teaching beliefs or methodologies to do so. If teachers, especially those with a great deal of experience, are asked to make these changes, then there may be a great deal of resistance to incorporating a computer into their lessons. The study showed that technology offered these teachers a range of possible solutions which were reflected in the participant's belief structures. While none of the Maple Shade staff felt that using technology would change their teaching beliefs, all stated that they have used technology to support their teaching in ways that they felt were appropriate. Many of the faculty offered several examples of how they use technology in a way that meshes with their teaching philosophy. Thus, the intern discovered that the staff are not actually afraid of technology as much as they need to be sure that the technology fits in with their teaching beliefs. If this is proven to be true,

then staff members are more than willing to use the technology as often as possible.

It was also interesting to note that those at the high end of the constructivist scale seemed comfortable in moving in their own ways, going beyond an exclusive focus on test-based instruction, and using the technology as a way to move in new directions. Teachers feel as if they are given more freedom and this often encourages them to try and use the technology. Technology is seen here as a way of expanding the ideas within the original lesson. New ideas are often linked to old and exciting new information can also be gathered during the process.

All teachers in the study reported that they have changed instruction by having students conduct research on the computer. With limited and often out-of-date classroom textbooks and library resources, they were all pleased by the new resources the Internet makes available to their students. Even the most traditional teachers admitted that the computer allows more access to knowledge, more up to date information, and the core knowledge and facts that are often the basis of the subject studied.

According to the survey and interview responses, teachers seems to agree that technology has been a powerful motivator for students. The intern's research also suggests that as teachers noticed this motivation and excitement among their students, they too would often become excited about using the technology. This was seen as a motivator for teachers to use technology as much as it was for the students. Although the product of the student's work isn't always better than if they hadn't used the

computer, the staff claim that it is almost always more motivating to students.

Other findings of the study revolved around school and administrative support. According to the survey, sixty-two percent of the Maple Shade staff felt that the administration was very supportive of both innovation and technology use. Others felt that the administration was less supportive and these teachers felt inhibited by this lack of support. A large percentage of those surveyed simply stated that time is often an obstacle in their attempts to integrate technology into their lesson. This is clearly illustrated in Table 4.

Table 4:

**OBSTACLES TO THE USE OF TECHNOLOGY AT MAPLE SHADE  
HIGH SCHOOL**

REASON CITED BY STAFF	PERCENTAGE
Resources	15%
Training	10%
Time	55%
Other	20%

The culture of Maple Shade High School, according to the study, is one in which innovation often leads to improvement. Recently, a huge technology grant was issued and many computers were added to the high school. Computer stations were linked to the Internet during Net Day two years ago. Teachers were

encouraged to use technology more consistently by the administration who noticed that both teachers and administrators at Maple Shade High School seemed ready to commit the time and effort necessary to make technology an everyday part of the curriculum.

Teachers also felt that support in the computer labs must be available to them on a daily basis. Obviously, not every staff member can be a technology expert. Maple Shade has done well in this area lately by having available either the technology coordinator himself or a representative from the faculty. The study suggests that this may be another way to help teachers to feel more comfortable using the computer on a daily basis. If help is available in the computer labs, then teachers can relax a bit. If a question arises that they don't have the answer to, the support is there for them. Having the support in the labs creates a sort of comfort zone for the teacher who may not be experienced with all the idiosyncracies of the computer.

Teacher preparation and prior teaching experience were also cited as reasons behind the fear of technology. Maple Shade teachers reported that the way they were taught to teach was a major factor in their current teaching beliefs and practices. Staff claimed that the interaction between early experiences and system requirements were dual factors that influenced their teaching. Basically, teachers were taught to teach the way they were taught themselves. Those more willing to try using the technology went through a literature-based student teaching

experience. Reading literature, class discussion, and minimal homework were the key ingredients. Often, updated textbooks weren't available. Making the crossover into the world of technology seemed to be easier for these teachers.

The findings of the study also reveal that most of the staff saw very little use of technology in their teaching preparation. For these teachers, technology was used primarily for remediation. Drill and practice was a common use for the computer in their teacher preparation programs. This group claims that discipline is what is most important in the classroom. Responses suggest that this group is sometimes skeptical of the use of computers in the classroom as an everyday instructional tool. Supposedly, teaching fads come and go. Technology is just another one of those fads.

All staff agree that staff development is crucial if we are to see a change among the staff at Maple Shade High School. More inservices based on distance learning would be most appropriate. Staff development activities can be very influential to teachers. These sessions, when focused upon the needs of the teachers and students, can help to change attitudes toward technology and its many uses. Table 5 lists additional actions that should be taken if technology is to be integrated at Maple Shade High School (Technology Plan, May 1999).

Table 5:

**ADDITIONAL SUGGESTIONS FOR THE INTEGRATION OF  
TECHNOLOGY AT MAPLE SHADE HIGH SCHOOL**

ACTION	JUSTIFICATION	RESPON. PERSON	TIME	EVAL.	TOTAL COST
Hire full time trainer	Resource available to staff at all times.	Tech. Administrator	1 year	Trainer hired	\$230,000
Staff training schedule	Organized staff development maximizes use of technologies.	District Trainer	1- 5 years	Complete schedule	None
Set minimum tech standard	Input needed by many groups - reevaluate annually.	Superint, Tech. Admin.	1 - 5 years	Standard put in place.	None
Develop activities req. technology	The best way to integrate technology is to have activities that require its usage.	Area supervisors	1 - 5 years	Activity documented	None
Develop new curricula to drive use of technology	The curriculum will drive technology integration.	Area supervisors; building principal	1 - 5 years	Revised curricula with technology references.	\$50,000

The use of e-mail was also cited as a factor to consider when trying to inspire enthusiasm and change in the use of technology. Through e-mail, which was incorporated into the high school about two years ago, teachers are able to share pedagogical ideas during the course of a day. It offers a chance for teachers to reflect on practice and share creative ideas with colleagues. E-mail is used regularly in the high school and has

helped many staff to simply feel more comfortable with the computer. This, along with computerized lesson plans and grade books, is just another way of turning the fear of unknown and unfamiliar into more of an exciting and innovative everyday practice.

Fortunately, much of the data supports the notion that teachers, as a whole, seem to be willing to accept the idea that the students often know more about the computer and its many uses than they do. Some even reported that they often rely on students to help them with the technology. This was viewed as a pro for the use of technology since students had to assume more responsibility during the daily instruction.

Technology seems to provide a natural framework for opening the door to increased student responsibility and motivation in the classroom, which in turn impacts student and teacher roles. One teacher actually proposed a program in which students' expertise could be channeled into helping the staff. A group of students could be assigned as "tech support staff". Their job would be to assist those teachers who may not feel as comfortable with the computer. This type of program would be beneficial to the staff since it would provide needed support to the staff that require it. Additionally, it would have a motivational impact on the students who would be seen as traditional classroom stars.

