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The relationship between computer training of high school principals and the use of microcomputers at their local schools

Thelma Simmons Woodfork
Atlanta University

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THE RELATIONSHIP BETWEEN COMPUTER TRAINING
OF HIGH SCHOOL PRINCIPALS AND THE USE OF
MICROCOMPUTERS AT THEIR LOCAL SCHOOLS

A DISSERTATION
SUBMITTED TO THE FACULTY
OF THE SCHOOL OF EDUCATION
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF EDUCATION

BY

THELMA SIMMONS WOODFORK

ATLANTA UNIVERSITY
ATLANTA, GEORGIA
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ABSTRACT

THE RELATIONSHIP BETWEEN COMPUTER TRAINING
OF HIGH SCHOOL PRINCIPALS AND THE USE OF
MICROCOMPUTERS AT THEIR LOCAL SCHOOLS

Woodfork, Thelma S.

Major Advisor: Dr. Trevor Turner
Other Advisors: Dr. Phil Bradley
Dr. Clifton Tinsley

This study investigated the computer training of secondary school principals and the use of computers for administrative and computer-managed instructional purposes. Because there were no known instruments to measure the concepts in the study, the writer constructed two instruments and had them field-tested by a panel of experts whose feedback was used for improving the instruments.

Analysis of the data was made by using the Statistical Package for the Social Sciences (SPSS). Data gathered from the Likert attitudinal scale were utilized to test the null hypotheses in the study. Responses from the attitudinal scale were subjected to the Analysis of Variance Statistical Method.

The following significant findings of the study are that:

1. The principals indicated that trainings through the school system, self-taught, and peer taught had proven to be of greatest benefit to them. Training offered by the computer salesperson and the university had proven to be least effective for them.
2. Most principals perceived their level of computer knowledge to be less than average in order for them to feel comfortable in utilizing the computer. Only five principals perceived their knowledge as being above average or excellent.

3. Most principals believed that commitment from themselves was most important in facilitating computer use within their schools.

4. The data suggest that computers were used for some administrative purposes. The computer was used most for scheduling and least for financial accounting.

5. There was a significant relationship between training offered by the computer salesperson and utilization of the computer for financial accounting. There was also found a significant relationship between training offered through the school system and computer utilization for individualized educational planning.

6. A statistically significant difference was also found to exist between principals' and teachers' computer use of computerized student progress and curriculum planning.

The major conclusions that resulted from the study are as follows:

1. Although principals viewed themselves as being strongly committed to computer use in their schools, and they felt training offered through their local school system was of greatest benefit, there does, however, appear to be a discrepancy between the level of commitment they indicated and their level of training.

2. Most principals would like more hands-on application in how to utilize the computer for personal use, administrative, computer-managed instruction, and computer-assisted instruction.

3. Principals felt that greater utilization could and should be made of computers in their schools for administrative and computer-managed instruction purposes.
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CHAPTER I

INTRODUCTION

Rationale

The computer is drastically changing the way we live in society. The nation is moving from an industrial society to an information society. In America, most individuals cannot go through a single day without interacting with the computer in some form or another. The computer touches our lives through entertainment, twenty-four hour banking, word processing, computer-assisted diagnosis, and computer chips are being installed in most appliances. The introduction of the small inexpensive microcomputer has put technology within the reach of almost everyone. The general public has accepted computer use in the marketplace. It is highly doubtful that the business community could function effectively without computers. It is equally as doubtful that schools in America could function effectively without computers. The microcomputer is proving to be a valuable tool as an administrative aid and as a motivating teaching aid.

Because microcomputers play a major role in our society, they must be included in the educational system in order to prepare our students effectively for the type of jobs and career opportunities they will face now and in the future. Today's student will live in an even more computerized society of the future. Such widespread use
of the computer in society demands that students become familiar with its operation, its capabilities, and its limitations.

Watts indicated in his research that computers play a crucial role in the education of students. He states:

As the nation's economy becomes more dependent on information processing and high technology, we can expect the overwhelming majority of our working population to have significant interactions with computers as part of their daily work. It will be only through the public schools that all citizens will have equal access to the opportunity for computer literacy education.¹

Leading researchers believe that a need exists to incorporate computers into the educational scene as computer literacy becomes a required skill. In its 1977 Position Paper of Basic Skills, the National Council of Supervisors of Mathematics listed computer literacy as one of the ten basic skill areas in which all students should be exposed.²

A large number of jobs will be available in the computer field for students who are prepared. Hamblem estimated in his study concerning computers and the future that by 1978, 70% to as high as 80% of the population held jobs that were connected with the computer.³ Naisbitt estimated that by 1985, 75% of the jobs


would involve computers in some way. The National Science Foundation conducted a study which emphasized computers in education. They predicted that information technology based on the use of computers will create millions of jobs and a tremendous occupational demand for people who know how to use them. They further predict that by 1990 over 40 million workers will be needed to operate computers in the United States, and children who entered kindergarten in the fall of 1982 will graduate into a job market in which 70% of the jobs did not exist when they began school. According to Lipson, we find evidence that only with an informed public, can the nation hope to move into a computer age with the speed and sense of purpose required.

If the previous perception given is correct, then, to perform its fundamental task of preparing children for participation in adult society, the educational system must teach students to communicate with and through computers. Before this can be done effectively, those individuals who are charged with the education of boys and girls should be equipped to lead by example; however, before one can lead, he/she must be properly trained in the area most closely associated with his/her daily work.

Morsund, editor of The Computing Teacher, called for intensive training including experimental projects at the local, state and


federal level to educate teachers and principals of the traditional
curriculum in the use of computers. Integrating microcomputers
into the public schools will take an all out effort from parents,
teachers and principals.

According to Cutts and others, it is important for educators
in leadership positions to gain microliteracy. The building adminis-
trator is the only one who can provide the leadership in explaining
to parents, teachers and board members the technological and societal
changes that improve the school curricula and proposing educational
responses.

Brickell voiced the sentiment of Lipson, Moursund, and Cutts
and others by observing during his research that:

The administrator may promote . . . or prevent innova-
tion. He cannot stand aside or be ignored. He is power-
ful, not because he has the monopoly or imagination,
creativity or interest in change . . . the opposite is
common . . . but simply because he has authority to pre-
cipitate the decision. Authority is a critical element
in innovation, because proposed changes generate reactions
which can prevent consensus in peers and results in stag-
nation.

Since the principal is the "gate keeper" at the school, if
he/she is to implement computer literacy into the curriculum effec-
tively, he/she must be adequately trained in computer utilization.
They must lead by showing others how the computer is used to


increase efficiency and effectiveness in carrying out administrative office tasks.

Several research studies were found concerning computer-assisted instruction; however, very little data were available regarding the training of the principal and the use of computers in high school. Since principals are the chief administrative officers at the school level, the researcher felt additional research is needed to provide insight into why computers are not being effectively utilized in the schools.

**Statement of the Problem**

The literature suggests a vital need to implement computer technology into the curriculum. In order for computers to be fully implemented into the curriculum, instructional leaders need to be prepared and trained in order to feel confident in knowing how to use microcomputers to increase their effectiveness. The problem, therefore, of this study is: Does principals' training affect the use of microcomputers in the high school for administrative and computer managed instruction purposes?

**Evolution of the Problem**

The microcomputer has gained widespread endorsement since the schools started using them in substantial numbers in the late 1970's. Parents, students, teachers and administrators share the view that students should be exposed to this new versatile tool. Because it is a versatile tool, it can be used to store and retrieve information, diagnose and prescribe, provide drill and practice,
motivate and reward learners, and provide individualized instruction.

Even though schools are purchasing microcomputers in huge volumes, there is still a greater need to have them fully utilized for the administrative and instructional aspects of the school operation. According to research, most principals are not providing the leadership needed to bring this about. In addition, many principals are not using the computers in ways that could save them time and energy as well as increase the accuracy of information being disseminated.

The importance of computers in society and in education inspired the writer to observe, read and study the literature in an effort to learn more about the role of the principal in implementing new innovations (computers). The researcher further sought to become knowledgeable of how computers could be used to assist in the administrative tasks of the principals; how well trained, in general, are principals; and to what extent they were actually utilizing the computer at their school.

Interest in the study intensified when it was learned that lack of training was causing some principals not to take full advantage of the computer capabilities. Since the principal determines what happens at his/her local school, the writer believed that a study in the area of principal training and use of computers would be both professionally helpful and rewarding.

Theoretical Framework

The fundamental basis of this study is that the principal is the key to change in the school. Change takes place when an
imbalance occurs between the restraining forces and the driving forces—in this case, the traditional vs. innovative ways of carrying out the role of the school. The processes of change enable the educational leader to be receptive toward computer implementation and utilization within the high school. The principal as instructional leader in the public school system assumes the responsibility for educating and developing our citizens of tomorrow.

The change model selected for this study is based on "Schein's Mechanism of Change" which presents three stages of implementing change. This model was selected because it focused on the individual receptivity toward the change (microcomputer).

