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The Use of the Microcomputer by Principals in Their Roles of Instructional Leader and Manager

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**THE USE OF THE MICROCOMPUTER BY PRINCIPALS IN THEIR
ROLES OF INSTRUCTIONAL LEADER AND MANAGER**

by

David James McDonald

A dissertation submitted to the Program in Educational Leadership in partial
fulfillment of the requirements for the degree of

Doctor of Education in Educational Leadership

UNIVERSITY OF NORTH FLORIDA

COLLEGE OF EDUCATION AND HUMAN SERVICES

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ABSTRACT

The purpose of this study was to determine the use of microcomputers by principals in their roles as instructional leaders and managers, and its impact upon the use of microcomputer technology in the school. The research was done by having the randomly stratified selected sample population respond to a survey. The subjects of this study were elementary, middle/junior and high school principals in the Florida Public School System.

Of the responding principals 82.8% reported having access to a microcomputer in their office at school. One-third of the principals reported not having a microcomputer in their own homes. Word processing was reported as the most used application program and spread sheet applications the least used. Principals reported using the microcomputer in managerial tasks such as attendance, discipline, scheduling and grade reporting.

The data indicated principals have not taken a proactive stance in their own personal learning about microcomputers and how they can be used. Responding principals, for the most part, did not perceive of the teachers within the building they work as using the microcomputer for the managerial functions of teaching.

Presently principals are not taking full advantage of the microcomputer as a tool that can help them in their roles as instructional leaders and managers. Principals must also become more actively involved in the decision making process of the various technologies in which their school can participate.

CHAPTER 1

INTRODUCTION AND BACKGROUND

Introduction

In the mid 1950's, there were fewer than 1,000 computers in the United States of America. In the mid 1960's, there were about 30,000 computers, and in 1976 there were 220,000. In 1980 there were 31,000 microcomputers in the nation's public schools. In the 1990-91 school year in Florida alone, over 31,000 computers were used for administrative purposes only, and in addition to the computers used by students (Davis, 1977; Florida State Department of Education, 1991; Walters, 1987). Without question, the computer has become a significant tool for management of the school.

The launch of Sputnik in 1957 helped propel American educators into a series of mixed experiences with educational technology. The 1950's saw computers which were not devices, but rather big rooms full of tubes, circuits, ventilating equipment and people. The 1960's saw a flood of television and educational purchasing, programmed instruction, and 'teaching machines.' Electronics joined by optics, crystallography, plasma physics, and even polymer chemistry provided the components of computers in the 1970's (Alabama University College of Education, 1982; Blumberg, 1984; Davis, 1977; Marshall, 1982). The 1980's saw 80% of upper middle income homes having microcomputers. Because of these changes, the computer shops are today's counterpart of electronics surplus stores in times past.

Upon the computer's arrival in education, principals had a certain freedom of choice in involving their schools with the new technology (Blaschke & Sweeney, 1977; Marshall, 1982). Principals must deal with negative public perceptions of education, becoming as cost effective as possible when it comes to management. Principals also serve a role as instructional leaders of their schools. Although school district administrators have previously been influenced by the introduction and use of larger computers, the microcomputer has brought with it the potential for revolutionizing the principalship (Walters, 1987; Witten & Others, 1990). Computers have been widely used in classrooms for educational purposes, but their use for administrative functions in most schools has received limited attention.

The common uses of computers in educational administration include athletics, attendance reporting, budget planning, desktop publishing, discipline, food service, FTE reporting, grade reporting, guidance and counseling, instructional management, internal accounts, inventory, media center, staff records, student records, student scheduling, student transportation, and word processing.

Very little research is available that measures administrative use of microcomputers (Witten & Others, 1990). The extent to which schools use microcomputers for administrative purposes depends on the principal's level of computer literacy (Witten & Others). For a significant change, like the introduction of computers, into the schools to be successful educational administrators (principals to be more specific) must lead the way. Principals will either be major leaders or stumbling blocks to successful computer use in schools.

Statement of Purpose

The purpose of this study was to determine the use of microcomputers by principals in their roles as instructional leaders, managers, and the impact upon the use of microcomputer technology in the school. Because of recent advances in computer technology, the invasion of computers into the schools is a non-debatable fact. For those interested in educational administration there is the further reality that the invasion has had, and will continue to have implications for the practice of educational administration.

Significance of the Study

The challenge for educational leaders is to understand and use the technological revolutions to their fullest extent. Principals cannot be expected to know everything about everything. The microcomputer is an important tool of leadership, though not often seen as such (Rhodes, 1988).

Schools have historically been resistant to change (Ognibene & Skeeel, 1990). However, the stakes are higher than they were with radio, films, and television, technologies that entertain and thus remain available as indirect instructional tools. Unlike those technologies, the computer has assumed a central role in virtually all professions and organizations. In the same sense that schools are not permitted to neglect reading instruction, they cannot allow organizational or staffing issues to erect permanent barriers to effective teaching with and about computers. Computer knowledge and skill have become the mark of an educated person (Ognibene & Skeeel). Superintendents, school boards, and principals initially saw little or no need for microcomputers in the classroom or the principal's office (Coffin, 1986). In most school systems educational computing

was run by a central office 'techie' collaborating with teacher experts. Application of computer technologies for school purposes, while being available since the 1950's, has never been adequately used because educators were never adequately trained to use computers. They were considered more trouble than they were worth, and they often ended up in closets (Coffin; Ornstein, 1992). New technologies have only changed the face of instruction slightly; however, they have had an enduring and significant impact on the administration of educational systems (Alabama University College of Education, 1982; Burnham, 1981). Administrators in educational institutions throughout America face a tremendous task. They are faced with crises of purpose they have never had to face before. These crises have emerged from technology, inflation, equal rights, the energy crises, changing values and immorality, environment, and urban /suburban crises (Faily, 1980).

Throughout history magnificent technologies of immense potential have been rejected, neglected, or failed because man could not see their true potential or because they have been mismanaged. The computer is a tool which is usually not associated with leaders, but with workers and for students (Burnham, 1981; Clarkson, 1974; Rhodes, 1988). The possibilities of technological development uses in education are staggering to the imagination. However, the gap between the school and the real world has continued to widen.

The significance of the study is that as principals are recognized leaders, they must see the need to use technology and more specifically the microcomputer in their role as instructional leader and manager. This study shows how the

microcomputer is currently used by school principals, and how this use impacts upon the infusion of technology throughout the school.

Review of the Literature

There is currently a great deal of literature on the principalship and effective schools. There are studies on the principal as an effective leader, as a manager and as a decision maker. Relatively few research studies have been conducted on the use of computers by principals as it relates to administration, though there are some. The review of literature will show the microcomputer as it is used electively, that is to say, the optional use of the microcomputer in performing tasks which could be done in a manual way. The review will show the microcomputer is also used for tasks when the system gives no other way than being done with the microcomputer. The review of literature will show that principals as instructional leaders need to use microcomputer technology in this role. The review of literature will show that principals as administrative managers of schools moving into the twenty-first century must keep up with technology. The review will further look into the principal and the role of decision-making and how they interrelate with microcomputer technology. Lastly the review of the literature will examine effective schools and their use of microcomputer technology.

Elective Use of the Microcomputer

The extent to which a principal uses computers for administrative purposes depends upon the principal's level of computer literacy (Witten & Others, 1990). There is a need for principals to use computers in their role as an instructional leader on a more personal basis (Coffin, 1985; Coffin, 1986; Donmoyer &

Wagstaff, 1990; Isherwood, 1985). Microcomputers when properly used can assist principals in saving time ordinarily consumed in routine tasks, thus providing time for working directly on other vital leadership functions (Spuck & Atkinson, 1983).

System Required Use of the Microcomputer

Principals have been compared to princes and paupers (Isherwood, 1985) when it comes to working interactively with the school's data base. Those who must still handle paper files, do hand updating, print report cards and complete attendance records on a cyclical basis (Donmoyer & Wagstaff, 1990; Faily, 1980; Witten & Others, 1990) are considered paupers. Principals, in the past, have received little to no formal training in the use of computers (Walters, 1987; Witten & Others), and yet they face an ever increasing crushing burden in terms of managing student and administrative information. The processing of this information using pencil and paper techniques requires the expenditure of significant administrative time and attention (Alabama University College of Education, 1982; Faily, 1980; Hoachlander, 1983; Pogrow, 1985).

The Principal as an Instructional Leader

Principals can no longer remain computer ignorant. They must know about hardware: its makers, capacities, costs, serviceability, useful life expectancy and potential suppliers (Coffin, 1985; Coffin, 1986; Isherwood, 1985). As instructional leaders (Coffin, 1985; Donmoyer & Wagstaff, 1990; Howell & Higgins, 1990; Johnson & Snyder, 1990; Root & Rowe, 1987; Witten & Others, 1990) principals must lead the way in technological innovation in their schools. Simply pointing out a computer lab, having one visible in an office, or

an inability to type (Coffin, 1985; Isherwood) can no longer be acceptable for the principal who must also be a business executive (Donmoyer & Wagstaff; Groves & Wren, 1987; Hoachlander, 1983; Walters, 1987). For significant change to take place educational administrators must lead the way in a variety of creative ways. Too often in the past principals have taken a *laissez faire* attitude in computer administration (Streatfield & Thompson, 1983).

Every principal can be, and in fact already is, an instructional leader. An instructional leader is someone who has a significant impact, for better or for worse, on student opportunities to learn in the classroom (Donmoyer & Wagstaff, 1990). The effective principal is a champion. There must be a champion for technology for technological innovation to be successful (Howell & Higgins, 1990). Principals, as instructional leaders in their schools, need to keep abreast of changes in technology to ensure the systems they are using are as near state of the art as possible by reading computer journals regularly and by keeping themselves inserviced (Coffin, 1985; Coffin, 1986; Isherwood, 1985).

The Principal as an Administrator/Manager

Today's effective principal must also be a manager (ERIC Clearinghouse on Educational Management, 1983; Faily, 1980; Groves & Wren, 1987; Isherwood, 1985; Johnson, 1972; Johnson & Snyder, 1990; Pogrow, 1985; Spuck & Atkinson, 1983; Witten & Others, 1990). Computers have been used successfully in the effective management of most businesses. Since secondary schools are some of the largest businesses, the logical assumption is that principals would be effectively and efficiently using the computer as a management tool (Clarkson, 1974; ERIC Clearinghouse on Educational

Management; Faily; Walters). Original studies (Marshall, 1982; Pogrow; Witten & Others) have shown microcomputers have the potential to reduce paper work 50-90% in many applications. In a time which provides only a limited number of resources, it is certain principals must manage the existing resources they have as efficiently as possible, thus allowing the principal to spend more time dealing with children and their needs (Groves & Wren; Pogrow; Witten & Others).

The computer is a management tool (Coffin, 1985; Coffin, 1986; ERIC Clearinghouse on Educational Management, 1983; Spuck & Atkinson, 1983; Witten & Others, 1990) and the darling of educational innovation (Walters, 1987). The computer has the capability of making office functions and decisions-making a more stream-lined process. A little knowledge of microcomputers and available software can make the job easier and more effective (Coffin, 1986); however, the principal who attempts to automate a variety of tasks simultaneously will likely produce chaos in the front office and can destroy, diminish or enslave the staff (Alabama University College of Education, 1982; Burnham, 1981). Running an educational organization is truly a mammoth task and the principal must be able to satisfy both the requirements of the organization and to some extent the needs of co-workers (ERIC Clearinghouse on Educational Management; Faily, 1980).

Good management does not just happen. It requires at least an understanding of the nature of technological revolutions, some particular knowledge of current and imminent technologies, and a willingness to seize opportunities and to pay the attendant social cost (Burnham; Clarkson, 1974). Principals as managers must be extremely careful in using the computer as a

management tool and not let the computer use them (Johnson & Snyder, 1990). A system implemented improperly or hastily will add to the work of the office staff. Caution is essential as the risks of failure are potentially large (Alabama University College of Education, 1982). If schools fail to get it right with computers their mistakes open the door to further attacks on the competence of educators and their ability to teach and manage effectively.

School principals are decision-makers and effective principals use computer technology in helping to make the decisions they make (Begley, 1988; Burnham, 1981; Marshall, 1982; Spuck & Atkinson, 1983; Storlie, 1978; Streatfield & Thompson, 1983). Problem solving processes appear to be crucial to an understanding of why principals act as they do. As principals gain experience, they report more reflection on problem solving and the development of more refined and considered processes for dealing with problems encountered in the operation of their schools. They are aware of problem solving as an activity and are better able to articulate the values they bring to bear on their problem solving processes (Begley). Principals can use the microcomputer in their decision making process.

The amount of information a computer can spew out to the aspiring decision maker is almost infinite. Decentralization of the decision making process as it relates to school based management has even further implications for the school administrator as a decision maker. The professionals most affected by the outcome of the decisions, and who, in many cases, know more about the factors affecting the decisions, are now being allowed to make them. They can make the decisions in a more timely fashion. The ability to make effective decisions are

greatly enhanced when all the facts are presented in an orderly way. Principals as managers have often had experience with computers in various school management tasks such as time tabling, bus scheduling, budgeting and so on. It is important to realize, however, that the central computer administrators have been using for over a decade can be replaced by a microcomputer or laptop and can be used more efficiently (Marshall, 1982).

Relationship Between Principal Use and Use by Others in the Effective School

In effective schools, principals not only manage, but they exercise instructional leadership. Management implies school maintenance; leadership means keeping sight of long-term goals and guiding the school in that direction (Donmoyer & Wagstaff, 1990; Marshall, 1982; Rhodes, 1988; Root & Rowe, 1987; Spuck & Atkinson, 1983). For significant change, like the introduction of computers, into the schools to be successful principals must lead the way. They will either be major leaders or barriers to successful computer use (Witten & Others, 1990).

Schools may only be effective to the extent they provide the workplace with access to information at the time and place it is needed to make appropriate decisions (Donmoyer & Wagstaff, 1990; Rhodes, 1988). One of the key indicators of a school's effectiveness is the extent to which the administration and staff are committed to a systematic and ongoing program of school improvement. The expertise in fostering school improvement exhibited by the principal has a profound impact upon computer use in schools for both instructional purposes and administrative purposes (Root & Rowe, 1987). Schools cited as being exemplars

in the administrative use of microcomputers used less than three application programs (Walters, 1987). The advent of computers in educational reform has taken various forms and shapes depending upon the grade level of the school. Elementary schools have different instructional and administrative needs than do high schools. Likewise, the instructional and administrative needs at middle schools are also very different than those at either end of the spectrum. Therefore, it is misleading to attempt to describe computer use in the schools without differentiation between the levels. However, despite these differences, there are also more common threads of instructional commitment and administrative needs at the varying levels (Walters; Witten & Others, 1990).

Computer usage by principals is indeed an indicator of effectiveness as we move into the twenty-first century. Principals in their roles as instructional leaders, managers and decision makers need to use computer technology in each of these roles if they are to be effective. Principals will either be major leaders or barriers to successful computer use in their schools (Coffin, 1985; Witten & Others, 1990). Eighty math teachers, K-12, reported high on their list of obstacles hampering teacher effectiveness was a lack of principal support for the use of technology in the classroom. Many teachers are working hard to learn how to use computers effectively in the classroom, many principals have failed to keep up and do not offer the support teachers need to secure essential funding (Coffin, 1985; Isherwood, 1985; Pogrow, 1985; Rhodes, 1988).