Observing that teachers who use technology on a fairly consistent basis are those most likely to support a teaching style that reflects constructivist teaching practices, Becker (1998) suggests two possible theories that might explain this change:

\* *A Theory of Technology-Induced Belief Change* : This theory suggests that computers encourage and may require changes in practice that do in fact change the pedagogical beliefs of teachers as they use the technology. Becker refers to this as the "Trojan Horse" theory, a metaphor that suggest that when computers are brought into the classroom, teachers use more constructivist teaching approaches even if they had not subscribed to them previously.

\* The second is *A Theory of Facilitating Conditions* . This states that computers are catalysts that support changes in teaching that match preexisting personal philosophies and make it possible to put them into effect. The computer affords the opportunity to try out these understandings and pedagogical points of view. This theory would explain some, but not all the changes exhibited by the more traditional teachers that were mentioned previously in the research findings.



## Chapter 5

### Conclusions and Implications

Education is constantly changing. Technology is constantly changing as well. Teaching methodologies and techniques seem to evolve as much as the world of technology. However, many teachers in our schools today have difficulty facing the drastic changes that are facing them. This study provided some insight into how teachers at Maple Shade High School view these changes and how they are trying to deal with and adjust to them. It has shown how teachers have begun to use the technology on a more consistent basis and also how this practice might continue. The study also investigated how technology supported the kind of teaching practice they believe is appropriate.

The study suggests that teachers at Maple Shade High School sometimes do change their teaching practices as they work with technology in the classroom. However, many, depending on teaching backgrounds and philosophies, were more reluctant than others to make such a change. It seemed that the conditions had to be right. According to the data, teachers felt that they must have regular access to the technology along with consistent inservice training. Technical and administrative support were considered to be critical by teachers in utilizing the technology in the classroom. Each of these factors were confirmed in the study.

Research studies have indicated that there is usually a gap in time between the generation of educational research and the implementation of new teaching practices. The length

of time usually averages between ten to fifteen years. The problem, according to the results of the study, is that many technologies only have a life span of about five years.

Teachers at Maple Shade High School have had a tough time adjusting to the constant state of change. This problem is magnified even more by the fact that technology has become increasingly valuable as an instructional tool. A majority of the teachers at the high school are constantly playing a game of catch up. The intern has concluded that there are several factors that have added to the problem.

As a result of the rapid changes in today's technologies there seems to be a lack of updated hardware and software, at times, in the high school. Teachers are sometimes frustrated when they plan to use a particular piece of technology and it simply isn't available to them. The study indicated that there are primarily two reasons for this. One is money. The other is related to the constant change in technology. It seems virtually impossible to always have on hand the most recent technological applications. It is, by no means, no fault of the technology department.

Another factor that is implied by the data is the need for more training and technical support in the area of technology for the staff at Maple Shade High School. Many staff feel undertrained and don't have much prior knowledge to rely on when it comes to the world of technology. Their only hope, in some cases, is that they might receive sufficient training while on the job. Teacher preparation courses that

were taken while becoming certified did not provide much of a foundation in the area of technology upon which to draw from.

The local networking infrastructure has also slowed the widespread implementation of technology at Maple Shade High School. Until recently, the school was not "wired" into the worldwide web. Many computers in the school were not Internet-accessible. However, that has all changed. Since the school district's technology plan was revised and updated in May of 1999, many things in the area of technology have changed for the better. There are more computers and all are now Internet-accessible. The intern has concluded that the future looks bright for Maple Shade in terms of the local networking infrastructure.

Maple Shade's technological woes have also come as a result of financial constraints. The school was, at one time, unable to make large investments in the area of technology. Teachers claimed that this too played a role in their inability and reluctance at times to integrate technology into their classrooms. It was a chain reaction. The money wasn't available to buy enough computers for all the students. Rather than struggling to figure out a way to have many students share a few computers, some simply chose not to use the computers. There was also the complaint that the computers that were available weren't very "state-of-the-art".

Nevertheless, Maple Shade High School has more access to technology today than they ever have in the past. Technology is now being used more consistently and

effectively by more staff at both the junior-high and the high-school level. The study has shown that there are a growing number of students, teachers, administrators and parents who are using powerful tools to conduct research, prepare electronic portfolios, collaborate on projects, simulate complex mathematical equations, engage in discussions with experts, publish work online, develop communication skills and assume greater responsibility for their own learning and professional development. According to the findings of the study, it can be reasonably assumed that teachers will continue to use technology to try and meet the individual needs of their students, both regular and special education. At Maple Shade High School, the use of technology is helping to transform education, slowly replacing a traditional reliance on conventional constructivist practices with strategies that help tailor the educational environment to address these needs.

The research suggests that technology can open the door for self-paced, individualized instruction and student-centered learning. The staff at Maple Shade High School seem to see the real benefits of using technology in education as its potential to facilitate fundamental, qualitative changes in the nature of teaching and learning. The intern has also concluded that both staff and students do understand that using technology available to them allows access to worldwide information resources and the ability to develop knowledge within new contexts. Surprisingly, many teachers in Maple Shade do not actually fear technology. Instead, they

see it as contributing to the improvement of two-way, school-home communications to better engage parents in the learning activities of their children. If teachers embrace it rather than reject it, technology will offer the potential to empower historically disadvantaged groups such as students with disabilities by providing them with greater access to communications and learning tools.

The results of the study indicate that Maple Shade teachers are beginning to rethink their traditional ideas of instruction and learning. Terms such as classroom, school, and student are beginning to take on new meaning - even to the seasoned veterans at the school. It is giving learners of all ages an opportunity to create a future of their own.

Through the technology study, the intern has noticed that a majority of the staff are willing to try and "break free" from the more traditional methods of teaching and learning. There are several conclusions drawn from this particular area of the study. First, teachers are beginning to see and understand that in the area of student performance, consistent integration of technology into the classroom allows more collaboration and dialogue among Maple Shade students and between students and teachers.

Secondly, the overall classroom and school building is another area that is improved as a result of our teachers incorporating technology into their lessons. Obviously, distributed learning is possible from anyplace and at any time. We are not simply limited by what the author of the textbook decided to include. In addition, the use of computers allows

learning to take place at any time. In the same respect, the traditional approach to teaching and learning tells us that all students should be progressing at approximately the same pace. In the intern's study, teachers were shown that technology allows for flexible pacing based on student abilities. At the same time, there can be mass customization with instruction to fit individual student needs, both in regular and special education. The traditional approach doesn't allow such flexibility.