This conceptual scheme was developed to encompass the kinds of changes in beliefs, attitudes and values which we regard as fairly 'central' or 'deep'; changes involving the person's self or identity. The scheme also draws attention to a much neglected problem, that of having to unlearn something before something new can be learned. Most of the kinds of changes we are concerned with involve attitudes or behaviors which are integrated around the self, where change implies the giving up of something to which the person has previously become committed and which he values.¹

The focus of this study is upon the Unfreezing and Movement Stages. The model allows for the study of the process from Stage 1 (Unfreezing) to Stage 2 (Movement). Stage 2 is the period during which administrators operationalize the plan for implementing a desired change. The interaction between Stage 1 and Stage 2 is a timeframe (training) devoted to designing the plan for implementation.

In order for administrators to offer effective leadership, they must become microliterate. Microliteracy must precede the effective and creative use of microcomputers as an administrator tool, a teacher tool, and a student tool. The principal must be the primary catalyst for technological change. The ability to understand the benefits for developing, guiding and implementing educational technology is paramount in the role as principal. And, having recognized the benefits of using technology, the instructional leaders' enthusiasm will more likely be transmitted to the teachers and students.

---

1Cutts et al., "Administrative Microliteracy," p. 54.

Effective change will occur in schools when the educational leader perceives the need, acquires the necessary training, believes it can be accomplished, and utilizes the power of administrative organization to cause it to happen.

Research Questions

1. What were the source and usefulness of principals' computer training?

2. What are principals' perceptions of their length of training, present knowledge of computer skills, and what information would they like to see incorporated into their computer training program to make it more effective?

3. What are principals' perceptions of factors which facilitate computer use in their schools?

4. How frequently are computers used for administrative and computer managed instruction purposes?

Hypotheses

**H₀₁**: There is not a significant relationship between principals' training and use of the computer for administrative and computer managed instruction.

**H₀₂**: There is not a statistically significant difference between principals' and teachers' use of computer managed instruction.

Definition of Terms

**Administrative computer use** - Utilization of the computer for such things as: attendance, scheduling, pupil directories, student records, and financial accounting.

**Computer** - An electronic digital machine designed for the input, storage, manipulation, and output of alphabetical and numeric symbols. It can automatically and very rapidly follow a detailed
step-by-step set of directions that has been stored in its memory.¹

Computer-managed instruction - Utilization of the computer for such things as: curriculum planning, student grades, diagnostic information, and Individualized Educational Programs. Computer-managed instruction is defined from the perspective of the principal and department heads in the high school.

Microcomputer - A small computer capable of performing the same tasks as a regular computer.

Department Head - A person in charge of planning, organizing, leading, and directing the activities of individuals within that department.

Basic Assumptions

1. Principals and department heads are in instructional leadership positions. As such, they are the most likely people to give the correct information.

2. Principals should be knowledgeable about microcomputer application within the school.

3. Certain training models have a greater impact on microcomputer usage within a school.

Limitations of the Study

The following limitations were inherent in the study:

1. Because of a lack of research on the effect of either computer use in administration or training for administrative use

of computers, this study will be more descriptive than inferential.

2. This study will be limited to high school principals and teachers from the Atlanta area.

Overview of the Study

Chapter I presents the introduction and rationale, statement of the problem, evolution of the problem, theoretical framework.

Chapter II includes a review of the related literature on the impact computers are having on contemporary society and education.

Chapter III discusses the methods and procedures used to conduct the study. The chapter includes a description of the population, the sample, the instruments and the procedure utilized in collecting the data.

Chapter IV presents the data collected from the mailed questionnaires.

Chapter V presents the summary, conclusions, and recommendations for further study.
CHAPTER II

REVIEW OF RELATED LITERATURE

The review of related literature focuses on the impact computers are having upon society and education. The chapter is divided into three sections. The sections are: (1) the influence of computers on society and education; (2) the computer use and training of high school principals; and (3) the principal's role in integrating new technology at the local school.

Influence of Computers on Society and in Education

One can hardly pick up a newspaper or magazine these days without viewing an article about computers and our society, frequently including commentary about computers and education. They speak about the responsibility of the school to prepare society and to use the new technology to enhance instruction in all subjects.\(^1\)

Influence of Computers on Society

Our daily way of life is increasingly becoming computerized. No technology is developing more rapidly than the microcomputer. The computer has changed our interests and our ways of thinking. Naisbitt indicates in his book, *Megatrends*, that technological development of our society is one of the major new directions that is presently transforming our lives. He states that:

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None is more subtle, yet more explosive, I think, than this first, the megashift from an industrial to an information society... I am not, of course, the first to speak about the information society. It is not a new idea. In fact, it is no longer an idea... it is a reality.1

The growth of computers is not only reflected in businesses, but in consumer products as well. The microchip is being installed in such items as telephones, automobiles, entertainment products, home appliances, and in automatic bank tellers.

Weiss presented the following statistics in an article, "The Revolution Around Us."

In 1980, 35,000 personal computers were sold. In 1983, sales of 3.5 million were projected, an increase of about 9,900%. As of June 1982, there were 500,000 in the home; by December of that year, an estimated 1.5 million were installed. By the end of this year, a projected 274,000 desktop computers will be installed in schools... more than double the 1981 figures. The Wall Street Journal recently estimated that one million will be in schools by 1986. On the business front, while a mere 3% of professional, managerial and administrative workers currently use personal computers, according to Business Week estimates, 65% of these workers will use them by 1990.2

There is little doubt that the microcomputer with its ability to store, sort, analyze and manipulate data will continue to be at the center of the information industries. The knowledge and skill to manipulate information to meet one's needs will be a much needed skill.

According to Naisbitt:

The potential of microprocessors is awesome. The automation of factories and offices, once a futurist's pipedream, is becoming a reality. It is no wonder then that computers have inspired fear and mystery in workers ever since their powers were first uncovered. Computer technology is to the information age what mechanization was to the industrial revolution: it is a threat because it incorporates functions previously performed by workers.¹

With the boom of computers, especially the microcomputer, there is a drastic need for students entering the workplace to be able to function in a society that will be heavily concentrated with computers.

Valdez predicts that eighty percent of students currently in school will technologically manipulate information in their work by the year 2000. Utilization of the technology that enhances thinking and problem solving skills will give students the skill they need for optimal employment.²

The National Labor Statistics Bureau projects that 75 percent of all jobs will require computer knowledge in the next 10 years. Effective implementation into education will require administrative support. Research shows a correlation between administrative support and effective introduction of computers in educational settings.³

¹Naisbitt, Megatrends, p. 28.
Molnar voices the sentiment of most researchers by asserting in his research that computers have already affected mankind. The computer is a catalyst to scientific discovery. It amplifies thinking and is a data repository. He further states that we are rapidly changing from an industrial to an information society, and those who are not computer literate will be unable to take full advantage of information through meaningful participation with this technology.

As our society moves full speed ahead into an even more computerized society, the ability to use and understand computers is becoming as important as our ability to understand and handle the written word. The computer will continue to be a pervasive factor in our daily lives. Based on research, the public school system must act as the foundation in preparing our youth to work in the new communication industries.

Influence of Computers on Education

Schools are purchasing microcomputer hardware and software in ever increasing numbers. It is projected by many researchers that the number of microcomputers in public schools will grow to nearly three million by 1990 and that by the end of the decade, annual software sales will surpass annual hardware sales in schools.

Campbell states that since their introduction in schools in 1979, there are over 29,000 microcomputers in the 84,226 public

school buildings in this country. Approximately 11% of elementary schools, 28% of junior high schools and 43% of senior high schools have at least one computer.\(^1\)

The growth of computers in the school was also addressed by Grayson who found that the number of microcomputers in secondary schools is tripling every 18 months. By January 1983, 77% of the secondary schools in the nation had at least one microcomputer for instructional use. Further, 40% of the secondary schools had five or more microcomputers. Although microcomputers are proliferating rapidly throughout the schools, their numbers are significantly less than the number of students who should have access to them. He goes on to state that there is an average of one microcomputer for every 92 students; however, Grayson estimates that by the end of 1987 there will be one microcomputer for every 23 students. On an average, schools will spend seven billion dollars annually on computer equipment.\(^2\)

Becker conducted a second National Survey on Instructional Use of Computers in our nation's schools. According to the survey, one million computers are now in place in schools across the nation, and used by more than 15 million students and some half million teachers. Of those million computers, the majority appear to be in


secondary schools.\textsuperscript{1}

Society, as a whole, believes that the school should play the leading role in preparing students for the future. Most parents believe that computers should be integrated throughout the curriculum. To help insure that this is done, parents are taking an active part in computer purchases.

According to McCorduck and Russell, parents have supported the implementation of computers. An estimated 27\% of the money used in 1981-82 to purchase computers came from outside the school budget raised by parents. Parents on a whole are demanding that schools respond to the revolution in computer technologies.\textsuperscript{2}

Sharkan and Goodman state that the electronic revolution can reform the traditional mode of teaching, revitalize education to make it more meaningful to students, and result in a more efficient expenditure of scarce funds. Instructional technology wisely used by the teacher can individualize instruction, reduce humdrum and routine activities connected with teaching, and expose all children to the technology that they will use for the rest of their lives.\textsuperscript{3} McMeen supports Sharkan and Goodman's research by stating that the technological age has opened a bright horizon for education, offering a panoply of tools with which instruction can

\textsuperscript{1} Henry J. Becker, Microcomputers in the Classroom: Dreams and Realities (Eugene, Oregon: International Council for Computer Education, 1983), pp. 33-34.


be improved. In addition, the computer revolution has made possible greater access to learning and the opportunity of teaching larger numbers of students in ways that allow individual progress toward learning goals, given the need to alternative learning styles and individual learning rates. Walker identified seven ways today's microcomputer can contribute to education: (1) more active learning; (2) more varied sensory and conceptual modes; (3) less mental drudgery; (4) learning nearer the speed of thought; (5) learning better tailored to individuals; (6) more independent learning; and (7) better aids to abstraction.