Principals must look to the school office of the future. Office automation is a tool principals can use to better manage their institution (Witten & Others, 1990). Earlier studies done in Kentucky indicated a majority of rural secondary

principals do not use computers. In 1980 a study indicated only 3% of the principals used computers to aid in decision making and only 1% considered computer aided forecasting to be a high priority (Tushman & Nelson, 1990).

Research Questions

This study addresses the following general research questions:

1. How do principals use a microcomputer in their job function in an elective way?
2. How do principals use a microcomputer as required by the school system?
3. Do principals use computers in their role as the instructional leader?
4. How do principals use computers in their role as manager?
5. What, if any, is the relationship between the principal's type of use and the type of use by others in the school?

Research Methodology

The subjects of this study were principals in the Florida Public School System. The population included the principals of all level groupings: elementary, middle/junior, and high school. The population size is 2,241. The sample size of 448 (Isaac & Michael, 1982) was selected randomly and stratified by the level grouping of the school.

The research was conducted using a written survey and telephone interviews of ten percent of the respondents. Respondents answered a variety of questions on the written instrument itself and these data were verified via a follow-up telephone interview with a sample of the respondents. A panel of three experts reviewed the questionnaire in regards to its construct validity. The

reliability was validated through a pilot study in 1994. The pilot study of the survey instrument used seven principals in the Clay County School system. After the pilot study data had been collected the principals were contacted and questioned on the clarity of the instrument. Based on their feedback the instrument was modified. Principals from all three levels were used. Upon acceptance of the proposal to do the research and a validation of the instrument by a panel of experts with subsequent modifications and certification by the panel of experts the survey instrument was ready for distribution.

The data were collected using the survey instrument which was mailed to the sample. A sample of the collected data was then verified and followed up with a telephone interview. The data were analyzed by using the Statistical Package for the Social Sciences (SPSS).

The independent variables of this study included: the level of administration (elementary, middle/junior, high school), years of experience as a principal, gender, race, size of school, size of school district, demographics of district, educational level, amount of computer training, type of training (in service or college course work), district support, computer applications supported by the district, and home or recreation computer usage and access. The dependent variables of this study included: access to a microcomputer, the overall uses of the microcomputer, the principal's use of the computer as the instructional leader, the use of the microcomputer in the principal's role as manager and administrator, and the type of use of microcomputers by others in the school.

After the participants were randomly selected throughout the state of Florida, the questionnaire and a brief explanation letter were sent out. Each

questionnaire was coded with a value that corresponded to a receipt card for a verification of who completed the survey, but at the same time provided anonymity. One month later a second questionnaire was mailed to those respondents who did not mail their questionnaire back. Two weeks later a decision was made as to whether the number of respondents was satisfactory without further efforts. If it was determined to be inadequate, the researcher would have then called the identified non-participants to attempt doing the questionnaire by phone. Data were then compiled into SPSS for descriptive statistics.

Research Instrument

The research instrument was a three part survey validated by a panel of experts. The first part of the survey required responses to yes-no questions, select the best choice questions, and questions which could require more than one check. Part II of the survey explored technology and the use of microcomputers in the school. The same type of questions were asked. Part III explored the demographics of the school and the respondent.

A sample of the respondents who responded positively to a possible follow-up telephone interview were contacted by telephone. The purpose of this phone call was to validate the data and gave the respondent the opportunity to give additional information.

Population Sample

The subjects of this study were principals in the Florida Public School System. The population included the principals of all level groupings: elementary, middle/junior, and high school. The population size is 2,241. The

sample size was 448 and was random and stratified by the level grouping of the school.

Definition of Terms

Principal--The person identified by the district to be the person in charge of the school to which he/she is assigned.

Microcomputer--A device which acts as a stand alone or is networked and performs computer applications programs.

Elective Use--Use of the device that is optional to the person performing the task in contrast to a task that could be performed in a manual way by the principal.

System Required Use--Use of the device which is mandated by the school system of which the principal is a part of.

Instructional Leader--A role of the principal of the school (i.e., head, innovator, facilitator).

Manager--A role of the principal of the school (administrative, routine tasks).

Limitations of Study

The population was limited to Florida principals. It was also limited by the use of survey responses. The sample was a stratified random sample based on the level grouping of the school. The population included only public school principals.

Organization of the Study

The second chapter of this study will review the literature as it relates to the principal as an instructional leader and manger. It will further review the administrative uses of the microcomputer. The review will also focus on the

principal as an effective leader and explore effective schools and how they use the microcomputer.

Chapter three will be an in-depth look at the design of the study. The research design, justification of the design, describing the statistical analysis conducted, description of the population sample, and the internal and external validity of the study also are presented in chapter three.

Chapter four will describe the results of the written survey instrument and the follow-up telephone interviews. The statistical analysis and results are discussed.

Chapter five presents the conclusions which can be drawn from the data collected and analyzed. The implications of the data are discussed and suggested possible follow-up studies which could be conducted to further broaden our understanding of this role of the school principal are outlined.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

There is currently considerable literature on the principalship and effective schools. There are studies on the principal as an effective leader, as a manager, and as a decision maker. Relatively few research studies have been conducted on the use of computers by principals as it relates to administration. This review examines five areas related to the principal's use of the microcomputer. This review examines how the microcomputer is used electively, that is to say the optional use of the microcomputer in performing tasks which could be done in a manual way. The review also shows how the microcomputer is used for tasks when the system gives the principal no other way than for the tasks to be done with the microcomputer. The chapter also reviews how principals use the microcomputer as instructional leaders or administrative managers of schools, as they endeavor to move into the twenty-first century and keep up with technology. Lastly the review of the literature examines effective schools and their use of microcomputer technology.

Elective use of the Microcomputer

The extent to which principals use microcomputers depends upon their level of computer literacy (Witten, Richardson, & Prickett, 1990). Principals can no longer remain ignorant in dealing with microcomputers. They must keep abreast of the applications instructionally, administratively, and electively of the microcomputer (Coffin, 1986; Isherwood, 1985; Lauda, 1994). Principals must

decide what they want the computer to do (Ornstein, 1992). Microcomputer literacy must precede the effective and creative use of the microcomputer as an administrative tool and be considered as a means to an end (Johnson, 1972; Witten & Others, 1990).

Effective principals are expected to know about many things (i.e. buses, typewriters, vocational education, special education, furniture, textbooks and on and on and on). Coffin (1985) feels the time has come for principals, to be as effective as possible, to know at least as much about microcomputers as they do these other things. Training in microcomputers use can be viewed as an individual's responsibility and must be done regardless of employer's support (Isherwood, 1985). Districts have introduced larger computers, but the use of a microcomputer has the potential to revolutionize the principalship (Walters, 1987). This revolution has been a grassroots effort (Coffin, 1985). Those principals who initially used microcomputers in their job functions did so based on personal preferences and interest in electronics (Begley, 1988; Walters, 1987). Microcomputers were used electively in graduate and doctoral work, personal record keeping, and a variety of other software application programs like Print Shop, Certificate Maker, Apple Works, electronic mail and time management (Walters, 1987; Johnson, 1972; Closen, 1987; Gander, 1984).

The most effective way to work with technology is to interact with it directly (Pogrow, 1985). Principals should know microcomputers are not magic machines, but that they can become wonder tools (Coffin, 1985; Walters, 1987; Witten & Others, 1990). Principals can become initiated and familiar with microcomputers through the regular reading of computer journals. Coffin (1985)

suggests principals can keep up with the developments in the field and the control of office administration and instructional leadership.

System Required Use of the Microcomputer

In the past superintendents, school boards, and principals saw little need for microcomputers in the classroom or in the principal's office; however, the time has come for principals to consider the microcomputer as just another piece of technology, in much the same way as the typewriter, telephone, and automobile are regarded (Coffin, 1986; Kennedy, 1988). Microcomputers are increasingly being used for a variety of administrative tasks (Educational Resource Information Center (ERIC) Clearinghouse on Educational Management, 1983; Kearsley, 1988; Witten & Others, 1990). Once schools have good administrators who are proactive, properly selected computer systems can substantially improve the quality of administrative practices. The extent to which schools use computers for administrative purposes depends on the principal's level of computer literacy. Educational administrators must look to the school office of the future, realizing office automation is a tool they can better use to manage their institutions.

To be able to respond to the school's increasing use of, and need to use computers, principals must have a basic working understanding of both the school's computer hardware and the software that is available for that hardware. The principal should be able to assess such factors as hardware costs, capacities, and uses, and software's availability, compatibility with hardware, quality, and relevance to educational or administrative goals. Principals can no longer remain computer ignorant. Coffin (1985) advocates though they need not be computer

experts, all principals need some knowledge of hardware, software, computer assisted instruction (CAI) and microbased administrative operations. Principals should have keyboard skills, that is, they should be able to type. They should understand word processing, how to construct and report from a data base, how to use a spreadsheet to solve financial problems, how to create reports and link them with a mail-merge package, how to create and maintain files on a disk, how to use hardware available in their district, and how to use specific applications programs in use in their school district. Although school district administration has previously been influenced by the introduction and use of larger computers, the microcomputer has brought the potential for revolutionizing the principal's job. Many principals are thought to be unaware of the possible benefits offered by microcomputers or are unprepared to capitalize on them (Walters, 1987).

The ideal computer system, as used by the secondary school principal has many common components. It has data input that is easy, quick, and accurately handled, and it checks for errors at the time of data entry. The ideal computer program makes it easy to immediately change the information and these changes can be entered into the computer easily. The computer system also automatically transfers information across applications. It has the possibility of having networked stations. The ideal system also allows principals and staff without technical backgrounds to easily ask basic questions of the stored information. Users should also be able to easily design report formats in minutes (Pogrow, 1985). The vast majority of districts are not using the full potential of computers to prepare educational budgets and to control operational expenditures (ERIC Clearinghouse on Educational Management, 1983).

Because of reporting requirements and the subsequent information management requirements, interest in microcomputing on the building level is continuing to emerge. Principals and their staff are discovering that while a computer is indeed an incredible "number cruncher" this function is overshadowed by the machine's capacity to manipulate words and other non-numeric information (Alabama University College of Education, 1982). Managing a school requires the manipulation of a massive and ever growing amounts of information. Most large and midsized school systems are now depending on mainframes and/or microcomputers to manage payroll, personnel files, student test scores, attendance records, space records, encumbrance accounting, billings, equipment records, library management, scheduling, student management, and Individual Educational Plan management (Alabama University College of Education, 1982; ERIC Clearinghouse on Educational Management, 1983; Johnson, 1972; Ornstein, 1992; Pogrow, 1985; Root & Rowe, 1987; Walters, 1987).

The Principal as an Instructional Leader

Although the Principal is expected to be an instructional leader, no one expects the principal to be an expert in everything. The job calls for a jack of all trades and, hopefully, a master of a least one, teaching. But, principals must be sufficiently knowledgeable about all school activities and functions to support and assist the people who have particular expertise in any one area, including custodians, secretaries, cafeteria workers, counselors, and teachers--even those who are computer 'experts.' If principals refuse to gain this minimal knowledge of computers in education, they may become the tail of the dog. The business of

education is becoming more complicated and competitive each day (Coffin, 1985; Poston, 1992; Witten & Others, 1990).

Of course, principals acting as instructional leaders in their schools will need to keep abreast of instructional applications available for the microcomputer. Administrators in educational institutions throughout this nation face a tremendous task, and they are faced with crises of purpose such as they have never faced in the past. These crises have emerged from technology, inflation, equal rights, the energy crisis, changing values and morality, environment, and urban/suburban crises. These crises also simultaneously offer a remarkable challenge to administrators. They must have the knowledge and understanding of effective administrative behavior in order to deal with them effectively. In order to be a successful school administrator there are problems which have to be overcome. Some of these problems include: fear of computers or the problems a computer might cause, initial cost of hardware and software, lack of knowledge about what tasks can or cannot be performed by a computer, and security (Faily, 1980; Witten & Others, 1990). Isherwood (1985) and Lauda (1994) advocate someone in the school should be keeping abreast of the changes in a rapidly changing technological field to ensure the system being used is as near to state of the art as possible.

Focusing on the leadership role in pursuing educational excellence indicates that principals, and programs for the training of educational leaders, need to emphasize the following qualities: a sense of vision; an ability to clearly enunciate expectations; skills in building a series of two-way communication channels; high visibility, and technical knowledge (Batsis, 1987; Ross & Bailey,

1994). Every principal can be, and in fact, already is, an instructional leader. An instructional leader is someone who has a significant impact, for better or worse, on student opportunities to learn in the classroom. The administrative challenge is one of instructional leadership (Donmoyer & Wagstaff, 1990; Heck & Marcoulides, 1993; Johnson & Snyder, 1990). The easiest, most direct way for a school principal to exercise instructional leadership is through the managerial tasks he engages in every day. The principal must clearly articulate and advocate the new literacy by becoming the "first wave" leader who understands and advocates new literacy as a learning methodology (Donmoyer & Wagstaff, 1990; Ross & Bailey, 1994). Effective schools administrators not only manage, they exercise instructional leadership. Management implies school maintenance; leadership means keeping sight of long-term goals and guiding the school in that direction (Johnson & Snyder, 1990; Poston, 1992).

Howell and Higgins (1990) see a distinction between two types of principals and state that some will be "users" of educational data systems, while others will be "creators" as well as users. While many principals complain that they are already so bogged down with managerial tasks that they have neither the time nor the energy to take on yet another role (Donmoyer & Wagstaff, 1990), some principals will have the interest, the enthusiasm and the ability to design and create applications for their schools and schools systems. Increasingly, school principals are asked to be instructional leaders.

As the instructional leader and administrative head, principals are in the best position to assess how computers are being used in their schools. This assumption, that principals can be instructional leaders, is documented in the

effective schools research (Cawelti, 1987), which reveals school leaders do determine whether or not schools are successful (Heck & Marcoulides, 1993; Root & Rowe, 1987).

The microcomputer has many practical advantages. No longer should school administrators be forced to work until midnight to get reports completed. More time can be made available to deal with student needs with the use of the microcomputer. Microcomputers are tools we do not usually associate with leaders, but with workers. Technology has been something provided for students to use (Pogrow, 1985; Rhodes, 1988; Witten & Others, 1990). Technology can provide principals with ways to make the information they need more comprehensive and accessible for use in leadership situations. Some principals are using computers in very creative ways (Witten & Others, 1990).

Many principals delegate the function of educational leadership for their schools. Some principals delegate to an assistant principal, an aggressive teacher, a counselor, a school secretary, or a bright, articulate, initiatory member of the school board or PTA. Others allow the superintendent or someone from this office to provide the real educational leadership for the school, while the principal handles transportation, lunches, and discipline. Some are beginning to let the "computer expert" or the "computer committee" make significant educational decisions which are the primary responsibility of the principal (Coffin, 1985). The computer maturity of teachers dictates a new role for the principal.