Finally, teacher's anxiety over the use of technology was lessened when these benefits were actually seen in practice in the classroom. It can be concluded that Maple Shade teachers see the need to distance themselves and their students from learning through simple facts and recitation. Technology allows more critical thinking in real-world contexts. Outdated textbooks are no longer a problems since, through things such as the Internet, up-to-date primary information resources are always available.

Basically, Maple Shade teachers need to see into the crystal ball and create an idea in their minds as to what technology can do for their teaching and their students in the future. It can be concluded from the intern's survey that teachers found the suggested ideas to be informative and useful. It is believed that teachers will use some of the ideas in order to reap the benefits that have been previously mentioned.

The intern also concluded that a revised and comprehensive technology plan is simply not enough to

alleviate some of the fears and apprehension that Maple Shade teachers sometimes have when facing the use of technology. Instead, key components mentioned in the fourth chapter, such as additional hardware, software, training and staff, are what is needed if technology is to become a regular part of everyday teaching practices.

Though several interviews with the technology coordinator, the intern has also concluded that updated hardware and software will continue to be a priority for the department. Both teachers and students would benefit from such materials. The issue, of course, is centered on budgetary constraints. However, if this year's budget passes, then the intern was assured that things look promising for the future. The current technology plan calls for each classroom at Maple Shade High School have a computer and printer within the next year. The plan further states that each classroom computer be connected to the Internet and deliver e-mail and internet services to the individual classroom. The current equipment will be continually updated as part of the plan. The details of the plan were communicated to the staff by the intern at the technology inservice. After speaking at the faculty meeting about the details of the plan, the intern also concluded that staff felt quite optimistic about whether our technology goals, as outlined in the plan, could be met.

As previously mentioned, it can be concluded from the results of the study that the one area that really needs to be addressed is staff training and professional development. The results of the technology survey suggest that much more

is needed in the area of staff development. The intern recommended that in the 2000-01 school year Maple Shade develop a chain of workshops to be presented during the school year. They would be scheduled throughout the year and staff would be permitted to chose from various topics, all focusing on the integration and use of technology.

### Conclusions and Implications on Professional Growth

This study was designed to develop several leadership skills for the intern. The undertaking of such a project helped the intern to recognize, encourage, and monitor the use of effective teaching methods and strategies. This, of course, was possible and provided by the integration of technology into the classroom. In addition, the intern was able to use effective observation, conferencing, and appraisal techniques to enhance quality instruction. Finally, the intern was able to apply effective strategies for assessing school programs in order to determine if any plans for technology were effective in the past.

This study focused the intern's energy on organizing and communicating information to the faculty and staff. It required the intern to collaborate with staff, examine what others in the field were doing and make technology-based recommendations that were to be most practical for classroom teachers.

The study also supported the intern's intial thoughts that Maple Shade High School is heading in the right direction when it comes to the field of technology and its use in our schools.



The intern was also pleased that the staff and administration were so receptive to several of the ideas suggested by the intern in order to better incorporate technology into the classroom. The study also provided solid evidence as to where to focus the efforts and resources of a limited budget, as is the case at Maple Shade High School.

### Reflections on Organizational Change

The intended organizational change of the study was focused upon the teachers of seventh and eighth graders at Maple Shade High School. It was the hope of the intern that those who were "computer-phobic" would overcome their fears and that technology would play a much bigger role in the education of junior-high students at Maple Shade High School.

There is an obvious parallel to the challenge every school district faces when formulating a technology plan in the changing, high-stakes world of CD-ROMS, networks, and Internet technology. If a district fails to "take off" because the condition of the environment is uncertain, educational leaders risk a student population intellectually grounded when others are soaring. Even worse, if they take off with faulty navigation aids, they risk a crash landing which, though not fatal, as in a plane crash, wastes a precious investment, fails to promote learning, and shatters the confidence of faculty and community.

As a result of the study, teachers have shown an increased motivation to use technology as an instructional support system. Through participation in a workshop that the intern

designed and implemented, teachers began to feel more comfortable using the computer as an instructional tool in the classroom.

The intern strongly believes that technology proficiency is a basic and necessary skill for our teachers, and more importantly, the students that we teach. This project benefited the district as a whole as well as several groups within the district.

Maple Shade students benefited since they have become more familiar with computers. They have reaped the rewards that accompany computer proficiency such as possible higher academic achievement as well as being better prepared for a computer-oriented future.

The project also benefited teachers who may not have felt comfortable using a computer on a daily basis for instruction. They began to feel more confident and, with new found confidence, came creativity. This is all extremely significant since the end result was an active learning environment that inspired in-depth student involvement.

Over the course of the intern's seven year tenure at Maple Shade High School, many changes have been witnessed in the area of technology. Technology plans have been created, revised, implemented and revised again. There has been a serious "push" by the administration at the high school and by the state of New Jersey to try and encourage our teachers to use the technology that is available to them. More computers have been added in the classrooms. New computer labs have been created and current labs have been expanded. Technology

has improved and continues to change at an amazing rate. Teachers have retired and new faces have been added. Money has been needed, searched for, and some found in order to allow these positive changes to continue. As a result of all of these changes within the organization, one thing remains clear. The students at Maple Shade High School are winning. They are benefitting now and the intern sees no reason to believe that this wonderful trend will not continue.

After all, we must remember, the students are always our number one priority. We, as educators, must continue to improve and change our methods and thinking if our students are expected to succeed in an ever-changing, global technological society.

#### Need For Further Study

The intern's study was limited by the fact that it drew upon a small subset of teachers and a brief snapshot in time. More study needs to be dedicated to helping teachers to develop alternative visions for teaching. Although most were receptive to the intern's suggestions during the study, it is believed that more time should be spent in shaping their vision of education and its place in the changing world of technology. If this study were to continue, would it lead to radical restructuring as opposed to short term change?

The constructivist approach to teaching is one that appears to be outdated. Further study might also be dedicated to trying to discover whether or not this approach can work in conjunction with technology. Does the modeling of

constructivist teaching approaches with technology need to be explicit to make a lasting impact? More importantly, future studies may focus on how changes in teaching beliefs, behaviors, and technology might impact student learning. Although this basic question is addressed briefly in the intern's study, future research may show whether the impact is different in different content areas or grade levels. Does it vary depending upon the environment (wealthy or poor school systems; urban, rural or suburban) or with different students? These are all questions that could be addressed with further study.