Computer-assisted instruction has been the object of much attention; research has been conducted on student attitudes, self-concept, sex differences, education of the handicapped, and many curricular areas. Most studies reveal positive effects on the factors considered and conclude that a traditional program supplemented with computer-assisted instruction is frequently more effective than programs that use traditional methods alone.

Gleason reached the following conclusions after reviewing and interviewing researchers concerning computer-assisted instruction:


2. A substantial saving (20 to 40 percent) in time can be achieved from learning as compared with "conventional" instruction.

3. Retention following CAI compares well with retention following conventional instruction.

4. Students react positively to well-designed CAI programs; they reject poor programs.¹

Kulik and others used meta-analysis to bring separately published studies together to determine the effects of computer-based teaching on students in grades 6-12. An analysis of the 51 studies showed that CBI raised students' scores on final exams from the 50th percentile to the 63rd percentile. CBI also raised scores on follow-up exams, but retention affects were not as clear. Computer-based instruction also seemed to have a positive effect on attitudes toward computers and related courses. Learning time was reduced considerably for students who were instructed on computer.²

As computers play an increasing role in education, and as studies provide additional evidence of the positive effects of computers on achievement and motivation, the problems of training equity must be addressed and solutions found. The school must help each child to reach his/her highest potential. Administrators within the school will have to assume the responsibility and leadership in preparing students for the world of tomorrow.


Computer Use and Training of Secondary Principals

Computers in schools are in a stage of rapid transition. Although computers are proliferating throughout the schools and becoming more common in homes, they have not been integrated into the curriculum. Most students are not receiving exposure to them. Most principals, in their haste to join the computer race, have purchased computers in an effort to show that the school is keeping pace with society; however, they have not vigorously pushed for full implementation. They have more or less developed the wait and see attitude before becoming involved. Most administrators have continued to rely on traditional record keeping and teaching techniques.

Present and future computer use in schools depends on the degree to which decision makers take the necessary initiatives to use microcomputers effectively. A need exists for administrators to become knowledgeable about computer applications in the areas of administration and instruction.

Principals' Use of Computers

At the administrative level, the microcomputer has proven to be a valuable tool in handling most administrative tasks. The computer can be used to prepare forms, keep records, prepare inventories, and analyze budgets.

According to Wilcox, demand for accountability is requiring administrators to consume more time in monitoring the use of resources in education. Administrative application of microcomputers can decrease the time and accuracy in reporting and analyzing data.
He contends that there are five information processing functions that are essential to the responsible administration of school at any level. These functions are:

1. the acquisition of pertinent data;
2. the efficient storage of data;
3. easy data retrieval;
4. the ability to analyze and recombine data into meaningful reports; and
5. an efficient means of transmitting data about local school operations to monitoring agencies or individuals.¹

Currently, most administrators have to rely on handwritten recording, metal file cabinets, human retrieval, hand counting and mechanical computation, and manual recording of information for mailout. Wilcox further states that these manual operations are no longer realistic. Administrators must take advantage of computer-based information processing.²

The need for administrators to take advantage of the programs available to them to increase their effectiveness was also addressed by the Center for Educational Management of San Diego State University. They found the following common uses for administrative application:

1. attendance;
2. budgeting;
3. registration and scheduling;


²Ibid.
4. testing, grading, reporting;
5. time management;
6. school-based needs assessment studies;
7. inventory control;
8. cafeteria accounting;
9. discipline problems;
10. newsletters;
11. word processing.

Schneider conducted a study whereby she surveyed the administrative applications of microcomputers. She identified word processing, database management, spreadsheet functions, and graphics as four areas in which microcomputer use will reduce repetition, improve cost efficiency, minimize paperwork, enhance filing and retrieval systems, and save time. This will allow administrators and teachers to channel their energies more effectively toward the improvement of curricular programs and instructional strategies.

In an effort to rank in order the most important administrative use of microcomputers, Fellmy found that student record keeping and grade reporting was rated first; financial accounting and reporting was rated second; payroll and student scheduling tied for third and fourth places. In addition, Fellmy stated that most administrators do not use the computers for these purposes because

they were not trained or in some cases had not received enough training.¹

Brickell also expressed a concern with regard to computer utilization by the principal. He states that computer technology is effective for administrative tasks because of the large amount of information to be processed and the kinds of repetitive operations needed. Together with traditional operations, mathematical, and statistical computer applications, software systems can accomplish tasks of information control, reporting, operational research, feasibility simulations, modeling and generally more efficient decision making.²

Froese voiced the sentiment of most researchers. He conducted a study to identify and investigate the uses of microcomputers related to the non-instructional tasks of school administrators. The responses to the questionnaire indicated that a need existed for educational administrators to utilize microcomputers for noninstructional tasks. Some of the programs that could be beneficial for application in educational administration were: student records, scheduling, data base management, spreadsheet calculation, word processing, and accounting. Froese concluded that although microcomputers have entered public schools as an important part of the


educational process, their use for increasing administrative efficiency and effectiveness has been limited.¹

Crobett and others conducted a study in the spring of 1981 in San Diego County, California which produced some interesting findings. Of the 580 microcomputers used in the schools, four principals had microcomputers in their offices and made use of them. Crobett and others stated there was a clear implication that "school administrators are not into microcomputers." In the same article, the authors continued by stating that: the most important individual influencing the rate of change and/or instruction of innovation in a school is the principal. The research would suggest that public school administrators may not be using microcomputers in their jobs or even may not be prepared to provide the leadership needed to integrate the use of microcomputers into the public school system; therefore, there may be some question as to the degree most administrators are microcomputer literate.²

Aeshing suggests that an incredibly large gap between the computer's potential to solve problems in a hurry and the American managers' knowledge of how to use it to do that.³ The research indicates that the computer can be used to assist the principal in the performance of his/her daily duties. By actively using the


²Crobett et al., "Principals Are Keys to Effective Use," p. 110.

computer in his/her office, the principal will be able to increase productivity of the whole school.

Principals' Training in Microcomputers

Very few educational administrators have had the benefit of a special made course/s for them to learn about how computers can assist them in making their school more productive. This is especially unfortunate since the implementation, integration and continued growth of computer knowledge depends upon principals in schools being totally convinced that the microcomputer is a valuable and versatile tool in society and in education. Training for principals falls far short of their need to understand and use new technologies in schools.

Telem states that administrators lack the background and training in the computer field. This lack of training and background might deter the proper and effective use of the computer as a support tool for administration and instruction.¹

In a study directed by Estes of 40 leading United States universities, Estes found only one to three offering administrators a course of any kind involving high technology in education. One out of five, he stated, had not even thought about adding such a course in the years to come. He goes on to state that only four states require any kind of computer course for graduation in school administration. Only six universities required school administrator

candidates to take a course on computers in education. Many administrators continue to use traditional methods running a school. If elementary and secondary principals are not properly trained, how can they develop programs that would insure integration of technology into the school?  

Research conducted by Palamara supports Estes' call for programs either to develop our future administrators or to further the professional development of current administrators for the information age. He states:

Universities offer few, if any, programs that permit individuals to approach an understanding of new concepts and developments. Eventually these developments will reach the educator through continuing education departments, or perhaps professional education societies may collaborate with computer companies to develop inservice training to acquaint educators with developing technology.  

Because microcomputer training was not a part of their formal training, they often feel frustrated and in some cases threatened by their lack of knowledge about the information age in which they live and work. In order to lead, one must be prepared. Principals must evaluate, assess, and then incorporate change in the most appropriate way given the needs of the school and the individuals involved. 