Two characteristics stood out in those districts having the greatest success with computers. First, in the districts and schools with the strongest programs, there was a very strong commitment to computing on the part of the either the

superintendent or the principal. While much has been made of the enthusiastic teacher as a way to initiate computer education in the classroom, Hoachlander (1983) observed that little happened outside the teacher's own classrooms unless the principal had taken an active interest in promoting computing throughout the school. Numerous studies in recent years confirm strong instructional leaders are critical factors in effective schools. For example, a Rand study of 1977 called the principal the "gatekeeper" of change and reported that principals were powerful enough to prevent or foster any kind of change within their schools (Johnson & Snyder, 1990). The principal is the pivotal player in facilitating change or maintaining the status quo (Evans, 1995). This appears to be a common sense observation in any profession, the more a sculptor interacts with clay, a factory worker with a car, a teacher with a child, the more opportunities there are to self-correct, to catch errors and make modifications. Indeed, if this is in fact the way things are, then management has no choice, it must put something in the workers' environment that informs their decisions (Rhodes, 1988). In Walters' (1987) study, the principal in all ten elementary schools studied personally used a microcomputer, and several personally owned one or more microcomputers. The type of experiences reported include: electively taking graduate courses in computers, using the computer for doctoral dissertations, participating in computer training in the military, working with computers in industry, teaching a college computer course, and training received at an educational resource center.

One variable strongly linked to the success of technological innovations is the presence of a champion. This is an individual who informally emerges in an organization and makes a decisive contribution to the innovation by actively and

enthusiastically promoting its progress through the critical stages. The role of a champion must overcome the indifference and resistance that major technological change provokes, a champion is required to identify the idea as his or her own, to promote the idea actively and vigorously through informal networks, and to risk his position and prestige to ensure the innovation's success. The new idea either finds a champion or dies. Technical innovators design and/or develop the innovation, while user champions implement the innovation by training and providing assistance to the users. In order to identify project champions reliably, different types of innovator roles need to be distinguished. To illustrate, while both project champions and gatekeepers are involved in communication and information-processing activities, gatekeepers gather and disseminate external information to project groups while champions seek out creative ideas from information sources and then enthusiastically sell them. Champions identify with the idea as their own, and with its promotion as a cause, to a degree that goes far beyond the requirements of their job. These champion behaviors are similar to the qualities of transformational leaders, leaders who inspire their followers to transcend their own self-interests for a higher collective purpose. Champions are said to display persistence and dedication even in the face of frequent obstacles and imminent failures. Champions will exhibit higher achievement, persistence, innovativeness, persuasiveness, and risk taking than non-champions. There will be a more positive relationship between personality dimensions and transformational leader behaviors for champions than for non-champions (Evans, 1995; Howell & Higgins, 1990). If the principal does not lead change in the

culture of the school, or if it is left it to others, it normally will not get done (Fullan & Stiegelbauer, 1991).

It is worth noting that administrative support for computing in many cases was nothing more than a kind of simple faith that computers are here to stay in education, and we need to learn how to use them effectively. In a few instances, some more general educational objectives underlie this outlook; for example, making every child comfortable with computers as a tool, or taking advantage of the computer's power to teach logic and problem solving. Nowhere, however, did it require a well articulated plan for how computers should be used in education. Indeed, the second characteristic of the more successful efforts was a clear understanding that there is no single right way to use computers, either in the classroom or administratively, and that a great deal of trial and error is required to use the microcomputer effectively. This willingness to experiment and make mistakes with computing strikes as especially important, if for no other reason than these days it takes courage. If schools fail to get it right with computers, their mistakes open the door to one more attack on the competence of educators and their ability to teach and manage effectively (Hoachlander, 1983; Ross & Bailey, 1994). Training can be viewed as an individual's responsibility. School principals should advance their knowledge of educational technology, independently of their employer's support (Isherwood, 1985).

Educational administrators are subjected to immense social pressures for the improvement of the education of students in their institutions. Reform of curriculum and straightening of teacher qualifications are currently receiving high visibility; one of the most precious resources, time, must be conserved and

managed to permit other factors to operate in improving educational results. Microcomputers when properly used can assist administrators in saving time ordinarily consumed in routine tasks and thus provide time for working directly on other vital leadership functions. Improvements in administrative efficiency are not likely to be significant, however, unless the computerized administrative system has been carefully built around a comprehensive and systematic plan which clearly establishes goals, alternative methods, costs benefits, responsibilities, and schedules. As technical capabilities continue to increase, as costs continue to decline, and as humans improve their abilities to utilize the new technological tools, a new era in administrative computer applications seems imminent (Spuck & Atkinson, 1983). Two dangers in the resulting *laissez faire* attitude to computer administration, especially in schools, are that much local effort may be wasted because it is based on insufficient expertise trying to utilize insufficiently powered equipment, and that unless the schools organize themselves to the point that they can specify their requirements for administrative packages in a lucid and forceful manner, they will be at the mercy of software manufacturers seeking additional outlets for not very appropriate packages (Streatfield & Thompson (1983).

For a significant change like the introduction of computers into the schools to be successful, current thinking and research indicate educational administrators must lead the way. They will be either the major leaders or barriers to successful computer use. With the new breed of school administrator currently being trained, the computer will become a tool to revolutionize student records and information processing.

The Principal as an Administrator/Manager

Administrators in educational institutions throughout this nation face a tremendous task. They are faced with crises of purpose such as they have never had to cope. These crises have emerged from technology, inflation, equal rights, the energy crisis, changing values and immorality, environment, and urban/suburban crises. These crises also simultaneously offer a remarkable challenge to administrators. They must have the knowledge and understanding of effective administrative behavior in order to deal with them effectively (Brubaker, Simon, & Tysinger, 1993; Chamley, McFarlane, Young & Caprio, 1992; Faily, 1980). As instructional leaders and administrative heads, principals are in the best position to assess how computers are being used in the public schools. This assumption, that principals can be instructional leaders, is documented in the effective schools research (Cawelti, 1987), which reveals school leaders do determine whether or not schools are successful (Root & Rowe, 1987).

Unfortunately, the traditional approach to administrative uses of computers in education has emphasized the production of district wide reports without providing much benefit for school building administrators. In fact, highly, centralized administrative systems have traditionally simplified work in the central office while increasing paper work at the school level (Pogrow, 1985). But, in effective schools, administrators not only manage, they exercise instructional leadership. Management implies school maintenance; leadership means keeping sight of long-term goals and guiding the school in that direction (Rallis & Highsmith, 1986). Faced with the mammoth task of "running" an

organization, the administrator must be able to satisfy both the requirements of the appointing organization and, to some extent, the needs of co-workers (Faily, 1980). In the management writings that have made the best-seller lists in recent years (Deal & Kennedy, 1982; Geneen, 1984; Moss-Knater, 1983; Peters & Waterman, 1982), the generic base of management and organizational theory and research, and the studies of effective schools have all pointed to the central role of the school principal and the principal's potential ability to alter work and achievement patterns (Johnson & Snyder, 1990).

The easiest, most direct way for school principals to exercise instructional leadership is through the managerial tasks they engage in every day (Donmoyer & Wagstaff, 1990; Frase & Melton, 1992). According to Pogrow (1985) paperwork is the most mismanaged opportunity in education. Computers have the potential to reduce much of this paper work, by 50 to 90 percent in many situations. These improvements would allow for a complete return on the investment of computer hardware and software within months. Although most principals would admit work in the school office is usually backlogged, they are still hesitant to propose radical changes in the day-to-day operation of the school (Witten & Others, 1990). Although school district administration has previously been influenced by the introduction and use of larger computers, the microcomputer has brought about the potential for revolutionizing the principal's job. Many principals may still be unaware of the possible benefits offered by microcomputers or unprepared to capitalize in them.

Computers have been used successfully in the effective management of most businesses. Since secondary schools are some of the largest businesses, the

logical assumption is that principals would be effectively and efficiently using the computer as a management tool (Witten & Others, 1990). The business of education is becoming a more complicated and competitive each day (Johnson, 1985). In the business world computers are routinely used for such management tasks as inventory control and accounting and for more advanced tasks such as planning and forecasting resource allocation and project monitoring . In school administrations computers are commonly used for basic clerical tasks and have not yet received wide use in planning, development, and evaluation (ERIC Clearinghouse on Educational Management, 1983). In recent years American managers have learned that information is their primary resources for 'empowerment' and is to be shared and made accessible to those closest to the 'product' who must use it for their decisions (Rhodes, 1988).

Most high school administrators have been trained as educators, not as business executives. However, the job requires them to have knowledge in the areas of business administration and automated systems (Groves, & Wren, 1987). The idea of a craft of administration implies a set of skills that can be learned (Blumberg, 1984). Principals for the most part receive little or no formal training in the use of computers (Witten & Others, 1990). Experience with using a computerized management system should be an expressed requirement for all new administrators and counselors. Once a secondary school has good proactive administrators, properly selected computer systems can substantially improve the quality of administrative practice (Pogrow, 1985). Principals should have keyboarding skills, that is, they should be able to type. They should understand word processing, how to construct and report form a data base, how to use a

spreadsheet to solve financial problems, how to create reports and link them with a mail-merge package, how to create and maintain files on a disk, how to use hardware available in their district, and how to use specific applications programs in use in their school district (Isherwood, 1985). The school systems in which many principals work do not offer any type of training in the use of computers to help them manage schools (Witten & Others, 1990). Educators preparing themselves for the principalship should have access to training that will assure they have these skills. Principals without these microcomputer skills should be pursuing them now (Isherwood, 1985).

Microcomputers have the potential to make school administration much more streamlined and efficient. But to make the best use of this new technology administrators must deal effectively with the practical aspects of purchasing hardware and software, maintaining the computer system, and training themselves and staff members in its use (ERIC Clearinghouse on Educational Management, 1983). To cope with problems and gain greater control over the collection, analysis, and use of management information, schools are increasingly purchasing stand-alone microcomputers to perform specific types of applications (Pogrow, 1985).

Crucial to the success of any purchase was the evaluation of the questions "Where are we?" and "Where do we want to go?" Principals who can answer these two questions will be able to decide how they are going to get there and how they will know when they have arrived (Johnson, 1985). The first thing a principal should consider is that all school offices are different. Each office has its own routine and certain strengths and weaknesses in its personnel (Frase &

Melton, 1992; Witten & Others, 1990). School managers should consider whether the new technology will be accepted or rejected by the school's staff (ERIC Clearinghouse on Educational Management, 1983). While there is no lack of possible work for such a machine, the administrator who attempts to automate a variety of tasks simultaneously will likely produce chaos in the front office. The principal must insure enough people have knowledge to operate the school's data system. This means having "back-up" people. One person cannot be responsible for the system (Isherwood, 1985). Principals must recognize word processing as a wonder tool in the hands of students and secretaries (Coffin, 1985). However, a system that is implemented improperly or hastily will add to the work of the office staff. Caution is essential as the risks of failure are potentially large (Alabama University College of Education, 1982).

Studies have indicated microcomputers can handle 80 per cent of school management functions. Computers are the answer to many of the information management needs of principals. Principals must actively seek the information needed to use the computer as a productivity tool (Marshall, 1982; Pogrow, 1985; Witten & Others, 1990). Paperwork is the most mismanaged resource in education. Good management does not "just happen." It requires at least an understanding of the general nature of technological revolutions, some particular knowledge of current and imminent technologies, and a willingness to seize opportunities and to pay the attendant social costs (Burnham, 1981). Federal and state special education programs have generated substantial new paper work, and there is a growing need for a management information system that will keep track of special education students and satisfy various reporting requirements.

Combined with other local administrative functions such as budgeting attendance accounting, class scheduling, grading, and general word processing, the purchase of sophisticated systems can be justified (Hoachlander, 1983).

Mismanagement of technologies may result in conditions that destroy, diminish or enslave (Burnham, 1981). There often is evident a lack of planning and commitment to computer use in the administrative areas. Most disturbing is the lack of commitment to computer use in the area of administrative school management (Witten & Others, 1990). Microcomputer software designed for business environments are effective tools for public service professionals when appropriate adult training techniques and peer support are available (Gander, 1984).

The principal should know that much computer advertising grossly overstates the capabilities and value of both hardware and software. Schools should pilot all computer hardware and software before buying it, being sure the software is compatible with the hardware, the teacher requisitioning the software has seen it, tried it out, and, above all, knowing where it fits in the curriculum and in specific lesson plans. Principals are not expected to recite a list of good titles, but they should be able to advise teachers about criteria significant in judging software and sources of information about it. Eighty math teachers from grades K-12 reported high on their list of obstacles hampering teacher effectiveness was a lack of principal support for the use of technology in the classroom. One teacher said, "While teachers are working hard to learn how to use computers effectively in the classroom, many principals have failed to keep up and do not offer the support teachers need to secure essential funding." (Coffin, 1985. p. 1)

In order to be a successful school administrator, there are problems which must be overcome. Some of these problems include: fear of computers or the problems a computer might cause, initial cost of hardware and software, lack of knowledge about what tasks can or cannot be performed by a computer, and security (Crawford, 1985; Witten & Others, 1990). Typically school principals have adopted a posture that if it works, don't fix it (Anderson, 1987). School principals can make the difference between whether a school system will have a well-oiled machine or a bucket of bolts. Although most principals would admit work in the school office is usually backlogged, they are still hesitant to propose radical changes in the day-to-day operation of the school. Educational administrators have to look forward to the school office of the future. Office automation is a tool principals can better use to manage their institutions (Witten & Others, 1990).

Computers cannot make poor managers better administrators. A good school scheduling program is of little value if administrators at a school do not know how to organize a schedule. Computer systems are designed to make good administrators more efficient (Pogrow, 1985). A little knowledge of microcomputers and available software can make the job easier and more effective (Coffin, 1986). Modern-day administrative planning by necessity involves the computer. Managing a school requires the manipulation of a massive and ever growing amount of information. Most large and midsize school systems are now depending on mainframes or minicomputers to manage payroll, personnel files, student test scores, attendance records and so forth (Clarkson, 1974; ERIC Clearinghouse on Educational Management, 1983).

Now that microcomputers are affordable, they may be an effective tool for helping administrators manage resources. The availability of more effective computer systems means that we are reaching a point where paperwork can be vastly simplified. It means not having to work until midnight to get reports completed and having more time to deal with student needs. The advent of extremely powerful and relatively inexpensive microcomputers in the 1980's, coupled with the availability of new and sophisticated business-oriented software, has encouraged educational administrators to utilize these new tools both in their routine office functions and at home for personal uses (Groves & Wren, 1987; Pogrow, 1985; Spuck & Atkinson, 1983).

Principals can use the microcomputer as a tool in decision making. In decision making, the amount of information or the amount permutated and computed a computer can spew out to the aspiring decision maker, is almost infinite. Decentralization has some further implications for the school administrator as a decision maker. The people most concerned are those making the decisions. Since they often know more about the factors affecting the decision, they may be able to make the decision more adequately and without delay. The quality of decision and the general work of executives may be increased as the possibility of deciding without all the facts and making too many decisions is reduced. It is important to realize the tasks performed by the central computer administrators have been using for over a decade, the microcomputer can do just as easily (Marshall, 1982).