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# Appendix A

## Techology Interviews

## Technology Interviews

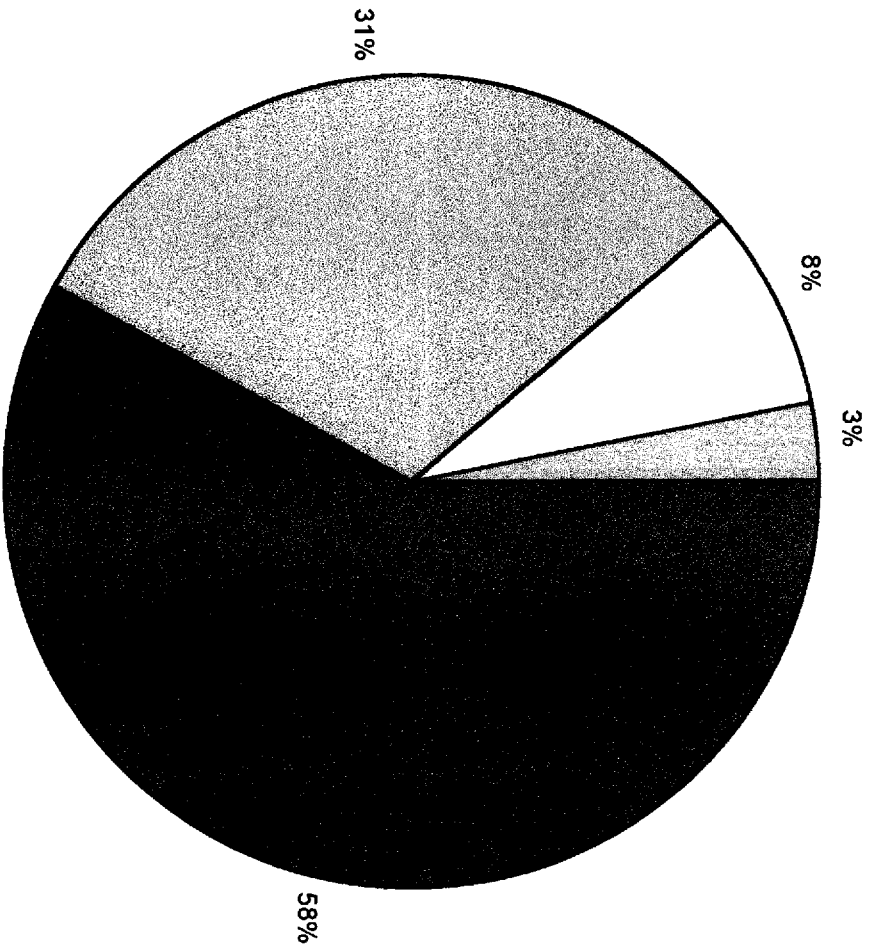
- 1. How long have you been teaching?**
- 2. What grade(s) and subject(s) do you teach?**
- 3. Approximately how many times per week do you incorporate technology into your daily lessons?**
- 4. What is your philosophy of teaching?**
- 5. How did you acquire this philosophy?**
- 6. How has the “age of technology” affected your style of teaching?**
- 7. In your opinion, why do you think that some teachers today choose to ignore the technology that is available to them?**
- 8. Has your philosophy of teaching changed since computers and other related technologies have entered the realm of education?**
- 9. How much, if at all, have computers played a role in the changes you noted?**
- 10. Do you have much interaction with other teachers in the school?  
How often, per week, do you share pedagogical ideas with other staff?**
- 11. What are some ways that the staff at Maple Shade High School could successfully incorporate technology into their daily lessons?**
- 12. Other than the use of technology, what other factors have influenced your teaching practice in the past five years?**
- 13. How would you describe your technology skills when you first began your teaching career? How would you describe your technology skills at the present time?**

- 14. If there has been a change, to what do you attribute the change?**
- 15. Have you changed the way you use technology?**
- 16. Have you changed your teaching?**
- 17. What is it you like best about technology?**
- 18. What frustrates you most about technology?**
- 19. What are your personal goals for teaching in the next five years?**
- 20. What role does technology play?**