The Center for the Study of Microcomputers of the University of Mississippi developed a one-day workshop for educational leaders in response to a survey in which principals wanted to know how to

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use the computer in their office. It selected micro stations for specific administrative applications, and then provided follow-up activities and support services for administrators. Their goal for the administrators was in both the cognitive and affective domain.¹

The Science Teaching Centre at the School of Education at Tel Aviv University developed an introductory computer literacy curriculum for educators. The syllabus and the learning materials developed were first tried in an experimental, full credit academic course during year 1981-82.²

The following goals were set for the computer literacy course:

1. Understanding the computer is part of the information revolution and not a passing fad;

2. Understanding that information technology provides, for the first time in the modern history of education, an appropriate and relevant technology;

3. Defining a realistic estimate of the capabilities and constraints suggested by applying computers to education;

4. Presenting the diversity of the use of computers in education;

5. Acquiring basic concepts and skills concerning the use of computers in education;

6. Creating positive attitudes toward computers by developing a sense of control of a computer;

7. Developing judgment skills for decision-making concerning hardware and software utilization.


³Ibid.
In the journal, *Training and Human Resource Development*, the editor offered a week long computer course for managers that seemed particularly relevant to the administrator. It addressed such topics as:

1. Gaining personal confidence by learning how to use a microcomputer;
2. Dispelling "learning blocks" of fear or ignorance by understanding how a computer works and what skills are needed to work with the computer effectively;
3. Increasing technical understanding that is appropriate for professional needs by exploring the anatomy of computer hardware and concepts of computer software;
4. Improving communication skills with data processing personnel and others by increasing computer vocabulary and understanding the use of computers in a work environment;
5. Developing evaluative skills by comparing computer systems, solving problems with the computer and experiencing software of varying levels of quality;
6. Understanding the dynamics of computer literacy skills to better relate to the learning that employees need to use a computer effectively;
7. Solving problems with a computer to understand its capabilities and limitations within an organization.¹

Crobett and others indicated a training sequence of activities for the school administrator that seemed to remove the spectre of computerphobia. It called for administrators to consider entering into this adventure with the intention to lead by example. Adopting this suggested leadership style would set a strong positive climate in which administrators, teachers and students could learn and

Staff development for all administrators should be provided by school districts and regional centers. A series of five inservice sessions for educational administrators may be developed around the following objectives:

1. Helping educators feel comfortable using a microcomputer;
2. Familiarizing educators with good quality administrative software;
3. Teaching educators how to set up and operate a microcomputer system;
4. Introducing educators to general application programs of customizing; and
5. Teaching educators how to duplicate authorized programs and data.

In summary, only a computer literate administrator recognizes the importance of computer utilization, justifying the purchase of additional hardware, and acquiring additional resources for staff support. It is, furthermore, the computer literate administrator who will also be able to integrate the computer into his or her administrative tasks. Leadership by example will foster a supportive climate for systematically introducing microcomputers throughout the entire curriculum and school system.

**Principals' Roles in Integrating New Technology at the Local School**

Computer usage is no longer a skill needed only in certain professions and occupations. Classroom use of computers offers opportunities for enhancing elementary and secondary teaching in many subject areas—

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1Crobett et al., "Principals Are Keys to Effective Use," p. 114.
opportunities that are being missed because many teachers at all levels do not know how to use computers in the classroom and are not prepared to teach about their impact on our society. ¹

Lance concluded that there were four basic problem areas that were causing computers not to be fully implemented throughout the school system.

First, education is essentially an extremely conservative institution, and educators reject innovations because of this conservatism and institutional inertia.

Second, technology is still seen as a threat to jobs and present roles. Teachers are anxious over possible loss of jobs, built in accountability systems in computerization, and role changes that have not been yet tried.

Third, the costs of innovations are high, and fourth, there does not yet seem to be a "bridging vehicle." The purpose of this vehicle would be to deal with the attitudes and perceptions of potential users of educational technology.²

Teachers and administrators range somewhere between apathetic and hostile in their attitudes toward computers. Most teachers are fearful when it comes to computers. What appears to be missing in much of the literature has to do with the attitudes of teachers and administrators toward computers.


In the Norris and Lumsden study, fewer than 15 percent of those teachers and administrators surveyed disagreed with the statement that computers are valuable tools that could be used to improve the quality of education. Similarly, the majority of teachers and administrators agreed that teachers should know how to use computers in the classroom. The "big break," however, came when the suggestion was made that computers for their classroom use were desirable, the proportion of educators expressing agreement dropped precipitously. Teacher attitudes seemed, therefore, to be positive toward computers as long as the function of the computers is removed from their experiential world of practice.¹

Another reason for the technology gap that exists in the schools has to be that today's educational leaders and decision makers have, with few exceptions, had almost no education or experience in understanding or using computers. This, coupled with the lack of incentives for teachers to learn about computers, points to a need for greater administrative knowledge, commitment, and recognition of the educational importance of computers.

Principal Leadership

Increasingly, school leadership is cited as a factor of prime importance to school improvement. Research by Hall concerning the role of the principal as change facilitator demonstrated that many of the interventions were made on a day-to-day basis by casual observations, suggestions of ideas, and models. In those schools where

implementation of new programs was most successful, principals took an active role in helping teachers with the technology or techniques of new instructional programs.1

Kenneth Tyre believed that the principalship is the key position for facilitating change.2 Valerie Bockman viewed the position as one of active and creative leadership with a human relation philosophy and the establishment of an open climate. The manager-principal should treat teachers and staff as competent, intelligent persons and should nurture open participation in decisionmaking and educational processes by all persons and groups who are directly concerned.3

Berman and McLaughlin reported that the more supportive the principal was received to be concerning an innovation, the higher was the percentage of project goals achieved. Since the school's organizational climate powerfully affected the implementation and continuation of change in the building, the principal indeed merits the title of "gatekeeper to change."4

Gordon Cawelti, reporting on effective school research, verified that "... schools are rarely effective unless the

principal is a 'good leader.'" Behavior patterns drawn from the overall research described principals of effective schools as having a sense of vision as to the kind of school and learning environment they intended to create; being resourceful in acquiring their building needs, planning for school improvement, actively supporting instruction; and constantly monitoring the extent to which the school was attaining its goals.¹

Research reviewed for the ERIC document, The Principal As Change Agent, noted that among elementary principals, those with more experience or those who employed teacher aids, were more frequently viewed as comprehensive change agents. The interpersonal climate of a school, the technological level of a district, and the personal characteristics, attitudes, and behavior of principals were also seen as important factors in the initiation of change. The research suggested that the three necessary components prerequisite to educational change were dynamic leadership, a philosophical base, and a positive environment.²

DeBevoise indicated from his research on the principal as instructional leader these highlights:

(1) Principals cannot exercise instructional leadership in a vacuum. They need support from teachers, students, parents, and the community.

(2) Common leadership functions that must be fulfilled in all schools include communicating the purpose of the school, monitoring performance, rewarding good work, and providing staff development. Whether these functions must be carried out by the principal depended upon the make-up of the teaching staff and the organization of the school district.

(3) While previous studies have generally concentrated on only one facet of instructional leadership, such as personal traits, leadership styles, management behaviors, or organizational contexts, current studies tend to address the interrelationships among these factors.¹

The Research and Development Center on Teacher Education at the University of Texas, Austin, studied nine elementary school principals involved in implementing a curricular innovation in their schools. The findings revealed that the attitudes and action of the principals "can and do make a difference" in the success of change projects. "They have at their command both the resources and the opportunities to make actions that positively affect teachers' use of instructional innovations as well as the outcomes of those innovations."²

According to Ronald Edmonds, one of the most tangible and indispensable characteristics of effective schools is a strong


administrative leadership, without which the disparate elements of good schooling can neither be brought together nor kept together.¹

Factors Essential to Innovation

The Rand Corporation conducted a study of the process of planned change in 293 school innovations over a four-year period to identify the factors or strategies that affected the fate of educational innovations. Rand found the following factors to be essential to innovation:

(1) Concrete, specific and extended training;
(2) Classroom assistance from project or district staff;
(3) Observation of similar projects in other classrooms, schools or districts;
(4) Regular project meetings that focused on potential problems;
(5) Teacher participation in project decisions;
(6) Local material development;
(7) Principal participation in training; and
(8) All strategies adapted to local realities.²

The principal was seen as a significant source of support for teacher participation in computers by being well informed about uses of computers, taking an active role in securing funds for purchasing hardware and software, and accommodating teachers' need


for time and resources for learning about the microcomputers.\textsuperscript{1}

Grossnickle noted several principles that are particularly applicable to inservice training for implementing microcomputer technology in the schools. These include:

1. The inservice training should prepare the teacher to perform the task and also provide criteria for determining the teacher's degree of success.

2. Training activities should be in a sequence that gradually increases in complexity.

3. Incentives should be provided to motivate the teachers.

4. Teachers involved in a training program should have continuous access to an available facilitator—a trained technical resource.

5. Administrators should emphasize the value of skills acquired in a training program if they are to be used.\textsuperscript{2}

Teachers' Use of Computers

Computers are valuable resources for the teachers as well as for the principals. Computer-assisted instruction and computer managed instruction are the two most common educational applications that are utilized in the classroom. In a time of increased accountability, understanding of these two applications is vital as we


\textsuperscript{2}Ibid.
enter the 1990's. When used effectively, computer managed instruction can provide information to the teacher which assists in management of learning activities. The system is sometimes thought of as a decision support system.

There are at least four primary elements which can be identified within a school instructional organizational program with respect to information management. Computer managed instruction can be used to assist with: (1) individual student record maintenance; (2) assessment of individual learning and progress; (3) identification of instructional needs; and (4) formulation of appropriate instructional groups.