In an institution, the right to participate in decision making not only has an ethical basis but yields practical advantages as well (Faily, 1980). There is much,

much more to educational computing than problem solving and teaching computer programming (Storlie, 1978). In 1980 only some three percent of respondents considered using computer aided decision-making and only about one percent considered using computer-aided forecasting to be high priority (Streatfield & Thompson, 1983). Begley (1988) reported administrators' problem solving processes are crucial to an understanding of why principals act as they do.

Managers are decision makers. In an educational setting administrators, counselors, teachers, parents, students, and others may be viewed as essential decision makers. Each makes a variety of day to day operational decisions (Frase & Melton, 1992; Spuck & Atkinson, 1983). Decision-makers who attend to the matter of opportunity management must, above all, understand the alternatives before them and the likely consequences of various possible actions which may be taken with the high technologies now emerging (Burnham, 1981).

As principals gain experience, they report more reflection on problem-solving and the development of more refined and considered processes for dealing with problems encountered in the operation of their schools. In addition they are more aware of problem-solving as an activity and are better able to articulated the values they bring to bear on their problem-solving processes (Begley, 1988).

The decision to focus on administration to the exclusion of the curriculum is made quite consciously. Planners have believed strongly that if administrators would come to value computers, classroom uses would follow easily. Computers force better management, changing sloppy organizational procedures and requiring a new precision in the collection, reporting, and use of information. For example, improved attendance accounting, which determines state and local aid,

might alone produce additional income sufficient to justify the new computing systems (Hoachlander, 1983).

There is a distinction between two types of principals. Some will be 'users' of educational data systems, while others will be 'creators' as well as users. Some principals will have the interest, the enthusiasm and the ability to design and create applications for their schools and schools systems (Howell & Higgins, 1990). Principals have also been compared to princes and paupers. The prince can work interactively with the school database, generate reports from that data base with a few key strokes. In contrast the pauper is left to paper files, hand updating, printing report cards and attendance records on a cyclical basis (Isherwood, 1985). Today's administrator is facing a crushing burden in terms of managing student and administrative information. The processing of this information using pencil and paper techniques requires the expenditure of significant administrative time and attention (Alabama University College of Education, 1982; Campbell & Williamson, 1991). Better resource management gives us more resources to use for our most important objective, which is the highest quality education possible for our students (Groves & Wren, 1987). In a time in which limited resources are being devoted to schools, it is imperative we manage the existing resources as efficiently as possible (Witten & Others, 1990). The computer is a means to an end, if a computer becomes an end in itself, it is no longer a tool but rather a monster created by management (Johnson, 1972).

Relationship between Principal Use and Use by Others in the Effective School

Information is a leader's most powerful resource. Management theorists tell us the way to increase productivity is by working 'smarter' rather than harder (Rhodes, 1988). It is misleading to attempt to describe computer use 'in the schools' without differentiation among the various grade levels addressed, the basic school structure, and their inherent philosophy, i.e. elementary vs. middle schools/ junior high schools vs. high schools. Amid this diversity, however, there remains a common thread of commitment to instruction at each school level and similar administrative needs (Root & Rowe, 1987). Educational administrators are subjected to immense social pressures for the improvement of the education of students in their institutions. Reform of curriculum and strengthening of teacher qualifications are currently receiving high visibility; one of the most precious resources, time must be conserved and managed to permit other factors to operate in improving educational results. Microcomputers when properly used can assist administrators in saving time ordinarily consumed in routine tasks and thus provide time for working directly on other vital leadership functions. Improvements in administrative efficiency are not likely to be significant, however, unless the computerized administrative system has been carefully built around a comprehensive and systematic plan which clearly establishes goals, alternative methods, costs benefits, responsibilities, and schedules. As technical capabilities continue to increase, costs continue to decline, and as humans improve their abilities to utilize the new technological tools, a new era in

administrative computer applications appears imminent (Spuck & Atkinson, 1983; Thomas & Vornberg, 1991).

The advent of computers in educational reform has taken various forms and shapes, depending upon the grade levels of the school and the intended uses of this advanced technology. Elementary schools have different instructional and administrative needs from those of large, comprehensive high schools. Likewise, the needs found in middle or junior high schools vary from those schools with grade levels on either end of the spectrum (Root & Rowe, 1987). Perhaps the most formidable barrier to the widespread utilization of microcomputer technology in building level administration is resistance to automation. There is a lack of resident skills in the educational community, and personnel resistance to the use of microcomputers (Alabama University College of Education, 1982). With this in mind one of the areas of effective principals as listed by Batsis (1987) is a technical knowledge of curricula and learning processes.

The ways administrators and teachers process information is the variable associated with effective educational leadership. Schools are effective to the extent they provide access to information at the time and place it is needed (Rhodes, 1988). Eighty math teachers from grades K-12 reported high on their list of obstacles hampering teacher effectiveness was a lack of principal support for the use of technology in the classroom. One teacher said, "While teachers are working hard to learn how to use computers effectively in the classroom, many principals have failed to keep up and do not offer the support teachers need to secure essential funding" (Coffin, 1985, p. 3). Unfortunately, even while some of this basic information is being developed in isolated instances, it is unlikely that

the widespread use of microcomputer technology will be realized without substantial well planned training programs and acceptable accounting procedures for assessing the total costs associated with the automation of administrators' functions (Alabama University College of Education, 1982). Microcomputers are tools we do not usually associate with leaders, but rather with workers and for students to use (Rhodes, 1988).

Pointing out the computer lab on visitor tours, citing computer-student ratios at the Rotary Club or Parent Teacher Association meetings, or even having a microcomputer visible in your office, were good public relation gimmicks when you were trying to impress someone in years gone by. Often controller cards are seen sitting on top of a dust covered microcomputer which is not even plugged into an electrical outlet. In essence, the microcomputer was a prop in a play in which the principal played the lead role. Until recently, this scenario was harmless. The principal did not have to know anything about computers, much less be able to use one. He could rely on the "teacher-expert" for computer related decisions (Coffin, 1985). An increase in the public's awareness of computer capabilities has resulted in the expectation that school administrators will be freed from the drudgery of school management and will have more time to be educational leaders (Marshall, 1982).

Studies in recent years confirm strong instructional leaders are critical factors in effective schools. For example, a Rand study of 1977 called principals the 'gatekeeper' of change and reported that principals were powerful enough to prevent and foster any kind of change within their schools (Chopra, 1994; Johnson, & Snyder, 1990; Thomas & Vornberg, 1991). As with ships' captains

the success of effective school practitioners thus depends upon constant awareness and quickly accessible information (Rhodes, 1988). Increasingly, school principals are asked to be instructional leaders (Donmoyer & Wagstaff, 1990). In effective schools administrators not only manage, they exercise instructional leadership. Management implies school maintenance; leadership means keeping sight of long-term goals and guiding the school in that direction (Chopra, 1994; Rallis & Highsmith, 1986).

Papert (1987) argues that the computer is a medium of expression and should be used to build a sense of inquiry to "mess about to explore, and to improve thinking skills" (Ornstein, 1992). Principals should know at least as much about computers as they do about school transportation, typewriters, driver education cars, home economics lab equipment, classroom furniture, and textbooks. Principals should know something about the use and abuse of computers in schools. They should know that while microcomputers are not magic machines, that using a good computer based SAT prep program can improve a student's combined score by over 100 points and that the expensive Stanley Kaplan course do not do any better (Coffin, 1985). There appears to be a common sense observation in any profession, the more a sculptor interacts with clay, a factory worker with a car, and a teacher with a child the better the results will be. The more opportunities there are to self correct and to catch errors and make modifications the more will be learned. Indeed, if this is in fact the way things are, then principals have no choice but to put something in the workers' environment that informs their decisions. Deming helped the Japanese build in two such mechanisms. The Quality Circle serves as an information generating

and exchange function, allowing the decisions of the isolated individual worker to tap into the experiences and perspectives of others. The second, feedback data, provides individual workers with information about the effects of their actions while there is still time to do something about them (Chopra, 1994; Rhodes, 1988).

One of the key indicators of a school's effectiveness is the extent to which the administration and staff are committed to a systematic and ongoing program of school improvement. The expertise in fostering school improvement exhibited by the principal has a profound impact upon computer usage in schools for instructional purposes (Root & Rowe, 1987). Schools cited as having been exemplars in the administrative use of microcomputers used less than three application programs. A favorable reputation evidently could be won by performing well a few applications as well as by performing several (Walters, 1987). In all ten elementary schools Walters studied, the principal personally used a microcomputer, and several personally owned one or more microcomputers. The types of experiences reported include: graduate courses in computers, use of computer for doctoral dissertation, computer training in the military, work with computers in industry, taught a college computer course and training received at an educational resource center. It is worth noting administrative support for computing in many cases was nothing more than a kind of simple faith that computers are here to stay in education, and we need to learn how to use them effectively. In a few instances, some more general educational objectives underlay this outlook for example, making every child comfortable with computers as a tool, or taking advantage of the computer's power to teach

logic and problem solving. Nowhere, however, did it require a well articulated plan for how computers should be used in education. Indeed, the second characteristic of the more successful efforts was a clear understanding that there is no single right way to use computers, either in the classroom or administratively, and that a great deal of trial and error is required to use computer effectively. This willingness to experiment and make mistakes with computing strikes as especially important, if for no other reason than that it takes courage to experiment. If schools fail "to get it right" with computers, their mistakes open the door to one more attack on the competence of educators and their ability to teach and manage effectively (Hoachlander, 1983; Ross & Bailey, 1994). For a significant change like the introduction of computers into the schools to be successful, educational administrators must lead the way. They will be either the major leaders or barriers to successful computer use. With the new breed of school administrator currently being trained, the computer will become a tool to revolutionize student records and information processing (Witten & Others, 1990).

Summary

This review has examined five areas related to the principal's use of the microcomputer. The review examined how the microcomputer is used electively, that is to say the optional use of the microcomputer in performing tasks which could be done in a manual way. The review also showed how the microcomputer is used for tasks which the system gives the principal no other way than for the tasks to be done with the microcomputer. The review of literature further showed how principals use the microcomputer as instructional leaders or administrative managers of schools, as they endeavor to move into the twenty-first century and

keep up with technology. Lastly the review of the literature examined effective schools and their use of microcomputer technology.

Chapter three presents an in-depth look at the design of the study. The chapter will describe the research design, justify the design, describe the statistical analysis to be conducted, describe the population sample and describe how internal and external validity of the study will be accomplished.

Chapter four will describe the results of the written survey instrument and the follow-up telephone interviews. This chapter will describe the statistical analysis and discuss the results.

In chapter five the conclusions drawn from the analyzed data collected will be discussed. Implications from the data will be postulated. Finally, suggested possible follow-up studies which could be conducted to further broaden understanding in these roles of the school principal will be presented.

CHAPTER 3

RESEARCH METHODOLOGY AND PROCEDURES

Statement of Purpose

The purpose of this study was to determine the use of microcomputers, by principals in their roles as instructional leaders, managers, and the impact upon the use of microcomputer technology in the school. Because of recent advances in computer technology, the invasion of computers into the schools is a non-debatable fact. For those interested in educational administration there is the further reality that the invasion has had, and will continue to have, implications for the practice of educational administration.

Research Methodology

Survey research methodology was used to investigate how principals use the microcomputer in their job functions as leaders and managers for this descriptive educational study. Florida principals were asked to respond to a survey developed and validated based upon a pilot study and a review of a panel of experts.

The study utilized a mailout written survey and follow-up telephone interviews of the respondents who indicated a positive response to the request for a follow-up phone number. Respondents answered a variety of questions on the written instrument itself and these data were verified via a follow-up telephone interview with ten of the respondents reached.

Research Questions

This study addresses the following general research questions:

1. How do principals use a microcomputer in their job function in an elective way?
2. How do principals use a microcomputer as required by the school system?
3. Do principals use computers in their role as the instructional leader?
4. How do principals use computers in their role as manager?
5. What, if any, is the relationship between the principal's type of use and the type of use by others in the school?

Research Instrument

The research instrument was a three part survey validated by a panel of experts. The first part of the survey required responses to yes-no questions, select the best choice questions, and questions which required more than one check. There were fourteen questions in Part I. These questions dealt with the principal's personal use of the computer. The review of the literature identified a variety of elective uses as well as system required uses of the microcomputer. The uses identified in the review were then transformed into identifiable uses on the study's survey given to the sample population. The review of the literature also identified the principal as an instructional leader and manager. The survey also addressed these issues with various questions requiring responses from the sample population.

Part II of the survey explored technology and the use of microcomputers in the school. The respondent responded to yes/no questions, select the best

choice questions, and questions which required more than one check. There were also questions which required a response to a Likert scale. There were eleven questions on Part II of the survey. In the review of the literature, the relationship between the use of the microcomputer in effective schools and the use of the microcomputer by others in effective schools was reviewed. Responses were required on the survey by the respondents from the sample population to give their perception of what uses and how much the microcomputer was being used in their own schools.

Part III explored the demographics of the school and the respondent. The respondent again responded to forced choice questions. There were nine questions on Part III of the survey.

The survey asked the respondent to respond to a total thirty-six questions. These questions covered the various research questions asked for the purpose of this study. A copy of the complete survey is provided in the Appendix 1.

Reliability and Validity

A panel of three experts, an educational professor, a computer science professor, and a test and measurement professor, reviewed the construct and content validity of the questionnaire. The reliability was validated through a pilot study.

The pilot study of the survey instrument used seven principals in the Clay County School system. After the pilot study data had been collected, the principals were contacted and questioned on the clarity of the instrument. Based on their feedback the instrument was revised. Principals from the elementary, middle, and high school level were used. Upon acceptance of the proposal to do

the research and a validation of the instrument by a panel of experts with subsequent modifications and certification by the panel of experts, the survey instrument was ready for distribution.

The independent variables of this study included: the level of administration (elementary, middle/junior, high school), years of experience as a principal, gender, race, size of school, size of school district, demographics of district, educational level, amount of computer training, type of training (in service or college course work), district support, computer applications supported by the district, and home or recreation computer usage and access. The dependent variables of this study included: access of a microcomputer, the overall uses of the microcomputer, the principal's use of the computer as the instructional leader, the use of the microcomputer in the principal's role as manager and administrator, and the type of use of microcomputers by others in the school.

Population Sample and Procedure for Data Collection

The subjects of this study were principals in the Florida Public School System. The population included the principals of all level groupings: elementary, middle/junior, and high school. The population size was 2,241. The target sample size of 448 used in the study was selected randomly and stratified by the level grouping of the school. There are 1,488 public elementary schools, 416 public middle/junior high schools, and 337 public high schools in Florida. Elementary schools make up 66% of the public schools in Florida. Middle/Junior high schools make up 19%, and high schools make up 15% of the schools. There were 279 surveys representing 63% sent to elementary principals. There were 98 surveys representing 21% sent to middle/junior high principals. There were 71

surveys representing 16% sent to high school principals. There was a return rate 165 surveys from elementary principals representing 59%. There was a return of 56 surveys from middle and junior high school principals representing 57%. There was a return of 48 surveys from high school principals representing 68%. There was an overall return of 269 surveys representing 60%.

The data were collected using the survey instrument which was mailed to the sample. A sample of the collected data were then verified and followed up with a telephone interview. The data were entered into the SPSS system for analysis.