## Appendix B

### Current Use of Technology by Maple Shade Teachers

### Current Use of Technology by Maple Shade Teachers

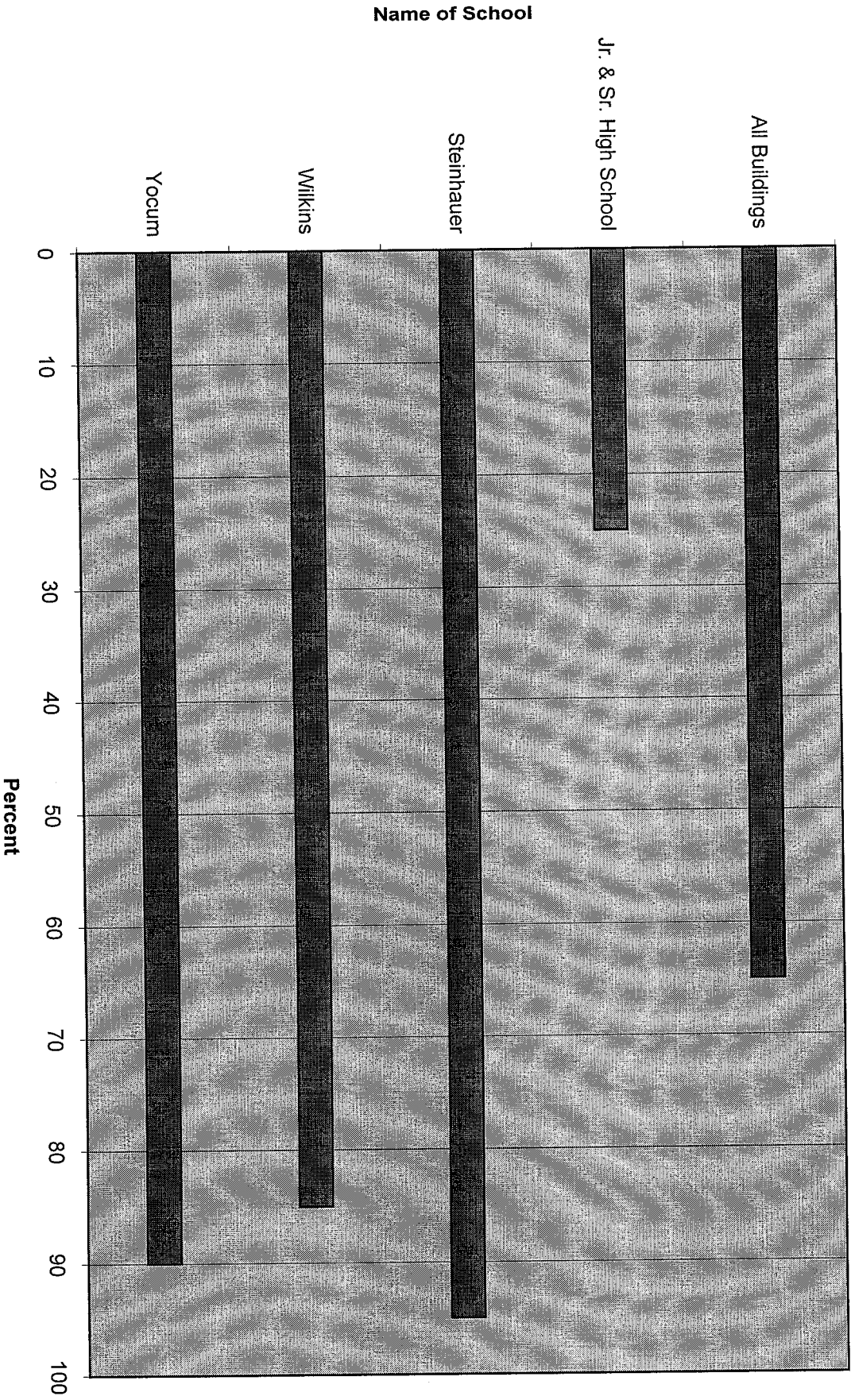


- consistent use of technology
- ▨ occasional use of technology
- rare use of technology
- never incorporate technology

## Appendix C

### Percentage of Classrooms With Computers in the Maple Shade School District

**Percentage of Classrooms With Computers in the Maple Shade School District**



Appendix D  
Thesis Proposal



Thesis Proposal -  
A Study Of the Integration of Technology  
At Maple Shade High School

Every school district faces a challenge when formulating a technology plan. If a district does not accept the challenge fully because the condition of the environment is uncertain, it may short-change students, fail to promote learning, and shatter the confidence of schools and community members. But how does a district know what steps to take?

This study will focus on the steps that must be taken if technology is to be incorporated on a more consistent basis into the lessons of junior-high teachers at Maple Shade High School. This study could prove to be quite significant since its success would allow our students to demonstrate a vast knowledge in computer literacy and , therefore, feel confident and better prepared to enter the technological world that will face them in the new millenium. The intern will primarily focus on students and junior-high teachers at Maple Shade High School. Data will be gathered through observations and interviews and a random sampling of students will be used.

Conceptual Framework

Topic and Research Problem

The intern wants to learn the steps that must be taken if technology is to be incorporated on a more consistent basis into the lessons of junior-high teachers at Maple Shade High School. Once this is determined, the intern hopes to discover better ways to promote learning through technology at the seventh and eighth grade level for students and teachers in Maple Shade during the 1999 - 2000 school year.

The intern believe that many teachers in the junior-high at Maple Shade High School are very reluctant to use computers as part of their daily lessons. Some of these teachers are veteran professionals who simply never had many experiences with these technological toys throughout their distinguished teaching careers. It seems to be their belief that if they made it this far without using a computer to teach, why start now? In the intern's opinion, this is a sad mistake. Their students are suffering now and will suffer in the future as a result of this "anti-computer" attitude.

### Purpose

The purpose of this study is to develop and implement a plan that will allow teachers in the junior-high at Maple Shade High School to incorporate technology into their lessons on a more consistent basis. For the study, the intern will use an action-based research design which will result in a technology plan for junior-high teachers and students. The use of technology by junior-high staff on a more consistent basis will improve learning and better prepare our students for the future.

This study is designed to develop several leadership skills for the intern. The undertaking of such a project will help the intern to recognize, encourage, and monitor the use of effective teaching methods and strategies. This, of course, will be possible and be provided by the integration of technology into the classroom. In addition, the intern will use effective observation, conferencing, and appraisal techniques to enhance quality instruction. Finally, the intern will need to apply effective strategies for assessing school programs in order to determine if any plans for technology have been effective in the past.

The intended organizational change is focused upon the teachers of seventh and eighth graders at Maple Shade High School. It is the hope of the intern that those who are "computer-phobic" will overcome their fears and that technology play a much bigger role in the education of junior-high students at Maple Shade High School.

There is an obvious parallel to the challenge every school district faces when formulating a technology plan in the changing, high-stakes world of CD-ROMS, networks, and Internet technology. If a district fails to "take off" because the condition of the environment is uncertain, educational leaders risk a student population intellectually grounded when others are soaring. Even worse, if they take off with faulty navigation aids, they risk a crash landing which, though not fatal, as in a plane crash, wastes a precious investment, fails to promote learning, and shatters the confidence of faculty and community.

As a result of the study, teachers will show an increased motivation to use technology as an instructional support system. Through participation in a workshop that the intern will design and implement, teachers will begin to feel more comfortable using the computer as an instructional tool in the classroom.

### Significance

The intern strongly believes that technology proficiency is a basic and necessary skill for our teachers, and more importantly, the students that we teach. This project will benefit the district as a whole as well as several groups within the district.

Maple Shade students will benefit since they will become more familiar with computers. They will reap the rewards that accompany

computer proficiency such as possible higher academic achievement as well as being better prepared for a computer-oriented future.

The project will also benefit teachers who may not feel comfortable using a computer on a daily basis for instruction. They will begin to feel more confident and, with new found confidence, will come creativity. This is all extremely significant since the end result will be an active learning environment that will motivate in-depth student involvement.

### Overview Questions and Subquestions

1. How can we make teachers feel more comfortable using a computer as an everyday teaching device?
  - a. What type of inservice would work best to improve familiarity with computers?
  - b. How will students benefit as a result of using the computer more in the classroom?
  - c. How can we best incorporate technology into each subject area?
  - d. Why are some teachers reluctant to use computers?

### Delimitations and Limitations

The intern will develop a technology plan while simultaneously creating a committee in order to provide ways for more junior high teachers at Maple Shade High School to utilize technology in the classroom on a more consistent basis. The intern will use personal interview responses and suggestions from committee members to assist in formulating this plan. This project will benefit both the faculty and students of Maple Shade High School.

## Design and Methodology

### Site and Population Selection

The site of the study will be the junior high wing, seventh and eighth grades, at Maple Shade High School. The junior high was selected as the site instead of using the entire high school (grades seven through twelve) because the intern is much more familiar with the junior high. The intern teaches all classes in the junior high and is therefore more familiar with its general operation and population of students.

Some teachers in the junior high at Maple Shade have been teaching there for a long time. They seem to be set in their ways and often seem reluctant to change. This project will provide these teachers with a chance to try something new that will benefit all students while allowing these teachers to experience professional growth in the area of technology. Preparing students and teachers for the technology of the future certainly justifies the need for the project.

The population sample will be chosen from the faculty in the junior high at Maple Shade High School.

### Data Gathering Procedures

The intern will use interview and survey as data gathering techniques for the project. The intern will interview junior high teachers as well as some junior high students in order to gather the project data. In addition, surveys will be created and eventually distributed to those individuals who have agreed to take part in the technology project.