In a Florida study, Fey found that computer prepared individualized reading prescriptions were faster, less costly, and more accurate than those prepared by classroom teachers or reading teachers.¹

According to Bozeman, regardless of the specific computer configuration, there are several benefits which can accrue from the utilization of a computer managed instruction system:

(1) Reduction of teacher time devoted to clerical and record keeping tasks;
(2) Enhanced record systems;
(3) More effective and efficient use of planning time and decision making;
(4) Student achievement profiling;
(5) Improved diagnostic and prescriptive capabilities;

Weller also believed that the computer could be used to aid the teachers and principals in performing their daily duties. He stated:

Teachers can not only enhance learning experiences, but can also meet the demands of this new managerial role more efficiently. Briefly stated... computer managed instruction uses the computer to aid in student testing and scoring and in monitoring and charting student achievement through any given program of study. By analyzing the computer's record of a student's progress, the teacher can provide formative evaluation regarding student accomplishments and prescribe appropriate learning activities and correlate instructional materials to meet the unique needs of the learner.²

Concerning the managerial uses of the computer, Long praised the utilization of computers in every area. Schools can use computers as management tools to aid the librarians, principals, secretaries, and teachers. Computers are generally used to perform routine or tedious tasks or to help monitor instruction. She goes on to state that there are two general areas where computers can assist principals and teachers the most. Those areas included: (1) office use, which generally serves the school as a whole, and (2) teacher use, which generally serves each teacher on an individual basis.³

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The research indicates that the computer can be used to assist teachers and principals in the performance of their duties. Most teachers believe that the computer can make a contribution to education. Their lack of adequate training and support from the administration, however, is causing some teachers not to interact with the computer in a positive manner. With the increasing demands for collecting, managing, and reporting information on students, it is unlikely that teachers will be able to keep pace without resorting to a computer managed instructional program.

Summary

Computer technology needs to be incorporated into the educational scene as computer literacy becomes a required skill. The National Labor Statistics Bureau projects that 75 percent of all jobs will require computer knowledge in the next 10 years. Effective implementation into education will require principals' support. With support, microcomputers become a vital tool for learning. Administrative support takes several forms--involvement in the planning and implementation of computer instruction in the curriculum, financial support for different programs, and personnel support (release time, inservice programs, etc.). The computer has the power to enhance learning and to create a whole new variety of learning environments. The ultimate benefit that we, as a nation, derived from this shift to the information society will depend, in large measure, on the resourcefulness and training of our educational leaders in planning for change.
CHAPTER III

METHODOLOGY

This chapter was designed to present a description of the population, research instrument, procedure, data collection, and analysis used to investigate the principal's training in and use of computers in secondary schools in the Atlanta area.

Population of the Study

The population consisted of forty-four secondary school principals from two Atlanta area school systems. Thirty-four principals were randomly selected to participate in the study. Data were also collected from sixty-eight teachers. Teachers that utilized the computers the most were used to determine how computers were being used in those principals' schools for computer managed instruction. Principals were selected because they are in charge of the daily operation of the school. As the chief administrative officer of the school, he/she must be competent in conceiving new initiatives and organizing professional endeavors designed to better serve the needs of teachers and students. Their actions have a direct impact or direct responsibility for the successful utilization of a new innovation. Research and professional literature emphasize the necessity of the principal in bringing about a desired change within the school.
Research Instruments

The major research instrument, a questionnaire, was designed to measure principals' perceptions regarding their training in computer skills and use of the computer within their local school for administrative and computer managed instruction purposes. The teacher's questionnaire was designed to measure the extent of computer utilization for computer managed instruction. The focus of this study was upon the unfreezing stage (training), of which utilization was partially defined as a perception. The research instrument was developed in a summated rating scale or Likert type scale format similar to that used in general attitude studies. The instrument focused on perceptions regarding training and use of computers in secondary schools for administrative and computer managed instruction purposes. The summated rating scale developed by Likert is one of the best known and widely endorsed among the current techniques for use in attitude and perception scale development and research. The responses were placed on a continuum from "not applicable" to "most useful" (1-5). Thus, a response of a 5 on an item indicates that the respondent's action is highly useful. According to Hopkins, there are three aspects in the preparation of an instrument. First, the investigator must learn to ask a question that is definite and clearly presented. Second, the format must be structured so that the respondent will have no difficulty reading the questions and recording the answers. Finally, the instruments must be sharpened to eliminate all
ambiguity.¹

The contents of the survey items were derived from relevant literature as well as actual visits to some of the schools in the study. Questions from Minnesota Educational Computer Consortium Association (MECCA) pool of research questions that were related to the purpose of this study served as a model in constructing the questionnaires for this study.²

Prior to the final instrument design, two separate pilot tests were conducted to test the reliability of the research instruments. The questionnaires were mailed to two principals each time. A cover letter accompanied the questionnaires to explain the purpose of the research and to solicit principals' help in refining the questions for greater reliability. They were asked to forward the questionnaires to the appropriate teachers who utilized the computer the most at their particular school.

After the pilot study was completed, the respondents' comments and suggestions were incorporated in the rewording of some items and deletions of some items. Telephone calls were made when written comments needed clarification.

Data Collection and Analysis

The principals selected to participate in this study were mailed a packet containing a cover letter explaining the study and


inviting their participation. The confidentiality of their responses was also included in the cover letter. A copy of the research instruments and a stamped, self-addressed envelope for quick return of the instrument were also included in the packet. The packet was sent via first class mail. The instruments were coded numerically to facilitate accurate monitoring of their return. Hopkins stated that a return date of 50% is adequate for analysis and reporting. A 60% return rate is classified as good while a 70% return is very good.1 Having received 27 of the 34 mailed (76 percent), the researcher felt that the return percentage was adequate for analysis of the study.

The Statistical Package for the Social Sciences (SPSS) was employed to analyze the data. The data from the research questions were processed and tabulated using frequencies. The responses to the open ended questions were synthesized and reported in a table form showing frequencies.

The data gathered from the Likert type attitudinal scale were utilized to test the null hypothesis in the study. Hypothesis one was tested for significant relationship between the principals' training and computer utilization for administrative and computer managed instruction. Hypothesis two tested the statistically significant difference between principals' utilization of computers and teachers' utilization of computers for computer managed instruction.

1Hopkins, Educational Research, pp. 71-89.
Since the responses from the Likert attitudinal scale yielded quantitative interval-ratio data in the form of a numerical score, the Analysis of Variance statistical method was used to determine the statistical significance between the means of the samples on the perception scale. The correlation coefficient was employed to study how change in one variable could be related to change in another variable. The .05 level of significance was used for rejection of the null hypotheses. The analysis of the data revealed the perceptions held by principals and teachers toward utilization of computers for computer managed instruction.

Summary

Chapter III included a design of the study, a description of the population, the instruments used to collect data, and treatment and collection of the data. Questionnaires by mail were used to collect the data for the study. There were twenty-seven principals and fifty-four teachers that actually participated in the study. Chapter IV presents the data from the study and an analysis of the data.

CHAPTER IV

ANALYSIS OF RESULTS

The major purpose of this study was to investigate the training principals received in computer skills, and the uses by principals of computers in their local schools. The study also looked at computer managed instruction by teachers in their schools.

The study sought to answer the following research questions and null hypotheses:

**Research Questions**

1. What were the source and usefulness of principals' computer training?

2. What are the principals' perceptions of their length of training, present knowledge of computer skills, and what information would they like to see incorporated into their computer training program to make it more effective?

3. What are principals' perceptions of factors which facilitate computer use in their schools?

4. How frequently are computers used for administrative and computer managed instruction purposes?

**Hypotheses**

**H01:** There is not a significant relationship between principals' training and use of the computer for administrative and computer managed instruction.
HO$_2$: There is not a statistically significant difference between principals' and teachers' use of computer managed instruction.

Table 1

Types of Microcomputers Used

<table>
<thead>
<tr>
<th>Microcomputers</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>13</td>
</tr>
<tr>
<td>IBM</td>
<td>8</td>
</tr>
<tr>
<td>TRS</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 1 shows the type of microcomputers used by the principals to obtain their present computer knowledge. Thirteen (48%) were trained on the Apple; eight (29.6%) had been trained on the IBM; three (11.1%) were trained on the TRS; and two (7.4%) had been trained on other computers. The data show that most of the principals obtained their present level of computer training on the Apple computer.
Table 2
Principals' Perceptions of Their Computer Training Usefulness

<table>
<thead>
<tr>
<th></th>
<th>Self Taught</th>
<th>Peer Taught</th>
<th>Computer Salesperson</th>
<th>School</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
</tr>
<tr>
<td>1)</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2)</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3)</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4)</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>5)</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTE: 1) not applicable; 2) not useful; 3) average use; 4) very useful; 5) most useful.

Table 2, "Principals' Perceptions of Their Computer Training Usefulness," shows the means of training which principals found most useful. The areas explored were "self taught," "peer taught," "computer salesperson," "school," and "university."

With regard to self taught, two (7.4%) stated that they found self taught not to be useful, eight (29.6%) average, while eleven (40.7%) found the self taught model to be most successful. Six (22.2%) did not utilize the model at all.

In response to peer taught, three (11.1%) indicated that they found peer taught not to be useful, nine (33.3%) average and nine (33.3%) found the peer taught model to be of benefit. Six
(22.2%) of the respondents stated that it was not used.

Three (11.1%) found that computer salesperson was not useful. Six (22.2%) principals found them to be of average use, while nine (33.3%) found the salesperson to be most successful. Nine (33.3%) did not utilize the salesperson approach.

One (3.7%) principal stated that school training was not useful. Three (11.1%) found this approach to be of average use, while five (18.5%) found the school model to be most successful. Nine (33.3%) did not utilize the school training approach.

In response to university training, two (7.4%) felt that the program was not useful, four (14.8%) indicated that it was of average use, while nine (33.3%) believed that the program was most successful. Twelve (44.4%) indicated that they did not use it.