After the participants were randomly selected from the sample population, the questionnaire and a brief explanation letter were mailed out with a self-addressed stamped envelope enclosed. Each questionnaire was coded with a value that corresponded to a receipt card for a verification of who completed the survey, but at the same time provided anonymity. One month later a decision was made that the number of respondents was satisfactory without further efforts. A sample of the respondents who responded positively to a possible follow-up telephone interview were contacted by telephone. The purpose of this phone call was to validate the data and give the respondent the opportunity to give additional information. Data were then compiled and loaded into SPSS for descriptive statistics. Descriptive statistics were computed using the statistical package for the the Social Sciences.

Procedure for Treatment of Data

The survey instrument used a variety of yes/no questions, best choice questions, and questions dealing with the frequency of use in which frequencies

have an assigned nominal number. Descriptive statistics were used to address the research questions.

The first research question asked: How do principals use a microcomputer in their job function in an elective way? This question was addressed on the survey instrument by using items to identify various elective uses. Principals were asked how frequently they used it by forcing a choice between daily, weekly, monthly, yearly, or never.

The second research question asked: How do principals use a microcomputer as required by the school system? This question was addressed on the survey by using questions that required principals to identify what applications were being used by various school districts.

The third research question asked: Do principals use computers in their role as the instructional leader? This question was addressed on the survey by asking the respondents to answer a variety of questions that identified characteristics of an instructional leader.

The fourth research question asked: How do principals use computers in their role as manager? This question was addressed on the survey by asking the respondents to answer a variety of questions that identified managerial functions of the principal. The question was also addressed by questions that identified managerial uses of the microcomputer and asked the respondent to give their frequency of use of various microcomputer applications. There were forced choices, again ranging from never to yearly. Descriptive statistics were used.

The fifth research question asked: What, if any, is the relationship between the principal's type of use and the type of use by others in the school?

This question was addressed by using descriptive statistics and chi square put in at the .05 level of significance to determine if there was a statistical relationship between the principal's use of the microcomputer and the principal's perception of microcomputer use by others.

Limitations of the Study

Part of the inherent problems with a study of this type is what significance would the non-responders play in the overall study. There were 40% of the surveys mailed out that did not get returned. One can only conjecture as to how this 40% would have responded to the initial question of the survey--Do you have a personal computer in your office at school? The survey was well responded to as is evidenced by the 60% return rate. The data might underestimate the lack of microcomputer usage and how principals are using this mode of technology in their various roles.

Summary

This chapter has described the research methodology, questions, instrument, survey validity and reliability. It has also described the population sample and procedure for data collection and the procedures that were used for the treatment of the data.

Chapter four will describe the results of the written survey instrument and the follow-up telephone interviews. In addition the statistical analysis and a discussion of results will be presented.

In chapter five the conclusions drawn from the analyzed data collected will be discussed. Implications from the data will be postulated. Finally suggested

will be possible follow-up studies which could be conducted to further broaden understanding in these roles of the school principal.

CHAPTER 4

DATA ANALYSIS

Introduction

Chapter four will examine the results of the written survey instrument. The chapter will describe the statistical analysis and present the results.

The purpose of this study was to determine the use of microcomputers by principals in their roles as instructional leaders, managers, and the impact upon the use of microcomputer technology in the school. Because of recent advances in computer technology, the invasion of computers into the schools is a non-debatable fact. For those interested in educational administration there is the further reality that the invasion has had, and will continue to have, implications for the practice of educational administration.

Research Instrument

The research instrument was a three part survey validated by a panel of experts. The first part of the survey required responses to yes/no questions, select the best choice questions, and questions which required more than one check. There were fourteen questions in Part I. These questions dealt with the principal's personal use of the computer. Part II of the survey explored technology and the use of microcomputers in the school. The respondent responded to yes/no questions, select the best choice questions, and questions which required more than one check. There were also questions which required a response to a Likert scale. There were eleven questions on Part II of the survey. Part III explored the demographics of the school and the respondent. The principal again responded to forced choice questions. There were nine questions on Part III of the survey. The

survey asked the respondent to respond to a total thirty-six questions. These questions were based on the research questions asked for the purpose of this study.

Subjects

The subjects of this study were principals in the Florida Public School System. The population included the principals of all level groupings: elementary, middle/junior, and high school. The population size was 2,241. The sample size of 448 was selected randomly and stratified by the level grouping of the school. There are 1,488 elementary schools, 416 middle/junior high schools, and 337 high schools. Elementary schools make up 66% of the schools in Florida. Middle/Junior high schools make up 19%, and high schools make up 15% of the schools. There were 279 surveys representing 63% of the surveys sent to elementary principals. There were 98 surveys representing 21% of the surveys sent to middle/junior high principals. There were 71 surveys representing 16% of the surveys sent to high school principals. There were 164 surveys returned by elementary principals representing 59% of the returned surveys. There were 56 surveys returned from middle and junior high school principals representing 57% of the returned surveys. There was a return of 48 surveys from high school principals representing 68% returned surveys. There was an overall return of 268 surveys representing 60%.

The data were collected using the survey instrument which was mailed to the sample. A sample of the collected data was then verified and followed up with a telephone interview. There were no additional significant findings as a result of the follow-up telephone interviews.

Sample Population Demographics

Of the 268 surveys returned by Florida public school principals 135 or 50.4% were male and 132 or 49.6% were female. There were no Asians. Twenty-nine or 10.8% of the respondents reported being Black. Fourteen or 5.2% of the respondents reported being Hispanic. Four (1.5%) of the respondents reported being Indian. Eighty-one percent or 217 of the respondents reported being white.

The age distribution of responding principals can be seen in Table 1.

Table 1

Age Distribution of Respondents

Age	n	P
25-30	5	1.9
31-35	14	5.2
36-40	61	22.8
41-45	93	34.7
46-50	58	21.6
51-55	25	9.3
56-60	8	3.0
61+	1	0.4
Did Not Respond	3	1.1

Seventy-nine or 29.5% of the responding principals had zero to three years of experience. Fifty-eight or 21.6% of the respondents had four to seven years of experience. Forty-four or 16.4% of the respondents reported eight to eleven years

of experience. There were 29 or 10.8% of the respondents with twelve to fifteen years of experience. There were 55 or 20.5% of the respondents who reported having more than 16 years of experience as a principal.

There were 190 (70.9%) of the principals who had obtained a Master's Degree. Thirty principals (11.2%) had obtained a Specialist Degree and 28 (10.4%) had obtained a Doctorate Degree. Seventeen principals reported having completed the doctoral course work, but as of yet have not completed the dissertation.

Principals reported the following undergraduate degrees.

Table 2

Undergraduate Degrees of Respondents

Undergraduate Degree	n	P
Mathematics	13	4.9
English	20	7.5
Social Studies	39	14.6
Sciences	16	6.0
Physical Education	44	16.4
Fine Arts	6	2.2
Vocational Education	7	2.6
Exceptional Student Education	17	6.3
Elementary Education	104	38.8

Twenty-two of the principals responding representing 8.2% reported the population of their highest three grades was less than two hundred eighteen. Sixty-six of the principals responding representing 24.6% reported the population of their highest three grades was 219- 439. Ninety-five of the principals responding representing 35.4% reported the population of their highest three grades was 440-957. Forty-four of the responding principals representing 16.4% reported their top three grade population was 958-1,339. Thirty-eight of the respondents representing 14.2% reported the population of their top three grades was more than 1,400.

Forty-seven of the principals representing 17.5% of those responding reported having no assistant principals. One hundred twenty-seven of the principals representing 47.4% of those responding reported having one assistant principal. Forty-one principals or 15.3% of the respondents reported having two assistants. Twenty-one respondents or 7.8% reported having three assistants. Thirty principals or 11.2% of the respondents reported having four or more assistants.

Research Questions

The first research question asked: How do principals use a microcomputer in their job function in an elective way? This question was addressed on the survey instrument by using items that used nominal data to identify various elective uses. It was also addressed by asking the responder to give a frequency of the uses by forcing a choice between daily, weekly, monthly, yearly, or never.

The second research question asked: How do principals use a microcomputer as required by the school system? This question was addressed on

the survey by using items that used nominal data to identify the applications as identified in the review that are used by various school districts.

The third research question asked: Do principals use computers in their role as the instructional leader? This question was addressed on the survey by asking the respondents to answer a variety of items that through the review of the literature identified characteristics of an instructional leader. The data were descriptive in nature.

The fourth research question asked: How do principals use computers in their role as manager? This question was addressed on the survey by asking the respondents to answer a variety of items that through the review of the literature identified managerial functions of the principal. The question was also addressed by items that identified managerial uses of the microcomputer and asked the respondent to give their frequency of use of various microcomputer applications. Their choices, again, ranged from never to yearly. Descriptive statistics were used.

The fifth research question asked: What, if any, is the relationship between the principal's type of use and the type of use by others in the school? This question was addressed by using descriptive statistics and chi square to determine if there was a statistical significance at the .05 level between the principal's use of the microcomputer and the principal's perception of microcomputer use by others.

The analysis of data for this study is presented in this chapter. The findings are organized in sections according to the research questions investigated.

Question 1

The first research question asked: How do principals use a microcomputer in their job function in an elective way? This question was addressed in the survey by items which asked principals to identify various elective uses they made of the microcomputer and how frequently: daily, weekly, monthly, yearly or never, they made use of it. It was also addressed by asking the responder to give a frequency of the uses by forcing a choice between daily, weekly, monthly, yearly, or never.

Two hundred twenty-two representing 82.8% of the respondents reported having a personal computer in their office at school. Forty-six (17.2%) of the respondents stated they did not have a personal computer in their office at school. Eighty-nine percent or 239 reported personally using a computer in their job function as a principal.

Table 3

Principal Possession and Use of Microcomputer by School Level

Microcomputer in Office	<u>n/P</u>	Elem	134/85.9
	<u>n/P</u>	Jr Hi	45/77.6
	<u>n/P</u>	Sr Hi	41/78.8
Personally use a computer	<u>n/P</u>	Elem	145/92.9
	<u>n/P</u>	Jr Hi	46/79.3
	<u>n/P</u>	Sr Hi	46/88.5

The difference between principals of varying levels who have a computer in the office was not significant at the .05 level of significance. However, there was a significant difference in the number of principals who claimed to personally use the computer by grade level ($\chi^2=8.12311$, $df=2$, $p<.05$). Elementary principals claimed to personally use the microcomputer more than did their secondary counterparts.

Thirty-seven of the responding principals (13.8%) reported doing most of their operations in Microsoft DOS. Seventy-eight of the responding principals (29.1%) reported using Microsoft Windows. One hundred ten of the group (41%) reported using the MacIntosh system. Forty-three of the respondents representing 16% could not identify the type of system they used the most.

One hundred seventy-nine principals (66.8%) reported having a microcomputer in their home that they used. Eighty-nine of the principals (33.2%) did not have a microcomputer at home.

Principals were asked what application programs they used, and they were asked to give response to frequency of use in various application programs. The results of this question are listed in Table 4.

Word processing was reported as the most used application program by the group. Sixty percent of the responding principals reported using word processing on a daily basis. A total of 77% reported using word processing on at least a weekly basis. There were 154 or 57.5% of the responding principals who reported using electronic mail on a daily basis. Spread sheet programs were the least used application programs. Fifty-one percent of the responding principals indicated they never used a spread sheet program. Word processing programs

Table 4

Types of Application Programs Used by Principals

Application Programs		Never	Daily	Weekly	Monthly	Yearly
WORD PROCESSING	<u>n</u>	51	160	47	8	2
	<u>P</u>	19	59.7	17.5	3.0	0.7
SPREAD SHEET	<u>n</u>	137	16	57	42	16
	<u>P</u>	51.1	6.0	21.3	15.7	6.0
DATA BASE	<u>n</u>	89	66	60	40	13
	<u>P</u>	33.2	24.6	22.4	14.9	4.9
TELECOMMUNI- CATIONS	<u>n</u>	147	73	30	13	5
	<u>P</u>	54.9	27.2	11.2	4.9	1.9
ELECTRONIC MAIL	<u>n</u>	81	154	26	5	2
	<u>P</u>	30.2	57.5	9.7	1.9	0.7
CALENDAR	<u>n</u>	125	59	39	43	2
	<u>P</u>	46.6	22.0	14.6	16.0	0.7
AWARDS	<u>n</u>	154	11	11	61	31
	<u>P</u>	57.5	4.1	4.1	22.8	11.6
OTHER	<u>n</u>	17	8	2	6	
	<u>P</u>	6.3	3.0	0.7	2.2	

were the only programs in which there was a statistical significant difference at the .05 level of significance ($\chi^2=16.08046$, $df=8$, $p<.05$). Elementary principals used programs processing programs more than their secondary counter parts. There was no statistical difference in the usage of other programs between the three levels of schools. The data for word processing is shown in Table 5.

Table 5

Types of Application Programs Used by Principals in Grade Level Grouping

Application Programs			Never+	Daily+
			Yearly	Weekly
WORD PROCESSING	<u>n/P</u>	Elem	20/12.8	129/82.7
	<u>n/P</u>	Jr Hi	18/31	40/69
	<u>n/P</u>	Sr Hi	15/28.8	36/69.2

There was a statistical difference at the .05 level of significance in the usage of word processing programs and the years of experience. There was no statistical difference at the .05 level of significance in the other application programs and years of experience ($\chi^2=9.36297$, $df=4$, $p<.05$).

Table 6

Application Programs Used By Principals Based on Years of Experience

Application Program			Never+	Daily+
			Yearly	Weekly
WORD PROCESSING	0-7 years	<u>n/P</u>	20/14.6	112/81.7
	8+ years	<u>n/P</u>	33/25.6	93/72.1

Based on data received from responding principals a large percentage (82.8%) of principals have access to a microcomputer in their office at school. However, one-third of the responding principals do not have microcomputer in their own homes. Seventy percent of the responding principals use the Microsoft Windows or MacIntosh platform while performing various application programs. They most often used word processing application programs on a regular (as defined by daily and weekly use) basis. On the other hand, they tended to not use spread sheet programs on a regular basis, with over half indicating they never used them. Microcomputers were only occasionally used for calendar application programs, and they were not extensively used for developing awards. One-third of the responding principals do not use electronic mail.

Question 2

The second research question asked: How do principals use a microcomputer as required by the school system? This question was addressed on the survey by using items which asked principals to identify the applications commonly reported in the literature as being used in schools.

Two hundred eight (77.6%) of the respondents reported that they used the microcomputer when working with with student records such as attendance, discipline, scheduling and grade reporting. Fifty-nine respondents (22.4%) reported they did not use the microcomputer for student records such as attendance, discipline, scheduling and grade reporting. There were 112 elementary principals who reported using the microcomputer for student record keeping or 72.3%. On the other hand junior high and high school principals reported using

the microcomputer for student records at 81% and 92.3% respectively. This was a significant difference at the .05 level of significance ($\chi^2=9.52590$, $df=2$, $p<.05$).

Principals were asked which computer application the district in which they worked provided. The results are presented in Table 7.