The intern will try to focus on ten subjects from the junior high faculty. Interviews will be conducted over a period of two weeks and surveys implemented over a period of four weeks.

### Data Analysis Procedures

The intern plans to bring meaning to the data through a thorough analysis of interview responses. Each response will be tallied and coded in accordance with technology familiarity and usage in the classroom.

Surveys will be collected, coded, and analyzed to determine basically the same kind of information and data as collected from the interview procedure.

### Task List

- September
- meet informally with some junior high teachers to determine who would be interested in serving on a technology committee.
  - begin to determine committee meeting dates
  - commence with meetings
- October
- begin interviews with staff and students
  - record all responses and begin to analyze
  - create the survey instrument
- November
- distribute the survey to selected individuals of the faculty
  - technology committee meeting; gather data and ideas

December - continue to analyze surveys; code and write an evaluative and innovative report

#### References

Mr. Rudy Avizius, Maple Shade High School, Technology Coordinator

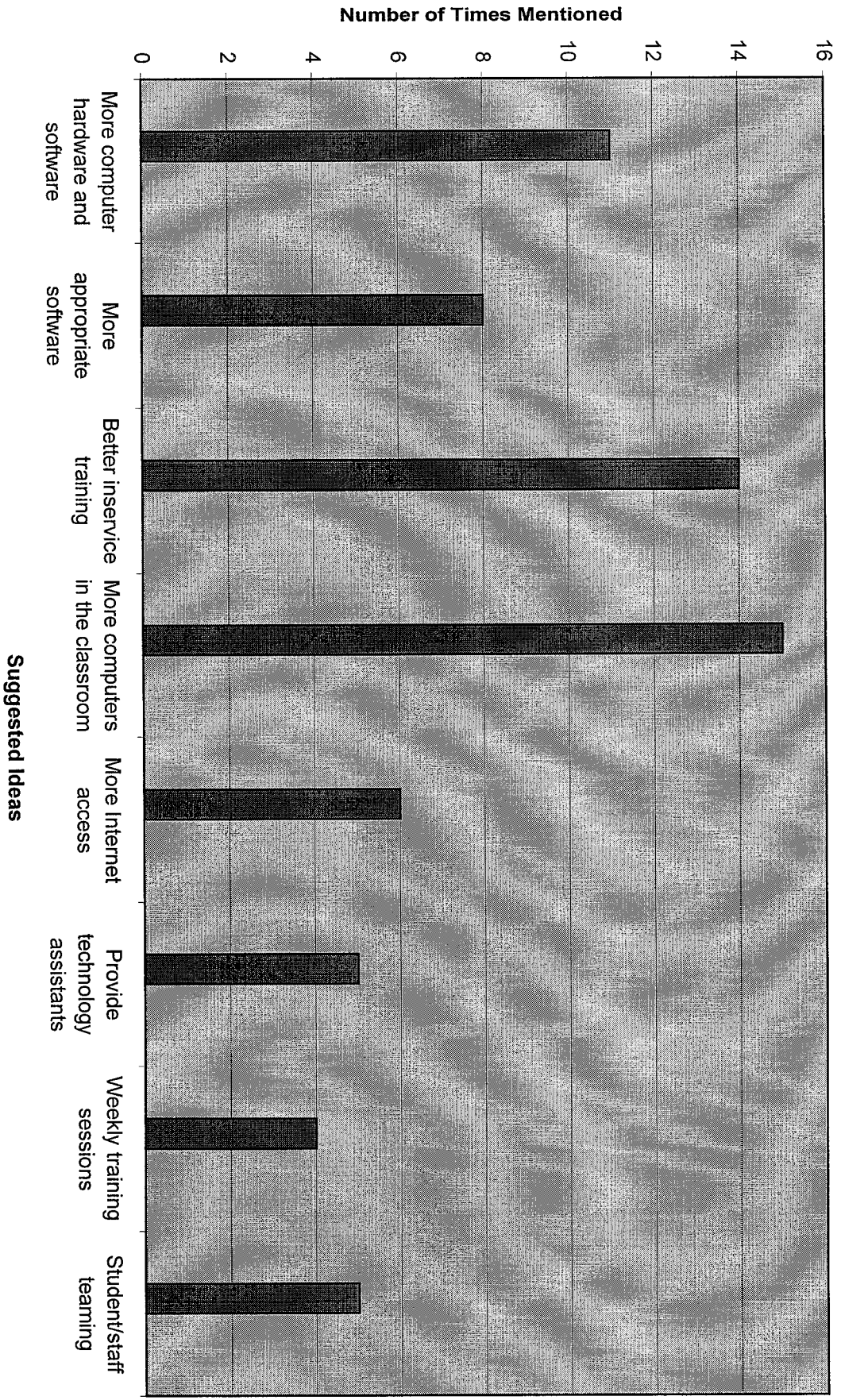
Mr. Richard Keegan, Maple Shade High School, Vice-Principal