In summary, the data suggest that most principals found computer training in the school system to be of greatest benefit. Self taught was second with university, computer salesperson, and peer taught in third place.

Table 3

<table>
<thead>
<tr>
<th>Principals' Perceptions of Their Length of Computer Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Computer Training</td>
</tr>
<tr>
<td>0 - 3 weeks</td>
</tr>
<tr>
<td>1 - 5 months</td>
</tr>
<tr>
<td>1 year</td>
</tr>
<tr>
<td>2 - 3 years</td>
</tr>
<tr>
<td>4 - beyond</td>
</tr>
</tbody>
</table>
Table 3, "Principals' Perceptions of Their Length of Computer Training," shows the extent to which principals have been trained in computer utilization. Twelve (44.4%) reported that they had from 0-3 weeks of training. Seven (29.9%) principals have had from one to five months of training. Five (18.5%) have had up to a year of training. One (3.7%) has had two to three years and two (7.4%) have had four or more years of training. In summary, the data suggest a majority of the principals have had less than a semester of computer training (74.3%) and eight (29.6%) have obtained a year or more of training.

Table 4

<table>
<thead>
<tr>
<th>Knowledge of Computer Utilization</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Average</td>
<td>14</td>
</tr>
<tr>
<td>Average</td>
<td>8</td>
</tr>
<tr>
<td>Above Average</td>
<td>2</td>
</tr>
<tr>
<td>Excellent</td>
<td>3</td>
</tr>
<tr>
<td>Superior</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4 reflects the responses of the principals regarding their perceptions of their present level of computer knowledge. All twenty-seven respondents responded to the question. Of the twenty-seven respondents, fourteen (51.9%) indicated that their knowledge of the computer was below average. Eight (29.6%) felt that their knowledge of the computer was below average. Eight (29.6%) felt
that their knowledge was average; however, five (18.5%) indicated that their knowledge exceeded average. Based on the data, it is evident that most principals are uncomfortable with their present knowledge of computer skills. None of the principals felt that their knowledge was superior based on the computer training they had received.

Table 5

Principals' Perceptions of Administrative Use of Computers

<table>
<thead>
<tr>
<th></th>
<th>Scheduling</th>
<th>Attendance</th>
<th>School Directories</th>
<th>Financial Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Never Used</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Seldom</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Usually Used</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Always Used</td>
<td>17</td>
<td>11</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 5 presents the data which shows principals' responses to items measuring the frequency of administrative uses of the computer for administrative purposes, such as scheduling, attendance, school directories, and financial accounting. Ranking of usually used and always used has been combined and reported as frequent use. All twenty-seven principals responded to the item.

In response to the scheduling item, two (7.4%) never used the computer for scheduling; two (7.4%) reported seldom, while five
(18.5%) frequently used computerized scheduling. One (3.7%) stated that the question was not applicable. In response to the attendance item, five (18.5%) never used the computer for attendance; two (7.4%) seldom use it, while nineteen (70.3%) frequently computerized attendance records. One (3.7%) reported that the question was not applicable. In response to the student directory item, four (14.8%) never used the computer for computerized student directories, seven (25.9%) stated seldom, while twelve (44.4%) frequently used computerized student directories. Four (14.8%) stated that the question was not applicable. The data on financial accounting indicated that six (22.2%) never used the computer for financial accounting. Eight (29.6%) reported seldom, while ten (37.0%) frequently used computerized financial accounting. The data suggest that computers are used for administrative purposes within the high schools. The data further suggest that the computer was used most for scheduling and least for financial accounting.

Table 6
Principals' Perceptions of Computer Utilization for Computer-Managed Instruction

<table>
<thead>
<tr>
<th>Frequency of Use</th>
<th>Curric. Planning</th>
<th>Student Progress</th>
<th>Diag. Info.</th>
<th>Teacher Profile</th>
<th>IEP Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Never Used</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Seldom Used</td>
<td>8</td>
<td>8</td>
<td>11</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Usually Used</td>
<td>12</td>
<td>7</td>
<td>10</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Always Used</td>
<td>7</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Data displayed in Table 6 present the principals' responses to the items measuring the frequency of computers used directly for computer-managed instruction (CMI) including curriculum planning, student progress, diagnostic information, teacher profile and individual educational development. Ranking of usually used and always used has been combined and reported as frequent use.

None of the principals stated that the computer never was used for curriculum planning. Eight (29.6%) principals reported seldom, while nineteen (68.3%) frequently used computerized instruction for curriculum planning. In response to student progress, two principals (7.4%) stated they never used the computer for student progress, eight (29.6%) reported seldom, while seventeen (62.9%) frequently used computerized student record keeping. None reported that the question was not applicable. Three principals (11.1%) never used the computer for diagnostic information, eleven (40.7%) seldom, while thirteen (48.1%) frequently used computer managed instruction for diagnostic information. None of the principals reported that the questions was not applicable. In regard to individualized education planning (IEP), nine (33.3%) never used the computer for individualized educational planning. Seven (25.9%) stated seldom, while six (22.2%) frequently used computerized individualized educational planning. Five (18.5%) reported that the question was not applicable.

Data regarding use of computer managed instruction indicate a majority of the schools do not use the computer for diagnostic information, student diagnostic information, teacher profile, and
individualized educational planning purposes. A majority, however, did find curriculum planning and student progress to be meaningful.

Table 7
Principals' Perceptions of Factors Which Facilitate Computer Use

<table>
<thead>
<tr>
<th></th>
<th>School Bd.</th>
<th>Supts.</th>
<th>Commitment by Principals</th>
<th>Teachers</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
</tr>
<tr>
<td>Low</td>
<td>(1) 1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>(2) 0</td>
<td>1</td>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Average</td>
<td>(3) 7</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(4) 13</td>
<td>10</td>
<td>17</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>High</td>
<td>(5) 6</td>
<td>9</td>
<td>4</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 7 shows the data which reflects the principals' responses to the items measuring the principals' perceptions of factors which facilitate computer use in their schools. These factors include: school board, superintendent, principal, teacher, and parent.

Based on the responses, one (3.7%) of the principals ranked the importance of school board commitment to computer implementation as low (1 or 2). Seven (25.9%) ranked the board commitment as average (3), and nineteen (70.3%) ranked the school board commitment highly important (4 or 5) to the facilitation of computer use. From the respondents, one (3.7%) of the principals ranked the importance of the superintendents' commitment to the computer use as low (1 or
seven (25.9%) ranked the superintendents' commitment of average importance (3); and nineteen (70.3%) ranked the superintendents' commitment highly important (4 or 5) to the facilitation of computer use.

One respondent (3.7%) ranked the importance of the principals' commitment to the computer use as low (1 or 2); five (18.5%) ranked the principals' commitment as average (3); and twenty-one (77.8%) ranked the commitment as highly important (4 or 5) to facilitating computer use. None of the principals ranked teachers' commitment to computer as low of importance (1 or 2); eleven (40.7%) ranked teachers' commitment as average importance (3); and sixteen (59.2%) ranked teachers as highly committed (4 or 5). Two (7.4%) ranked parents' commitment to computer use as low (1 or 2); ten (37.0%) ranked parents' commitment as average importance (3); and fifteen (55.5%) ranked parents' commitment as high (4 or 5). The data show that the majority of principals believed commitment by themselves, superintendents and school board were the most important, and the commitment by parents and teachers to be least important.
Table 8

Principals' Perceptions of What Would Make Their Computer Training More Effective

<table>
<thead>
<tr>
<th>Additional Training Needs</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>More hands-on application</td>
<td>7</td>
</tr>
<tr>
<td>Training in personal use</td>
<td>5</td>
</tr>
<tr>
<td>Training in administrative application</td>
<td>4</td>
</tr>
<tr>
<td>Training in computer assisted instruction</td>
<td>4</td>
</tr>
<tr>
<td>Training in programming</td>
<td>2</td>
</tr>
<tr>
<td>Training in financial accounting</td>
<td>1</td>
</tr>
<tr>
<td>Non-respondents</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>

Table 8 shows that principals were asked to respond to an open-ended question designed to ascertain that perceptions of what they would like to see incorporated into their computer training program that would make their training more effective. Of the twenty-seven principals involved in the study, only twenty responded to the open-ended question.

Seven (25.9%) of the principals would like to have had more hands-on experience in using the computer. Training in personal use (18.5%) was the principals' second choice. Administrative application and computer assisted instruction were the next highest items of need (14.8%) each. Training in computer programming (7.4%) and financial accounting (3.7%) were of least importance. The data would suggest that principals would like to have more time provided to them in
order to interact with the computer in acquiring additional skills in personal use, administrative application, and computer assisted instruction.