Table 7

District Supplied Microcomputer Application Programs

Computer Applications		Yes	No
Electronic Mail	<u>n</u>	214	53
	<u>P</u>	79.9	19.8
Networking Between Schools	<u>n</u>	122	146
	<u>P</u>	45.5	54.5
Networking To District	<u>n</u>	213	55
	<u>P</u>	79.5	20.5
Networking Between Districts	<u>n</u>	73	195
	<u>P</u>	27.2	72.8
Computerized Budgeting	<u>n</u>	209	59
	<u>P</u>	78	22
Student Records	<u>n</u>	247	21
	<u>P</u>	92.2	7.8
Staff Records	<u>n</u>	179	89
	<u>P</u>	66.8	33.2

Two hundred-fourteen or 79.9% of the responding principals stated their districts provide an electronic mail system, whereas fifty-three principals reported their districts did not provide an electronic mail system. One hundred forty-six principals (54.5%) reported their districts did not provide networking between schools. One hundred twenty-two (45.5%) reported they had networking capabilities between schools. Two hundred-thirteen or 79.5% of the principals reported they had at least some networking to the district office. Seventy-three percent of the principals reported their districts were not networked to other districts. Two hundred nine or 78% of the responding principals reported their districts provided a computerized budget process. Ninety-two percent of the responding principals stated their district had computer applications for student records. Sixty-seven percent reported their districts had computer applications for staff records, whereas thirty-three percent did not.

A majority of the districts provide application support between the individual school and the district office. However, support was not perceived for district support for networking between various schools within the district itself or between districts. District support in the area of student records was overwhelming; however, one-third of the responding principals reported staff records were not computerized.

Question 3

The third research question asked: Do principals use computers in their role as the instructional leader? This question was addressed on the survey by items on the characteristics of an instructional leader.

Principals were asked questions concerning their own personal development in the use of microcomputers and technology as well as items on microcomputer use and the use of technology in their schools. One hundred twenty-eight or 47.8% of the principals responding reported they did not subscribe to a computer magazine. Forty-one percent stated they received one or two subscriptions. One hundred fifty-three respondents or 57.1% reported regularly browsing through computer magazines while 32.5% or 87 responding principals reported they did not.

One hundred seventy-six or 65.7% of the responding principals stated they had not taken any college courses in the use of the microcomputer. Forty-one respondents or 15.3% reported having taken one college course in the use of microcomputers; eleven percent or 30 principals reported taking two courses and eight percent or 21 principals reported having taken more than three courses.

There were 32 principals or 12% that had not taken any inservice workshops in the use of microcomputers in the past five years. Eleven percent of the responding principals reported having taken a half of day of inservice workshops in the use of microcomputers during the past five years. Ten percent of the responding principals reported having taken a full day of inservice workshops in the use of microcomputers during the past five years; ten percent, full day; fifteen percent, two days; fifteen percent, three days; fifteen percent, five days or 30 hours of inservice workshops in the use of microcomputers during the past five years. Sixty-three principals or 23.5% reported having taken more than 60 hours of inservice workshops in the use of microcomputers during the past five years.

One hundred forty-six or 54.5% of the responding principals reported having received less than \$100,000 in grant money, excluding the technology moneys appropriated in all districts, during the past two years. This was in addition to 52 principals or 19.4% reported having received zero dollars in grant moneys during the past two years. Ninety-one percent of the responding principals reported having at least one business partnership; thirty-five percent, one to three business partnerships; sixty-three or 23.5%, more than ten business partnerships.

Principals were asked what, if any role, they played on their school's technology committee. The results are presented in the following table.

Table 8

Role of Principal on School's Technology Committee

Principal's Role		
School Has No Committee	<u>n</u>	13
	<u>p</u>	4.9
Chairman of the Committee	<u>n</u>	13
	<u>p</u>	4.9
Committee Member	<u>n</u>	150
	<u>p</u>	56
Delegated to an Assistant	<u>n</u>	61
	<u>p</u>	22.8

Table 8 Continued

Role of Principal on School's Technology Committee

Principal's Role		
Only Teachers On Committee	<u>n</u>	29
	<u>P</u>	10.8

Two hundred fifty-six or 95.5% of the responding principals reported having a working technology committee at their school. Thirteen or five percent of the responding principals reported serving as chairman of their school's technology committee. One-hundred fifty or 56% of the responding principals reported themselves as serving as a technology committee member. Sixty-one of the principals or 22.8% reported not serving on their school's committee but rather having delegated a role to an assistant. Twenty-nine or 10.8% of the responding principals that stated their committee was made up of teachers only; 22.8% reporting a delegated role and another 10.8% reporting a teacher only committee. The net result is that 33.6% of the responding principals have no direct role in their school's technology committee. There was no statistical significance at the .05 level of significance between principals' roles on the technology committees and the level of their principalship.

Fifty-eight principals or 21.6% reported that none of their assistant principals had microcomputers in their offices. One hundred eighty-one or 67.5% of the principals reported having 100% of their assistant principals with microcomputers in their respective offices.

The data indicate principals have not taken a proactive stance when it comes to their own personal learning about microcomputers and the various way in which this tool can be used. Two-thirds have not taken any college courses in the use of the microcomputer. One third have had less than one day of inservice on the microcomputer in the past five years, and 76.5% have had less than one week of inservice during the past five years. There were 47.8% of the responding principals who indicated they receive no computer magazine subscriptions, and 32% revealed that they do not regularly browse through any computer magazines. Principals report having working technology committees at their schools; however, only 60% actively participate in the committee.

Question 4

The fourth research question asked: How do principals use computers in their role as manager? This question was addressed on the survey by items that identified the managerial functions of the principal and also addressed by items in which the principals were asked to give their frequency of use of the various microcomputer applications.

Two hundred-thirty or 85.8% of the responding principals reported they did not use the microcomputer for teacher evaluations. One hundred ninety-eight or 73.9% of the responding principals reported they used the microcomputer to do their personal correspondence. One hundred fifty-eight or 59% checked they used the microcomputer personally to do bulletins. One hundred fifty or 56% of the reported using the microcomputer to personally do newsletters and 198 or 74.7% personally do memorandums. Forty-eight or 17.9% of the responding principals did not make use of the microcomputer for any word processing tasks.

Principals were also asked about which spread sheet applications they personally used. One hundred thirty-eight or 51.5% of the responding principals reported they did not use any spread sheet applications. Of those that did use spread sheet applications 121 responding principals or 45.1% used the

Table 9

Managerial Application Programs Used by Principals

Application Program		Yes	No
Personal Correspondence	<u>n</u>	198	70
	<u>P</u>	73.9	26.1
Bulletins	<u>n</u>	158	108
	<u>P</u>	59	40.3
Newsletters	<u>n</u>	150	115
	<u>P</u>	56	42.9
Staff Memos	<u>n</u>	198	67
	<u>P</u>	73.9	25
Budgeting	<u>n</u>	121	147
	<u>P</u>	45.1	54.9
FTE Projections	<u>n</u>	50	218
	<u>P</u>	18.7	81.3
FTE Reporting	<u>n</u>	36	231
	<u>P</u>	13.4	86.2

Table 10

Managerial Application Programs Used by Principals by Grade Level

Application Programs			Yes	No
Personal Correspondence	<u>n</u> / <u>P</u>	Elem	125/80.1	31/19.9
	<u>n</u> / <u>P</u>	Jr Hi	36/62.1	22/37.9
	<u>n</u> / <u>P</u>	Sr Hi	35/67.3	17/32.7
Bulletins	<u>n</u> / <u>P</u>	Elem	110/70.5	45/28.8
	<u>n</u> / <u>P</u>	Jr Hi	28/48.3	29/50
	<u>n</u> / <u>P</u>	Sr Hi	18/34.6	34/65.4
Newsletters	<u>n</u> / <u>P</u>	Elem	100/64.1	54/34.6
	<u>n</u> / <u>P</u>	Jr Hi	24/41.4	33/56.9
	<u>n</u> / <u>P</u>	Sr Hi	24/46.2	28/53.8
Memos	<u>n</u> / <u>P</u>	Elem	125/80.6	30/19.4
	<u>n</u> / <u>P</u>	Jr Hi	39/68.4	18/31.6
	<u>n</u> / <u>P</u>	Sr Hi	32/62.7	19/37.3
Budget	<u>n</u> / <u>P</u>	Elem	64/41	92/59
	<u>n</u> / <u>P</u>	Jr Hi	28/48.3	30/51.7
	<u>n</u> / <u>P</u>	Sr Hi	29/55.8	23/44.2
FTE Projections	<u>n</u> / <u>P</u>	Elem	23/14.7	133/85.3
	<u>n</u> / <u>P</u>	Jr Hi	10/17.2	48/82.8
	<u>n</u> / <u>P</u>	Sr Hi	17/32.7	35/67.3

Table 10 Continued

Managerial Application Programs Used by Principals by Grade Level

Application Programs		Yes	No
FTE Reporting	n/P Elem	17/11	138/89
	n/P Jr Hi	6/10.3	52/89.7
	n/P Sr Hi	13/25	39/75

microcomputer to personally do budgeting operations. Fifty principals or 18.7% of the principals utilized the microcomputer to do FTE projections and 36 or 13.4% used the microcomputer to report FTE.

There were statistical differences at the .05 level of significance between principals at the elementary and secondary levels in the the managerial applications that called for word processing. These included writing personal correspondence ($\chi^2=8.46660$, $df=2$, $p<.05$), bulletins ($\chi^2=25.51297$, $df=4$, $p<.05$), newsletters ($\chi^2=12.31024$, $df=4$, $p<.05$) and memos ($\chi^2=7.90424$, $df=2$, $p<.05$). However, the tables were turned as the secondary principals showed a statistical difference at the .05 level of significance when using the microcomputer for spread sheet functions of FTE projections ($\chi^2=8.34894$, $df=2$, $p<.05$) and FTE reporting ($\chi^2=7.19490$, $df=2$, $p<.05$).

There was a statistical significance at the .05 level of significance with principals with fewer than seven years of experience using the microcomputer to write personal correspondence ($\chi^2=8.69965$, $df=1$, $p<.05$) and memos ($\chi^2=8.31135$, $df=1$, $p<.05$) as seen in Table 11. There was not a statistical difference

at the .05 level of significance for principals with different levels of experience in doing newsletters. There was not a statistical difference at the .05 level of significance for principals with different levels of experience in any of the spread sheet functions.

Table 11

Application Programs Used By Principals Based on Years of Experience

Application Program			Yes	NO
Personal Correspondence	0-7 years	n/P	112/81.8	25/18.2
	8+ years	n/P	85/65.9	44/34.1
Bulletins	0-7 years	n/P	83/60.6	85/38
	8+ years	n/P	74/57.4	55/42.6
Newsletters	0-7 years	n/P	84/61.3	51/37.2
	8+ years	n/P	65/50.4	64/49.6
Memos	0-7 years	n/P	112/82.4	24/17.6
	8+ years	n/P	85/66.9	42/33.1

Responding principals indicated they use the microcomputer for a variety of word processing applications in their roles as managers. There was a strong indication that spread sheet application programs were the least used.

Question 5

The fifth research question asked: What, if any, is the relationship between the principal's type of use and the type of use by others in the school? This question was addressed by using descriptive statistics and chi square at the

.05 level of significance to determine if there was a statistical significance between the principal's use of the microcomputer and the principal's perception of microcomputer use by others.

Table 12

Principals' Perceptions of Percentage of Teacher Use of Managerial Application Programs

Managerial Applications		<25%	26-49%	50-74%	75-99%	100%
GRADE REPORTING	n	138	41	32	29	27
	P	51.5	15.3	11.9	10.8	10.1
LESSON PLAN DEVELOPMENT	n	153	60	44	10	
	P	57.1	22.4	16.4	3.7	
TELECOMMUNICATIONS	n	188	44	21	7	7
	P	70.1	16.4	7.8	2.6	2.6
WORD PROCESSING	n	54	54	80	64	15
	P	20.1	20.1	29.9	23.9	5.6
ATTENDANCE REPORTING	n	217	10	10	6	23
	P	81	3.7	3.7	2.2	8.6

Principals were also asked what application programs they perceived the teachers in their building used for the managerial tasks of grade reporting, lesson plan development, telecommunications, word processing and attendance reporting. Eighty-one percent of the responding principals reported their

Table 13

Principals' Perception of Teacher Use of Various Application Programs

Application Program		Never	Daily	Weekly	Monthly	Yearly
WORD PROCESSING	<u>n</u>	27	123	103	14	
	<u>P</u>	10.1	45.9	38.4	5.2	
SPREAD SHEET	<u>n</u>	114	14	60	59	20
	<u>P</u>	42.5	5.2	22.4	22	7.5
DATA BASE	<u>n</u>	99	27	74	61	6
	<u>P</u>	36.9	10.1	27.6	22.8	2.2
TELECOMMUNI- CATIONS	<u>n</u>	132	50	52	29	3
	<u>P</u>	49.3	18.7	19.4	10.8	1.1
ELECTRONIC MAIL	<u>n</u>	143	61	47	12	5
	<u>P</u>	53.4	22.8	17.5	4.5	1.5
CALENDAR	<u>n</u>	129	22	45	68	3
	<u>P</u>	48.1	8.2	16.8	25.4	1.1
AWARDS	<u>n</u>	111	3	34	85	33
	<u>P</u>	41.4	1.1	12.7	31.7	12.3
OTHER	<u>n</u>	14	5	6	3	1
	<u>P</u>	5.2	1.9	2.2	1.1	0.4

perception were that teachers in their respective schools regularly use microcomputers to do routine tasks such as grade reporting, word processing, and other such tasks.

A contingency coefficient of 0.352 was computed and was significant at the .05 level when comparing principals use of spread sheet programs and their perceptions of teacher use of spread sheet programs in their buildings ($\chi^2=37.84066$, $df=16$, $p<.05$). None of the other application comparisons between principal use and teacher use were statistically significant at the .05 level of significance.

Principals were asked what their perceptions were on how often various computer assisted strategies were being used by teachers in their respective buildings. This data are shown on Table 14. Fifty-three of the responding principals or 19.8% reported that less than 25% of their respective faculties use the microcomputer to regularly assist with instruction. Seventy-four of the responding principals or 27.6% reported that between 26-49% percent of their respective faculties use the microcomputer to regularly assist with instruction. Sixty-four of the responding principals or 23.9% reported that between 50-74% of their respective faculties use the microcomputer to regularly assist with instruction. Fifty-one of the responding principals or 19% reported that between 75-99% of their respective faculties use the microcomputer to regularly assist with instruction. Twenty-four principals, or nine percent, reported that 100% of their respective faculties regularly use the microcomputer to assist with instruction.