## Appendix E

### Methods of Technology Integration at Maple Shade High School



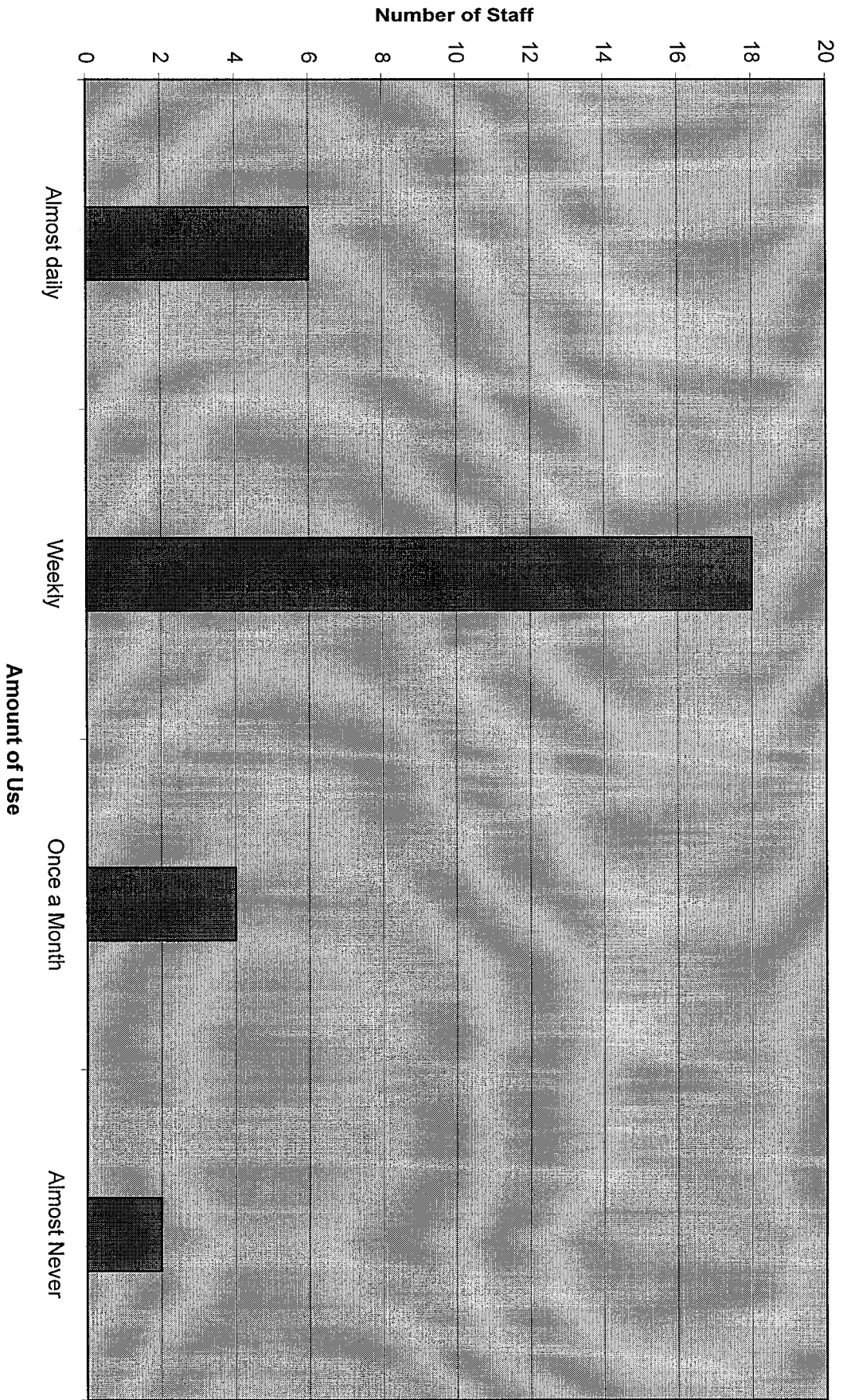
# Methods of Technology Integration at Maple Shade High School



## Appendix F

### Maple Shade Staff's Use of Computer Labs

### Maple Shade Staff's Use of Computer Labs



Appendix G  
Post-Inservice Feedback

End of Conference Suggestion Slip

Topic \_\_\_\_\_

Date \_\_\_\_\_

What did you think of this meeting? Please be frank. Your comments can contribute a great deal to the success of our meetings.

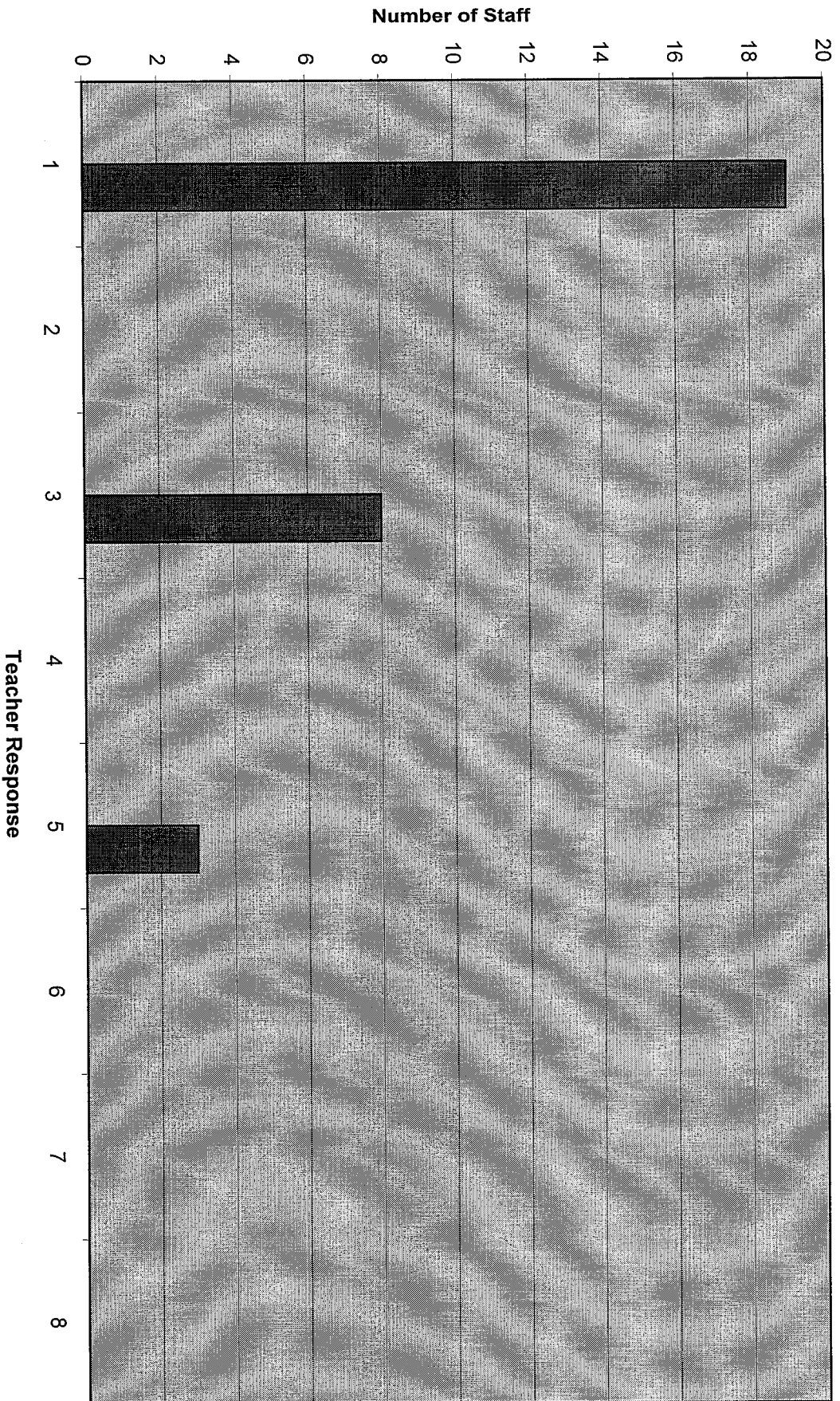
1. How did you feel about this meeting?  