Table 9
Principals' Perceptions of Computer's Contribution to the Mission of Education

<table>
<thead>
<tr>
<th>Computer's Contribution</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation for the future (employment)</td>
<td>6</td>
</tr>
<tr>
<td>Computer assisted instruction</td>
<td>4</td>
</tr>
<tr>
<td>Office work (time saver)</td>
<td>4</td>
</tr>
<tr>
<td>Motivating students</td>
<td>3</td>
</tr>
<tr>
<td>Record keeping</td>
<td>3</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>Non-respondents</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>

Of the twenty-seven principals involved in the study, only twenty-one responded to the open-ended question on computer contribution to the mission of education. With regard to the mission of education, six (22.2%) of the principals stated that the computer will contribute most to thoroughly preparing students for future employment. Computer assisted instruction (14.8%) and time saver (14.8%) were second in terms of contribution to the mission of education. Motivating students (11.1%) and record keeping (11.1%) both tied for third place. There was one principal who indicated that the computer will not impact on education.
Table 10

Correlation Coefficient of Principals' Training and Administrative Use of the Microcomputer

<table>
<thead>
<tr>
<th>Factors</th>
<th>Scheduling</th>
<th>Attendance</th>
<th>Student Roster</th>
<th>Financial Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-taught</td>
<td>.04</td>
<td>.14</td>
<td>-.01</td>
<td>.02</td>
</tr>
<tr>
<td>Peer taught</td>
<td>.08</td>
<td>.19</td>
<td>-.03</td>
<td>.04</td>
</tr>
<tr>
<td>Computer salesperson</td>
<td>-.36</td>
<td>-.27</td>
<td>-.07</td>
<td>.41</td>
</tr>
<tr>
<td>School system</td>
<td>.03</td>
<td>-.11</td>
<td>-.10</td>
<td>-.10</td>
</tr>
<tr>
<td>University</td>
<td>.01</td>
<td>-.02</td>
<td>-.20</td>
<td>.09</td>
</tr>
</tbody>
</table>

$H_0$: There is not a significant relationship between principals' training and administrative use of the computer in their local schools. Table 10 shows the correlation coefficient of principals' training and administrative use of the microcomputer. In order to reject the null hypothesis that $r = 0$ at the .05 level of confidence with 25 degrees of freedom, our calculated value of $r$ must be at least .38. Training offered by the computer salesperson and utilization of the computer for financial accounting rejected the null hypothesis. There is a significant relationship between computer salesperson training and financial accounting.
Table 11
Correlation Coefficient of Principals' Training and Use of the Microcomputer for Computer-Managed Instruction

<table>
<thead>
<tr>
<th>Factors</th>
<th>Curriculum Planning</th>
<th>Student Progress</th>
<th>Diagnostic Information</th>
<th>Teacher Profile</th>
<th>Individualized Educational Planning Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-taught</td>
<td>.04</td>
<td>-.30</td>
<td>-.14</td>
<td>-.11</td>
<td>.03</td>
</tr>
<tr>
<td>Peer taught</td>
<td>-.05</td>
<td>-.11</td>
<td>-.16</td>
<td>-.10</td>
<td>-.06</td>
</tr>
<tr>
<td>Computer salesperson</td>
<td>.27</td>
<td>-.04</td>
<td>.27</td>
<td>.22</td>
<td>-.16</td>
</tr>
<tr>
<td>School system</td>
<td>-.12</td>
<td>-.01</td>
<td>.02</td>
<td>-.28</td>
<td>-.39</td>
</tr>
<tr>
<td>University</td>
<td>-.09</td>
<td>-.19</td>
<td>-.09</td>
<td>-.24</td>
<td>-.03</td>
</tr>
</tbody>
</table>
Table 12
Comparison of Principals' and Teachers' Perceptions of Computer-Managed Instruction Use

<table>
<thead>
<tr>
<th></th>
<th>Curriculum Planning</th>
<th>Student Progress</th>
<th>Diagnostic Information</th>
<th>Teacher Profile</th>
<th>Individualized Educational Planning Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P</td>
<td>T</td>
<td>P</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>(1)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(2)</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>(3)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>(4)</td>
<td>12</td>
<td>12</td>
<td>7</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>(5)</td>
<td>7</td>
<td>4</td>
<td>10</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>

P - Principal; T - Teacher
Table 11 shows the correlation coefficient of principals' training and use of the microcomputer for computer-managed instruction. In order to reject the null hypothesis the $r = 0$ at the .05 level of confidence with 25 degrees of freedom, our calculated value of $r$ must be at least .38. Only training offered through the school system and computer-managed instruction for individualized educational planning rejected the null hypothesis. The data suggest there is a significant relationship between training offered by the school system and computer utilization for individualized educational planning.

The use of computers by the principals and teachers was compared next in the analysis of the data. Table 12 presents the scores on comparative use for computer-managed instruction. In comparing the data, more principals (68.3%) felt the computer was more frequently used for computerized instruction in curriculum planning than teachers (59.2%). In response to student progress, more principals (62.9%) believed the computer was utilized more frequently for computerized student record keeping than teachers (37.0%). In regard to diagnostic information, more principals (48.1%) believed the computer was utilized more frequently for computerized diagnostic information than teachers (33.3%). In response to teacher profile, more teachers (48.1%) felt that the computer was used more for computerized instruction than principals (37.0%). In regard to individualized educational planning, more teachers (25.9%) believed the computer was used more for computerized individualized planning than principals (22.2%). Data regarding use of computer-managed instruction indicate
that a majority of the principals felt that the computer was used more frequently for curriculum planning, student progress, and diagnostic information than teachers. More teachers, however, felt that teacher profile and individualized educational planning were used more often than principals for computer-managed instruction.

$H_0^2$ is divided into five parts, namely Curriculum Planning; Student Progress; Diagnostic Information; Teacher Profile; and Individualized Educational Planning. The null hypothesis states that there is not a statistically significant difference in the principals' and teachers' perceptions of utilization of the computer for curriculum planning. Table 13 shows the rejection of the null hypothesis. The computer F value of 2.459 is significant at the .0124 level, and this $P$ is less than the stated level of significance of .05; therefore, the null hypothesis is rejected. The principals had a mean score of 3.96 and the teachers had a mean score of 3.59.

The null hypothesis states that there is not a statistically significant difference in principals' and teachers' perceptions of computer utilization for student progress. Table 14 shows the rejection of the null hypothesis. The computed F value of 6.963 is significant at the .011 level, and this $P$ is less than the stated level of significance of .05; therefore, the null hypothesis is rejected. The principals had a mean score of 3.93 and teachers had a mean score of 3.26.
Table 13
Analysis of Variance Summary Table of Principals' and Teachers' Perceptions of Computer-Managed Instruction for Curriculum Planning

<table>
<thead>
<tr>
<th>Population</th>
<th>Number</th>
<th>Group Mean $\bar{x}$</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Significance of $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals</td>
<td>27</td>
<td>3.96</td>
<td>Between Sum of Squares</td>
<td>1.852</td>
<td>1</td>
<td>1.852</td>
<td>2.459</td>
<td>.0124</td>
</tr>
<tr>
<td>Teachers</td>
<td>27</td>
<td>3.56</td>
<td>Within Sum of Squares</td>
<td>39.481</td>
<td>52</td>
<td>0.759</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14
Analysis of Variance Summary Table of Principals' and Teachers' Perceptions of Computer-Managed Instruction for Student Progress

<table>
<thead>
<tr>
<th>Population</th>
<th>Number</th>
<th>Group Mean $\bar{x}$</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Significance of $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals</td>
<td>27</td>
<td>3.93</td>
<td>Between Sum of Squares</td>
<td>6.000</td>
<td>1</td>
<td>6.000</td>
<td>6.963</td>
<td>.011</td>
</tr>
<tr>
<td>Teachers</td>
<td>27</td>
<td>3.26</td>
<td>Within Sum of Squares</td>
<td>45.037</td>
<td>52</td>
<td>0.866</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 15

Analysis of Variance Summary Table of Principals' and Teachers' Perceptions of Computer-Managed Instruction for Diagnostic Information

<table>
<thead>
<tr>
<th>Population</th>
<th>Number</th>
<th>Group Mean</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals</td>
<td>27</td>
<td>3.48</td>
<td>Between Sum of Squares</td>
<td>1.555</td>
<td>1</td>
<td>1.555</td>
<td>2.045</td>
<td>0.159</td>
</tr>
<tr>
<td>Teachers</td>
<td>27</td>
<td>3.15</td>
<td>Within Sum of Squares</td>
<td>38.148</td>
<td>52</td>
<td>0.734</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 16

Analysis of Variance Summary Table of Principals' and Teachers' Perceptions of Computer-Managed Instruction for Individualized Educational Program

<table>
<thead>
<tr>
<th>Population</th>
<th>Number</th>
<th>Group Mean</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals</td>
<td>27</td>
<td>2.65</td>
<td>Between Sum of Squares</td>
<td>.667</td>
<td>1</td>
<td>.667</td>
<td>.451</td>
<td>.505</td>
</tr>
<tr>
<td>Teachers</td>
<td>27</td>
<td>2.41</td>
<td>Within Sum of Squares</td>
<td>76.815</td>
<td>53</td>
<td>1.477</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The null hypothesis states that there is not a statistically significant difference in principals' and teachers' perceptions of computer utilization for diagnostic information. Table 15 shows that the null hypothesis is supported. The computed F value of 2.045 is significant at the 0.159 level, and this P is greater than the stated level of significance of .05; therefore, the null hypothesis is supported. The principals had a mean score of 3.48 and teachers had a mean score of 3.15.