Table 14

Principals' Perception of Teacher Use of Microcomputer in Assisted Teaching Strategies

Computer Assisted Strategy		Never	Daily	Weekly	Monthly	Yearly
GAMES UNRELATED TO SUBJECT	<u>n</u>	77	30	100	54	6
	<u>P</u>	28.7	11.2	37.3	20.1	2.2
GAMES RELATED TO SUBJECT	<u>n</u>	25	112	107	23	
	<u>P</u>	9.3	41.8	39.9	8.6	
CAI	<u>n</u>	43	134	72	17	1
	<u>P</u>	16	50	26.9	6.3	0.4
MULTI-MEDIA	<u>n</u>	90	39	56	66	16
	<u>P</u>	33.6	14.6	20.9	24.6	6
REPORT DEVELOPMENT	<u>n</u>	97	24	66	60	20
	<u>P</u>	36.2	9	24.6	22.4	7.5
NETWORKING	<u>n</u>	152	61	32	19	3
	<u>P</u>	56.7	22.8	11.9	7.1	1.1
TELECOMMUNICATIONS	<u>n</u>	143	34	50	33	7
	<u>P</u>	53.4	12.7	18.7	12.3	2.6
CREATIVE PRESENTATIONS	<u>n</u>	81	22	58	80	26
	<u>P</u>	30.2	8.2	21.6	29.9	9.7

Principals, for the most part, do not perceive that the teachers within the building they work are using the microcomputer for the managerial functions of teaching. Principals further perceive that teachers use the microcomputer for the most part for word processing application programs. Principals do not perceive teachers using the microcomputer regularly for spread sheets, data bases, electronic mailing and telecommunications, calendars and awards. Principals perceive teachers using the microcomputer in their pedagogy with games and computer assisted instruction. They perceive that teachers do not use the microcomputer with students in developing reports, creative presentations, electronic mailing and telecommunications.

Summary

Chapter four examined the results of the written survey instrument and the follow-up telephone interviews. This chapter described the statistical analysis and presented the results. The research instrument was described. The population and sample size were presented. The collection of the data was described and the research questions presented. The analysis of data for this study was presented according to the research questions investigated.

The population included the principals of all level groupings: elementary, middle/junior, and high school. The population size was 2,241. The sample size of 448 was selected randomly and stratified by the level grouping of the school. There are 1,488 elementary schools, 416 middle/junior high schools, and 337 high schools. Elementary schools make up 66% of the schools in Florida. Middle/Junior high schools make up 19% and high schools make up 15% of the schools. There were 279 surveys representing 63% of the surveys sent to

elementary principals. There were 98 surveys representing 21% of the surveys sent to middle/junior high principals. There were 71 surveys representing 16% of the surveys sent to high school principals. There were 164 surveys returned by elementary principals representing 59% of the returned surveys. There were 56 surveys returned from middle and junior high school principals representing 57% of the returned surveys. There was a return of 48 surveys from high school principals representing 68% returned surveys. The return rate was very consistent with the target population. There was an overall return of 268 surveys representing 60%. The survey questions were number coded to help insure accuracy as they were coded into the Statistical Package for Social Sciences (SPSS).

Based on data received from responding principals a large percentage (82.8%) of principals have access to a microcomputer in their office at school. However, one-third of the responding principals do not have microcomputer in their own homes. Seventy percent of the responding principals use the Windows or MacIntosh platform while performing various application programs. Responding principals overwhelmingly used word processing application programs on a regular (as defined by daily and weekly use) basis. On the other hand, principals tended not to use spread sheet programs on a regular basis with over half indicating they never used them. Microcomputers were not used extensively for calendar application programs, nor were they used much for developing awards. One-third of the responding principals do not use electronic mail.

A majority of the districts provide application support between the individual school and the district office. However, support is not perceived by the responding principals for district support for networking between various schools within the district itself or between districts. District support in the area of student records was most frequently reported. However, one-third of the responding principals reported staff records were not computerized.

The data indicate principals have not taken a proactive stance when it comes to their own personal learning about microcomputers and the various ways in which this tool can be used. Two-thirds of the responding principals have not taken any college courses in the use of the microcomputer. One-third of the responding principals have had less than one day of inservice on the microcomputer in the past five years, and 76.5% have had less than one week of inservice during the past five years. There were 47.8% of the responding principals who indicated they received no computer magazine subscriptions and 32% revealed that they do not regularly browse through any computer magazines. Principals report having working technology committees at their schools; however, only 60% actively participate in the committee.

The group indicated they use the microcomputer for a variety of word processing applications in their role as a manager. There was a strong indication that spread sheet application programs were the least frequently used application.

Principals, for the most part do not perceive that the teachers within the building they work are using the microcomputer for the managerial functions of teaching. Principals further perceive that teachers use the microcomputer for the most part for word processing application programs. Principals do not perceive

teachers using the microcomputer regularly for spread sheets, data bases, electronic mailing and telecommunications, calendars and awards. Principals perceive teachers using the microcomputer in their pedagogy with games and computer assisted instruction. They perceive that teachers do not use the microcomputer with students in developing reports, creative presentations, electronic mailing and telecommunications.

Chapter five will present the conclusions drawn from the analyzed data. Implications from the data will be postulated. Finally, suggested possible studies which could be conducted to further broaden understanding in these roles of the school principal will be presented.

CHAPTER 5

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Introduction

Chapter five will present the conclusions drawn from the analyzed data. Implications from the data will be postulated. Finally, suggested possible follow-up studies which could be conducted to further broaden understanding in these roles of the school principal will be presented.

Discussion

The first research question asked: How do principals use a microcomputer in their job function in an elective way? This question was addressed on the survey instrument by using items that required respondents to identify various elective uses. It was also addressed by asking the responder to give a frequency of the uses by forcing a choice between daily, weekly, monthly, yearly, or never.

Based on data received from the group, 82.8% have access to a microcomputer in their office at school. However, one-third of the responding principals do not have microcomputer in their own homes. Seventy percent of the responding principals use the Microsoft Windows or MacIntosh platform while performing various application programs. Most principals used word processing application programs on a regular (as defined by daily and weekly use) basis. On the other hand, principals tended not to use spread sheet programs on a regular basis with over half indicating they never used them. Microcomputers were not used extensively for calendar application programs, or for developing awards. One-third of the responding principals do not use electronic mail.

The second research question asked: How do principals use a microcomputer as required by the school system? This question was addressed on the survey by using items that asked respondents to identify the applications that are used by various school districts.

A majority of the districts provide application support between the individual school and the district office. However, support is not perceived by the responding principals for district support for networking between various schools within the district itself or between districts. District support in the area of student records was most prevalent. However, one-third of the responding principals reported staff records were not computerized.

The third research question asked: Do principals use computers in their role as the instructional leader? This question was addressed on the survey by asking the respondents to answer a variety of items that identified characteristics of an instructional leader. Descriptive statistics were computed for each item.

The data from the responding principals indicate principals have not taken a proactive stance when it comes to their own personal learning about microcomputers and the various ways in which this tool can be used. Two-thirds of the responding principals have not taken any college courses in the use of the microcomputer. One-third of the responding principals have had less than one day of inservice on the microcomputer in the past five years, and 76.5% have had less than one week of inservice during the past five years. There were 47.8% of the responding principals who indicated they received no computer magazine subscriptions and 32% revealed that they do not regularly browse through any

computer magazines. Principals report having working technology committees at their schools; however, only 60% actively participate in the committee.

The fourth research question asked: How do principals use computers in their role as manager? This question was addressed on the survey by asking the respondents to answer a variety of items that identified managerial functions of the principal and was also addressed by items that identified managerial uses of the microcomputer. The respondents were asked to give their frequency of use of various microcomputer applications. There were forced choices, again ranging from never to yearly. Descriptive statistics were computed for each item.

Responding principals indicated they use the microcomputer for a variety of word processing applications in their roles as managers. There was a strong indication that spread sheet application programs were not used much at all.

The fifth research question asked: What, if any, is the relationship between the principal's type of use and the type of use by others in the school? This question was addressed by computing chi square to determine whether there was a significant relationship between the principal's use of the microcomputer and the principal's perception of microcomputer use by others.

Principals, for the most part do not perceive that the teachers within the building they work are using the microcomputer for the managerial functions of teaching. Principals further indicate that teachers use the microcomputer for the most part for word processing application programs. Principals do not believe teachers are using the microcomputer regularly for spread sheets, data bases, electronic mailing and telecommunications, calendars and awards. Principals perceive teachers using the microcomputer in their pedagogy with games and

computer assisted instruction. They do not think teachers use the microcomputer with students in developing reports, creative presentations, electronic mailing and telecommunications.

Conclusions

The challenge for educational leaders is to understand and use the technological revolutions to their fullest extent. Principals cannot be expected to know everything about everything. The microcomputer is an important tool of leadership, though not often seen as such (Rhodes, 1988).

Schools have historically been resistant to change (Ognibene & Skeele, 1990). However, the stakes are higher than they were with radio, films, and television, which are technologies that entertain and thus remain available as indirect instructional tools. Unlike those technologies, the computer has assumed a central role in virtually all professions and organizations. In the same sense that schools are not permitted to neglect reading instruction, they cannot allow organizational or staffing issues to erect permanent barriers to effective teaching with and about computers. Computer knowledge and skill have become the mark of an educated person (Ognibene & Skeele, 1990). Superintendents, school boards, and principals initially saw little or no need for microcomputers in the classroom or the principal's office (Coffin, 1986). In most school systems educational computing was run by a central office 'techie' collaborating with teacher experts. Application of computer technologies for school purposes, while being available since the 1950's, has never been adequately used because educators were never adequately trained to use computers. They were considered more trouble than they were worth, and they often ended up in closets (Coffin,

1986; Ornstein, 1992). New technologies have only changed the face of instruction slightly, however they have had an enduring and significant impact on the administration of educational systems (Alabama University College of Education, 1982; Burnham, 1981). Administrators in educational institutions throughout America face a tremendous task. They are faced with crises of purpose they have never had to face before. These crises have emerged from technology, inflation, equal rights, the energy crises, changing values and immorality, environment, and urban /suburban crises (Faily, 1980).

Throughout history magnificent technologies of immense potential have been rejected, neglected, or failed because man could not see their true potential or because they have been mismanaged. The computer is a tool which is usually not associated with leaders, but with workers and for students (Burnham, 1981; Clarkson, 1974; Rhodes, 1988). The possibilities of technological development uses in education are staggering to the imagination. However, the gap between the school and the real world has continued to widen.

The significance of the study is that as principals are recognized leaders, they must see the need to use technology and more specifically the microcomputer in their roles as instructional leaders and managers. This study showed how the microcomputer is currently used by school principals, and how this use impacted upon the infusion of technology throughout the school.

Recommendations

Principals, as instructional leaders and managers, must continue to increase the use of technology in their roles. Presently principals are not taking full advantage of the microcomputer as a tool that can help them in their roles as

instructional leaders and managers. Principals need to become proactive in taking inservice courses, college courses and keeping up to date in technological advances by regularly reading technology journals and magazines. It is only through these avenues that principals may begin to take full advantage of these tools of technology to make themselves more effective as leaders and managers. Universities need to formulate curriculum in their educational leadership departments which will provide hands on, experiential learning in regards to the microcomputer and the job functions of the principalship. Principals must also become more actively involved in the decision making process of the various technologies in which their schools can participate.

Part of the inherent problems with a study of this type is what significance would the non-responders play in the overall study. There were 40% of the surveys mailed out that were not returned. One can only conjecture as to how this 40% would have responded to the initial question of the survey--Do you have personal computer in your office at school? The survey was responded well to as is evidenced by the 60% return rate. The development of a study that could get a return rate of 100% would possibly give a more negative picture concerning the usage of personal computers by principals and an even more dismal picture of how principals are using this mode of technology in their various roles.

Future areas for the study of this topic are abundant. A correlational study conducted to determine the strength of various relationships between actual principal use of the microcomputer and actual teacher use of the microcomputer would provide information not addressed in this study. A study to determine teachers' perceptions of how principals use the microcomputer would provide

additional information on this topic. Another study to be conducted could look at effective and ineffective principals and determine what relationship there was between varying degrees of effectiveness and technology or microcomputer literacy. Another interesting study would be to look at a principal who uses the microcomputer with a high level of competence and compare a time analysis with a principal who has no competence on a microcomputer. A study could also be conducted which would look at the high performing principal competencies and see in what ways principals use the microcomputer to achieve these competencies. Another follow-up study could be conducted on determining how much the principal's use of technology equates with the amount of technology inservice at the principal's school as well as at what level is the district willing to support inservice for administrators in the area of technology.

Appendix 1-Survey

PRINCIPAL'S MICROCOMPUTER SURVEY

PART I

1. Do you have a personal computer in your office at school?(1)
 A. Yes B. No

2. Do you personally use a computer in your job function as a principal?(2)
 A. Yes B. No

3. Do you use a microcomputer for teacher evaluation?(3)
 A. Yes B. No

4. Do you use a microcomputer in student records (i.e., attendance, discipline, scheduling, grade reporting)?(4)
 A. Yes B. No

5. What application programs do you use? Please use the following code on each application program:
 - 1-Never
 - 2-Daily
 - 3-Weekly
 - 4-Monthly
 - 5-Yearly
 A. Word Processessing(5)
 B. Spread Sheet(6)
 C. Data Base(7)
 D. Telecommunications(8)
 E. Electronic Mail(9)
 F. Calendar(10)
 G. Awards(11)
 I. Other-Please specify(12) _____

6. Which of the following word processing tasks do you personally perform using a microcomputer? (Check each that applies)
- A. Personal correspondence(13)
 - B. Bulletins(14)
 - C. Newsletters(15)
 - D. Staff Memos(16)
 - E. None(17)
 - F. Other(18) _____
7. Which of the following Spread Sheet tasks do you personally perform using a microcomputer? (Check each that applies)
- A. Budgeting(19)
 - B. FTE Projections(20)
 - C. FTE Reporting(21)
 - D. None(22)
 - E. Other(23) _____
8. Do you do most of your operations in?(24)
- A. DOS
 - B. Windows
 - C. MacIntosh
 - D. OS/2
 - E. Don't Know
 - F. Other _____
9. Which of the following computer applications does your district provide?
Please mark "Y" for YESs and "N" for NO.
- A. Electronic Mail(25)
 - B. Networking between schools(26)
 - C. Networking to district(27)
 - D. Networking between districts(28)
 - E. Computerized Budgeting(29)
 - F. Student Records(30)
 - G. Staff Records(31)
10. Do you have a microcomputer in your home you use?(32)
- A. Yes
 - B. No

11. How many computer magazine subscriptions do you have?(33)
- A. 0
 - B. 1-2
 - C. 3-4
 - D. 5 or more
12. How many computer magazines do you regularly browse through?(34)
- A. 0
 - B. 1-2
 - C. 3-4
 - D. 5 or more
13. How many college courses have you taken in the use of microcomputers?(35)
- A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. More than four
14. How many inservice workshop hours have you completed in the use of microcomputers in the last five years?(36)
- A. 0
 - B. 1-3 hrs. ($\frac{1}{2}$ day)
 - C. 4-6 hrs. (Full Day)
 - D. 7-12 hrs. (2 Days)
 - E. 15 hrs. (3 Days)
 - F. 30 hrs. (5 Days)
 - G. 60 hrs. (More than 5 days)

PART II-SCHOOL USE

1. How much grant money has your school received in the past two years (excluding the technology monies appropriated all districts)?(37)
 A. None
 B. Less than \$100,000
 C. \$100,000-200,000
 D. \$200,000-500,000
 E. \$500,000-1,000,000
 F. More than \$1,000,000

2. How many business partnerships does your school have?(38)
 A. None
 B. 1-3
 C. 4-5
 D. 6-9
 E. More than ten

3. Does your school have a working technology committee?(39)
 A. Yes B. No

4. Does your school currently have a computer lab?(40)
 A. Yes B. No

5. If your school has a technology committee what role do you play on it?(41)
 A. We don't have a committee
 B. I serve as chairman
 C. I am a member of the committee
 D. I have delegated a role to an assistant
 E. We have a committee of teachers only