(check)	Without value	( )
	Poor	( )
	Mediocre	( )
	Good	( )
	Excellent	( )
  
2. What were the weaknesses?
  
3. What were the strong points?
  
4. What improvements would you suggest?

Appendix H

Effectiveness of Technology Inservice

### Effectiveness of Technology Inservice



Appendix I  
Maple Shade Plan for Technology



# A Vision for the Future

## Recommendations for the Integration of Educational Technology into the Maple Shade School District

(The following passages appeared in the original technology plan for Maple Shade in February, 1993. The plan was designed and presented by Mr. Rudy Avizius, a technology teacher in the high school. He is currently the District Technology Administrator for Maple Shade School District. It is presented here by the intern as a means of comparison to the current needs and recommendations in the area of technology as presented by the intern in the thesis report.)

### The Need for Change

As our society moves towards the 21st century, we look at the global changes taking place in the social and economic environments of all nations and we wonder how to best prepare our students for successful places in this new order. Informal conversations with students have indicated that many students do not view the current programs as relevant to their needs. We need to motivate our students in a way that will make them accept that education will become a life-long process if they are to have relevant skills in our increasingly technological society. In a global economy, the American worker of the future will compete with coworkers in other nations with either lower wages or higher skills.

The world is rapidly advancing into a global technological society and global economy that will present new challenges and opportunities to those who are prepared for it.

*"Research topples older conceptions of man and nature. Ideas come and go at a frenetic rate. A rate, that, in science at least has been estimated to be twenty to one hundred times faster than a mere century ago." (Toffler 1970, p177)*

We are living in a world where the information base is growing at an exponential rate, we cannot expect our students to continue going through school only reciting rote memorization of facts and expect that

they will be ready to meet the challenges of the 21st century when they graduate.

*"If the information explosion continues at the present rate, by the time a child born today graduates from college, the information in the world will have increased fourfold. By the time the child is 50 years old, information will have increased 32 times and 97 percent of everything known will have been learned since the child was born." (Lewis 1978, p13)*

As educators we cannot possibly hope to keep up with or to have the students keep up with this increasing knowledge base knowing that the application of many of these facts may become obsolete before they even graduate. Therefore is it appropriate that we continue to have students memorizing facts that may quickly become obsolete or irrelevant, or to have the students understand generalized concepts that can be applied to many unique situations in the future? I believe that in today's world, there needs to be a balance between learning and applying knowledge. It becomes more important that we teach students to know where and how to find the facts they need to be able to apply and understand these facts in relation to the world in which they live. The consequences of the applications of this information need to be critically evaluated.

*"But, we are living in a dangerous, interconnected world driven in part by the very technology we have developed. And, our vision must not just be national, but global as well." (Boyer 1985, p3)*

The Report of the Commission on Technology Education for the State of New Jersey (COTE) had among its goals that "students develop an understanding of the impacts and consequences of technology so that as citizens they can exercise control over these developments." Educators began to realize that if our planet continued on its present course of development, we were headed for disaster. There was a need to understand and control technology rather than letting technology grow without any direction.

What skills, knowledge and values will be needed by our society in the future? In order to be prepared for the future, we will desperately need problem solving skills. The perceptions of our students need to be changed. It should be our goal to enlighten students, rather than to indoctrinate them. One important goal of our school is to prepare students for a rapidly changing society.

Will societies cross these new perceptual thresholds soon enough to avoid ecological backlash, military conflagration, or other tragic scenario? Education has traditionally been slow to respond to changes in the environment around it. Technology education may be the change it takes to help the students understand the implications of technology on our society and therefore encourage the development of "appropriate" technological progress in the future.

*"Social change occurs when people alter the way they perceive some of the elements constituting their world...It often seems to take a crisis before perceptions change sufficiently to support effective political response" (Brown 1989, p5)*

We will know when the United States is number one, not when the debate over how to best educate American subsides, but when it increases.

The possibility that "choice" among either private and public or just public schools is a potential future prospect, in what areas will Maple Shade excel, which programs will be the quality programs that will allow us to compete, what is the magnet?

The common themes repeated through all of the literature, state and national goals are; the need for students to become technologically literate, the development of problems solving skills, exposure to the inter-disciplinary nature of learning in real life, the study of the economic, social and environmental impacts of technology, and to prepare the student to live in a rapidly changing technological world. Our educational institutions must be able to adapt to this new reality in ways that were never before considered. It is that technology per se is never enough to cause widespread change in education. The systematic change in educational practice incorporating innovative technologies requires a number of dimensions from technical to political to be altered in order to accommodate the technology.

## Personal Recommendations

\* Rewrite the district's goals and objectives to reflect the changing realities of our society.

These goals would provide the vision that will guide all decisions to be made.

\* Form a committee that will develop a technology plan to give direction to the implementation of technology in our curriculum and teaching methodology.

Presently our district has a computer committee that guides the district's decisions on the integration and coordination of computers within the district. The district needs a committee that will oversee the implementation of ALL educational technology, not just computers.

\* The school board prepares a mission statement about technology.

This statement should address three fundamental questions:

- a. What education will the students need to prepare them for the information age?
- b. What skills are needed to meet the demands of a rapidly changing world?
- c. How can technology help teachers to provide a better education for their students?

\* Provide all educators with training in utilizing these new technologies.

In my opinion, this may be the single most important aspect of my recommendations. How can the district expect their employees to utilize these resources if they have no training in their use? For example, the district could implement a goal of placing a computer on every teacher's desktop. This would be a laudable goal that would ultimately be doomed to failure. If an instructor does not know how to use the computer by being trained on it, it will simply be a very nice paperweight.

\* Provide consistent funding for personnel, and to acquire the hardware, software and training needed to implement this program.

The implementation of technology into a district is not an event, but rather a journey. The district's technology plan is a changing document, rather than plans set in quick drying concrete. It is a process that needs

to become as accepted in the schools as expenditures for building maintenance.

\* Create an environment that encourages innovative approaches to teaching and provides the support needed to implement these approaches.

The creation of an environment conducive to innovative approaches may be one of the most effective means to implement change within the district.

We must be willing to change the way we have done business in the past. For instance, a teacher's duty period may be their training on how to use a given technology. Perhaps a trainer's duty period would be researching new technologies and determining how they could be effectively implemented. This time could also be used by the trainer to learn how to use the technology before attempting to train others.

\* Incorporate the social, economic and environmental impacts of all technologies used or studied as part of the curriculum.

Students need to understand these implications and therefore encourage the development of "appropriate" technologies for our future. Once our students have mastered using the communications tools used in some of these technologies, they will help to build a stronger democracy by effectively communicating their concerns to the political leadership of the society.

## Biographical Data

Name	Frank E. Jankowski
High School	Audubon High School Audubon, NJ
Undergraduate	Bachelor of Arts Communications Teacher of the Handicapped Glassboro State College Glassboro, NJ
Graduate	Master of Arts School Administration Rowan University Glassboro, NJ
Present Occupation	Special Education Teacher Maple Shade High School Maple Shade, NJ