6. What percentage of your assistant principals have a microcomputer in their office.(42)

- A. 0%
 B. 20-32%
 C. 33%
 D. 50%
 E. 60-75%
 F. 100%

7. Do teachers in your school regularly use microcomputers to do routine tasks such as grade reporting, word processing, etc.(43)

- A. Yes B. No

8. What percentage of the faculty do you perceive regularly use the microcomputer for the following management tasks. Please use the following code:

- 1-less than 25%
 2-26-49%
 3-50-74%
 4-75-99%
 5-100%0

- Grade Reporting(44)
 Lesson Plan Development(45)
 Telecommunications(46)
 Word Processing(47)
 Attendance Reporting(48)

9. What application programs do perceive the teachers in your building to be using? Please use the following code on each application program:

- 1-Never 2-Daily
 3-Weekly 4-Monthly
 5-Yearly

- A. Word Processing(49)
 B. Spread Sheet(50)
 C. Data Base(51)
 D. Telecommunications(52)
 E. Electronic Mail(53)
 F. Calendar(54)
 G. Awards(55)
 I. Other(56)-Please specify _____

10. What percentage of the faculty regularly use computers to assist with instruction?⁽⁵⁷⁾

- Less than 25%
- 26-49%
- 51-74%
- 75-99%
- 100%

11. Please use the following code to give your perception on how often the following computer assisted strategies are used:

- 1-Never
- 2-Daily
- 3-Weekly
- 4-Monthly
- 5-Yearly

- Games unrelated to subject⁽⁵⁸⁾
- Games Related to subject⁽⁵⁹⁾
- Computer Assisted Instruction-(CAI)⁽⁶⁰⁾
- Multi-Media Presentations (i.e.,Hypercard, Hyperstudio)⁽⁶¹⁾
- Report Development⁽⁶²⁾
- Networking⁽⁶³⁾
- Internet or telecommunications⁽⁶⁴⁾
- Creative Presentations⁽⁶⁵⁾

PART III-DEMOGRAPHICS

1. Race of Principal⁽⁶⁶⁾

- A. Asian
- B. Black
- C. Hispanic
- D. Indian
- E. White

2. Age of Principal⁽⁶⁷⁾

- A. 25-30
- B. 31-35
- C. 36-40
- D. 41-45
- E. 46-50
- F. 51-55
- G. 56-60
- H. 61+

3. Gender of Principal⁽⁶⁸⁾

Male Female

4. Years of experience as a Principal⁽⁶⁹⁾

- A. 0-3
- B. 4-7
- C. 8-11
- D. 12-15
- E. 16+

5. What was your undergraduate major⁽⁷⁰⁾

- A. Mathematics
- B. English
- C. Social Studies
- D. Sciences
- E. Physical Education
- F. Fine Arts (Including Music, Drama, Art)
- G. Vocational Education
- H. Health
- I. Elementary Education
- J. Other _____

6. What is your achieved educational level?⁽⁷¹⁾

- A. Bachelors Degree
- B. Masters Degree
- C. ABD (All But Dissertation)
- D. Specialist
- E. Doctorate

7. The school where I am principal is⁽⁷²⁾
- A. an elementary school
 - B. a middle/junior
 - C. a high school
8. The population of the school in the highest three grades where I am principal is⁽⁷³⁾
- A. Less than 218
 - B. 219-439
 - C. 440-957
 - D. 958-1,339
 - E. 1,400+
9. How many assistant principals do you have?⁽⁷⁴⁾
- A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. 4
 - F. 5
 - G. More than 5
10. I would like an abstract of the completed study sent to me, my address is:
11. Yes, I will participate in a follow-up telephone interview. My telephone number is _____. The best time to call is _____.

Appendix 2

March 27, 1995

Dear Fellow Principal,

I am the principal at Middleburg High School in Clay County, Florida. I am presently working on my dissertation at the University of North Florida. I am researching principals' use of the microcomputer in their job functions and personal life, and the impact this may have on their school. You have been randomly selected among Florida principals to participate in this study. **Please** give me a few minutes of your time to complete the attached survey and mail it to me in the self-addressed stamped envelope. All results from this study will be reported as group information (i.e., elementary schools, middle schools, high schools), and no individual school or principal will be identified. The surveys are number coded so that I will know which ones were returned. A cross-section of principals have been selected to participate. **Your input** is very important to the success of this study. I am well aware of the time constraints of your job. I would be **most appreciative** of your prompt return of this survey.

Please circle the most appropriate response or responses on the survey form. In the cases where the most appropriate is "other," please indicate in writing what other responses you need to give.

A certain number of principals will be asked to participate in a brief (maximum 10-15 minute) telephone follow-up interview. If you would be willing to participate in this interview, please indicate on the enclosed form.

Thank-you so much for **your** assistance and cooperation. If you would like an abstract of the results please indicate this on the last page of the survey.

Sincerely,

David J.McDonald

REFERENCE LIST

- Alabama University College of Education. (1982). The administrative use of microcomputers: Technical report. Montgomery, AL: Alabama Center for Evaluation. (ERIC Document Reproduction Service No. ED 221 946)
- Anderson, J. (1987). Sewing up the best information system. The School Administrator, 44(8), 8-10.
- Batsis, T. M. (1987, April). Characteristics of excellent principals. Paper presented at the meeting of the National Catholic Educational Association, New Orleans, LA. (ERIC Document Reproduction Service No. ED 285 265)
- Begley, P. T. (1988, April). The influence of values of principals' problem-solving processes: An empirical study. Paper presented at the meeting of the American Educational Research Association, New Orleans, LA. (ERIC Document Reproduction Service No. ED 301 918).
- Blaschke, C., & Sweeney, J. (1977). Implementing cost-effective educational technology: Some reflections. Educational Technology, 17(1), 13-18.
- Blumberg, A. (1984). The craft of school administration and some other rambling thoughts. Educational Administration Quarterly, 20(4), 24-40.
- Brubaker, D. L., Simon, L. H., & Tysinger, N. K. (1993). Principal's leadership styles: The power of the "halo effect." NASSP Bulletin, 77(553), 30-36.
- Burnham, B. (1981). Managing the high tech revolution: A challenge in search of a response: Are educators ready? Education Canada, 21(4), 4-9.
- Campbell, L. P., & Williamson, J. A. (1991). Do principals have time to do it all? NASSP Bulletin, 75(539), 114-116.

- Cawelti, G. (1987). Why instructional leaders are so scarce? Educational Leadership, 45(1), 3.
- Chamley, J. D., McFarlane, F. R., Young, R. L., & Caprio, E. M. (1992). Overcoming the superprincipal complex: Shared and informed decision making. NASSP Bulletin, 76(540), 1-8.
- Chopra, R. K. (1994). Using technology in schools to empower our young people. NASSP Bulletin, 78(563), 1-9.
- Clarkson, M. (1974). One computer does the work of two. College & University Business, 56(6), 8-10.
- Closen, J. P. (1987). The computerization of Rogers Elementary School. Principal, 67(1), 52-53.
- Coffin, G. C. (1985, October). Minimum computer knowledge for elementary principals. Paper presented at the meeting of the New Hampshire Association of School Principals/Joint Educational Council Conference, Manchester, NH. (ERIC Document Reproduction Service No. Ed 265 616).
- Coffin, G. C. (1986). Minimum computer knowledge for elementary principals. Journal of Computers in Mathematics and Science Teaching, 5(4), 37-39.
- Crawford, C. W. (1985). Administrative uses of microcomputers, Part IV: Determination of hardware. NASSP Bulletin, 69(482), 115-118.
- Davis, R. M. (1977). Evolution of computers and computing. Science, 195(4283), 1096-1102.
- Deal, T. E., & Kennedy, A. A. (1982). Corporate cultures: The rites and rituals of corporate life. Reading, MA: Addison-Wesley.

- Donmoyer, R., & Wagstaff, J. G. (1990). Principals can be effective managers and instructional leaders. NASSP Bulletin, 74(525), 20-25,27-29.
- ERIC Clearinghouse on Educational Management. (1983). Management uses of microcomputers: The best of ERIC on educational management (Number 71). Eugene, OR: (ERIC Document Reproduction Service No. ED 234 480).
- Evans, D. L. (1995). Some reflections on doing the principalship. NASSP Bulletin, 79(567), 4-15.
- Faily, A. (1980). Effective administrator behavior. NASSP Bulletin, 69(433), 30-36.
- Florida State Department of Education. (1991). Microcomputers in Florida public schools: Fall 1990. Tallahassee, FL: Florida State Department of Education. (ERIC Document Reproduction Service No. ED 338 213)
- Frase, L. E., & Melton, R. G. (1992). Manager or participatory leader? What does it take? NASSP Bulletin, 76(540), 17-24.
- Fullan, M. G., & Stiegelbauer, S. (1991). The new meaning of educational change. New York: Teachers College Press.
- Gander, S. L. (1984). Educational management through microcomputer software. (ERIC Document Reproduction Service No. 243 469).
- Geneen, H., & Moscow, A. (1984). Managing. Garden City, NJ: Doubleday.
- Groves, D. S., & Wren, C. (1987). An affordable high-tech solution to school management problems. NASSP Bulletin, 71(502), 121-124.
- Heck, R. H., & Marcoulides, G. A. (1993). Principal leadership behaviors and school achievement. NASSP Bulletin, 77(553), 20-28.

- Hoachlander, E. G. (1983). Computer technology in rural schools: The case of Mendocino County. Berkeley, CA: MPR Associates. (ERIC Document Reproduction Service No. ED 241 244)
- Howell, J. M., & Higgins, C. A. (1990). Champions of technological innovation. Administrative Science Quarterly, 35(2), 317-341.
- Isaac, S., & Michael, W. (1982). Handbook in research and evaluation. San Diego: Edits Publishers, 193.
- Isherwood, G. B. (1985). The principal and the pauper: Administrator training in computer technology. Education Canada, 25(4), 4-9.
- Johnson, G. R. (1972). Computer as a management tool: Ten ways to make the computer serve you better. College Management, 7(4), 18-19.
- Johnson, D. R. (1985). The office of the future. American School and University. 58(1), 24-32.
- Johnson, W. L., & Snyder, K. J. (1990, January). Managing productive schools. Paper presented at meeting of the Southwest Educational Research Association, Austin, TX. (ERIC Document Reproduction Service No. ED 316 931)
- Kennedy, C. E. (1988). Techniques and technology: Computerphobia. School Counselor, 35(4), 297-98.
- Kearsley, G. (1988). What should today's school administrators know about computers? Technological Horizons in Education Journal, 15(3), 65-69.
- Lauda, D. P. (1994). Responding to the call for technological literacy. NASSP Bulletin, 78(563), 44-48.

- Marshall, D. G. (1982). The school administrator and the microcomputer: Some points to ponder. Education Canada, 22(2), 4-11.
- Moss-Kanter, R. (1983). The change masters: Innovation for productivity in the American corporation. NY: Simon and Schuster.
- Ognibene, R., & Skeeel, R. (1990). Computers and the schools: Unused and misused. Action in Teacher Education, 12(2), 68-72.
- Ornstein, A. C. (1992). Making effective use of computing technology. NASSP Bulletin, 76(542), 27-33.
- Papert, S. (1987). Computer criticism vs. technocentric thinking. Educational Research, January-February.
- Peters, T. J., & Waterman, R. H. (1982). In search of excellence: Lessons from America's best run companies. NY: Harper & Row.
- Pogrow, S. (1985). Administrative uses of computers: What is the ideal system? What are the trends? NASSP Bulletin, 69(485), 45-53.
- Poston, W.K. (1992), Shifting away from the superprincipal complex. NASSP Bulletin, 76(540), 32-36.
- Rallis, S. F., & Highsmith, M. C. (1986). The myth of the "great principal": Questions of school management and instructional leadership. Phi Delta Kappan, 68 (4), 303-304.
- Rhodes, L. A. (1988, August). Technology as a leadership tool. Paper presented at the meeting of the Small School District and Rural District Forum Summer Conference, American Association of School Administrators, Brainard, MN. (ERIC Document Reproduction Service No. ED 305 193)

- Root, T. L., & Rowe, R. H. (1987, February). Principals' perceptions of computer use in administration and instruction. Paper presented at the meeting of the Eastern Educational Research Association, Miami Beach, FL. (ERIC Document Reproduction Service No. ED 302 336).
- Ross, T. W., & Bailey, G. D. (1994). Wanted: A new literacy for the information age. NASSP Bulletin, 78(583), 31-35.
- Spuck, D. W., & Atkinson, G. (1983). Administrative uses of the microcomputer. AEDS Journal: (Applications of Microcomputers for Instruction and Educational Management), 17(1-2), 83-90.
- Storlie, J. (1978). Microcomputers in public education: Boon or Bane? AEDS Monitor, 17(1-2), 10.
- Streatfield, D., & Thompson, S. (1983). Administrative use of computers by local education authorities: Report of a questionnaire survey. Slough, England: Education Management Information Exchange. (ERIC Document Reproduction Service No. ED 242 032).
- Thomas, C., & Vornberg, J. A. (1991). Evaluating principals: New requirements, directions for the '90's. NASSP Bulletin, 75(539), 59-64.
- Tushman, M. L., & Nelson, R. R. (1990). Introduction: Technology, organizations, and innovation. Administrative Quarterly, 35(1), 1-8.
- Walters, D. L. (1987, October). PC's and the principalship. Paper presented at the meeting of the University Council for Educational Administration, Charlottesville, VA. (ERIC Document Reproduction Service No. ED 293 193).

Witten, D. W., & Others. (1990, April). Computer use by rural principals. Paper presented at the meeting of the Southern Rural Education Association, Atlanta, GA. (ERIC Document Reproduction Service No. ED 325 271).

VITA

David J. McDonald

Personal: Born
Union, South Carolina

Marital Status: Married to wife, Loucretia, on June 29, 1979. Four Sons: Bryan
, Andy , Casey , and Daniel

Education: University of North Florida-1995, Ed.D.-Educational Leadership
University of North Florida-1986, M. Ed.-Educational
Administration and Supervision
Harding University-1979, BA-Physical Education, Social Studies
Florida Junior College at Jacksonville-1977, AA
Orange Park High School-1975

Professional Experiences:

January 1995-Present- Principal, Middleburg High School
1993-94-Principal, Green Cove Springs Middle School
1992-93-Principal, Lake Asbury Elementary
1991-92-Assistant Principal, Ridgeview Junior High School
1986-91-Assistant Principal, Orange Park Junior High School
1983-86 Teacher, Ridgeview School
1982-83-Teacher, W. E. Cherry Elementary School
1979-82-Teacher, Greater Jacksonville Christian School.

PROFESSIONAL ORGANIZATIONS:

Association for Supervision and Curriculum Development
American Association of Health, Physical Education and Dance
Clay County Administrator's Association-Past Treasurer
Clay County Principal's Association
Florida Association of School Administrators
National Association of Elementary School Principals
National Association of Secondary School Principals
Phi Delta Kappa-Florida First Coast Chapter-Past Research
Foundation Chairman, Past Treasurer, President