The null hypothesis states that there is not a statistically significant difference in principals' and teachers' perceptions of computer utilization for individualized educational programs. Table 16 shows that the null hypothesis is supported. The computed F value of .451 is significant at the .505 level, and this P is greater than the stated level of significance of .05; therefore, the null hypothesis is supported. The principals had a mean score of 2.65 and teachers had a mean score of 2.41.

Summary

The study revealed that most of the principals received their training through the local school system on the Apple Microcomputer. Most of the principals perceived their training to be below average because they had received a semester or less of computer training. Computers were being used in high school to some degree for administration or computer-managed instruction purposes. The greatest use was in scheduling and curriculum planning. Principals would like to have more time for hands-on experiences and feel that the computer
can make the greatest contribution to the mission of education by training students to work in an information society.
CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This chapter is divided into five main sections: (1) Summary, (2) Findings, (3) Conclusions, (4) Implications, and (5) Recommendations.

Summary

Purpose

It was felt by the researcher that a study of this nature would make a contribution to the field of training educational administrators by:

(1) ascertaining how principals obtained their present level of computer training;

(2) providing principals' perceptions of how microcomputers can make the greatest contribution to the future of education;

(3) providing principals' perceptions of their present computer knowledge based on their computer training;

(4) making recommendations to training institutions and school systems on what principals would like to see incorporated in their training program; and

(5) adding to the limited amount of information available in principals' training and administrative use of computers.
Problem

Without question, today's society is a technologically oriented one and the major technological development that is dominant in this society is the computer. The present movement into technology increases the need for principals in leadership positions to gain microcomputer literacy so that they can recognize the benefits the microcomputer has to offer as a valuable administrative and instructional tool. Several studies have been written concerning the instructional phase of computing, but very little has been written about principals' training and the use of computers for administrative and computer-managed instruction purposes at the local school site.

The problem addressed by this study is: Does principals' training affect the use of microcomputers in the high schools for administrative and computer-managed instruction purposes?

Instruments

The TEACHER MICROCOMPUTER TRAINING AND USE QUESTIONNAIRE for the teachers and the PRINCIPAL MICROCOMPUTER TRAINING AND USE QUESTIONNAIRE for principals were used to collect the data.

The writer began by trying to locate instruments that would assist in accomplishing what this study required. The next step was to construct and field test instruments that would collect the proper data. The instruments were field tested and revised. The instruments were, then, ready for the population in the study.

Revised, constructed questionnaires were administered via mail to thirty-four randomly selected principals and teachers in the
Atlanta area. The responses were summarized and analyzed using the Statistical Package for the Social Sciences (SPSS). The findings were derived from analysis and interpretations of the data, and were then formulated and presented in Chapter IV.

Research Design

The research design for this study was a descriptive survey using the questionnaire. The survey included randomly selected principals along with teachers who use the computer the most. Of the number of principals and teachers that were randomly selected, seventy percent of the total population responded.

Population

The population consisted of forty-four secondary school principals from the Atlanta area school systems. Thirty-four were randomly selected to participate in the study. In each school, the principal selected two teachers that utilized the computer the most in his/her schools.

Review of Related Literature

Technology has created new jobs while at the same time making other jobs obsolete. This phenomenon has placed a tremendous demand on education to provide new skills and training. The ability to use a computer has become a basic survival skill in an information society. It is the responsibility of the school system to help prepare the future generations for a technological society. Effective and widespread use of computers depends upon the preparation and training of the educational leaders.
Society believes that education plays a crucial role in the accomplishment of our national objectives. As technology increases, it provides new avenues and new capacities for education. Schools must be capable of adjusting to change as these changes occur in society. Schools are not only institutions for reflecting changes within society, but also focal points for that society.¹

Wallisch indicated that the educational leader is the key to increased computer utilization within a school. He stated:

Educational leaders are in the position to wisely govern the system, make the right decisions and set the kind of directions that will get the most out of this new technology and still protect the 'patient.' The first order of business is to learn something about this new technology so that wise decisions can be made and in the right direction.²

Current technology can help principals and teachers to reach their maximum effectiveness. But if they do not use the most current tools, ideas, and technology, our students will be deprived of the knowledge and understanding necessary to cope in today's changing world. The principals must show enthusiasm and support for new innovative approaches to improving the total school operation. They must nourish and stimulate interest and growth until the product has reached its fullest potential. Without training, principals will not be able to offer the much needed leadership in computer implementation and utilization.

¹R. J. Beauregard, "Construction and Validation of a Scale to Measure the Attitudes of Teachers Toward Computers" (Doctoral dissertation, University of West Virginia, 1975), p. 20.

Findings

This study's findings presented in relation to the research questions and hypotheses can be summarized as follows:

1. What were the sources and usefulness of principals' computer training?

With regard to usefulness of training received, the principals indicated that school system, self-taught, and peer taught had proven to be of greatest benefit to them. Training offered by the computer salesperson and the university had proven to be the least effective for them.

2. What are the principals' perceptions of their length of training, present knowledge of computer skills, and what they would like to see incorporated into their computer training program that would make it more effective?

In responding to the question designed to solicit the length of training the principals received in computer utilization, most principals have received a semester or less of computer training. The data indicated that most principals perceived their level of computer knowledge to be less than average in order for them to feel comfortable in utilizing the computer. Only five principals perceived their knowledge as being above average or excellent.

It appears that many of the principals would like to have more hands-on experiences in utilizing the computer. Many felt that emphasis should be placed on how computers can be better utilized for personal, administrative/computer-managed instruction and computer-assisted instruction.
3. What are the principals' perceptions of factors which facilitate computer use in their schools?

In responding to the factors which facilitate computer use in their schools, most principals believed that commitment from themselves was the most important in facilitating computer use within their school. Commitments by the superintendent and school board were next followed by commitment from teachers and parents.

4. How frequently are computers used for administrative and computer-managed instruction purposes?

The data suggest that computers were used for administrative purposes. The computer was used most for scheduling and least for financial accounting. Data regarding use of computer-managed instruction suggest a majority of the schools did not use the computer for diagnostic information, teacher profile, and individualized educational planning purposes; however, a majority did find curriculum planning and student progress to be meaningful.

Hypothesis 1 - A significant correlation was found to exist between training offered by the computer salesperson and utilization of the computer for financial accounting programs. A significant negative relationship was found to exist between training offered by the school system and utilization of the computer for individualized educational planning development.

Hypothesis 2 - The results from the Analysis of Variance Summary Table indicated that there was a statistically significant difference between the principals' and teachers' perceptions of computerized use of curriculum planning. A statistically significant difference was also found to exist between principals' and teachers' perceptions of computerized use of student progress.
Conclusions

Based on the review of literature and analysis of the data gathered during this study, the following set of conclusions were drawn:

(1) Most of the principals surveyed indicated that they viewed themselves as being strongly committed to computer use in their schools, and they felt training offered through their local school system was of greatest benefit. There does, however, appear to be a discrepancy between the level of commitment they indicated and their level of training. Having received a semester or less of computer training, most of the principals viewed their computer skills as being below average in terms of computer knowledge and utilization.

(2) Based on previous training, most principals would like additional time added to their training program. They would like more hands-on application in how to utilize the computer for personal use, administrative, computer-managed instruction, and computer-assisted instruction.

(3) A majority of the secondary principals did indicate that computers were being used in their schools for some administrative and computer-managed instruction purposes; however, they felt that greater utilization could and should be made of them.

(4) Many of the principals believed that the computer could make the greatest contribution to the mission of education by preparing students to work in a computerized society.
(5) Training received by principals in computer utilization has had very little effect on administrative use in the schools. There is a significant relationship between training by computer salespersons and financial accounting. One could assume that because computer salespersons are trained to sell to companies, they would stress finance more than scheduling, attendance, and student roster.

(6) Training received by principals in computer utilization had very little effect on computer-managed instruction in the school. A significant negative relationship was found to exist between training offered through the school system and the individualized educational programs. A negative correlation indicates that as one variable increases the other decreases. One could assume that training that is received by the school system encourages drill-and-practices for the classroom, but principals believe that it is not being utilized for the development of individualized educational planning.

(7) No significant differences were found in the principals' and teachers' perceptions of computer-managed instruction for curriculum planning and student progress.

(8) Significant differences were found in principals' and teachers' perceptions of computer-managed instruction for diagnostic information and individualized educational programs.

**Implications**

The following implications are drawn from the findings and conclusions of this study:
(1) Further research should be directed at the reasons why a majority of the principals ranked their computer skills at below average.

(2) A replication study should be conducted in the next two years to determine if changes have been made in administrative and computer-managed instruction computer use. The study should focus on the factors which facilitated the increased use.

Recommendations

The following recommendations for increasing the computer skills of school administrators and suggested areas for further research were drawn from the findings and conclusions. Training institutions and the school system should work cooperatively in providing avenues to increase computer efficiency among administrators. This should be done by:

(1) Providing competent resource personnel in administrative uses of computers to work with the local school system throughout the year;

(2) Encouraging institutions to provide training at the local school site in an informal setting where the administrators can have "hands on" activities that are designed to meet his/her needs;

(3) Encouraging institutions to provide summer workshops specifically for administrators to increase and update their computer skills;

(4) Designing training programs that incorporate the utilization of the spreadsheet, database management, and the word processor;

(5) Including principals in the planning and implementing of computer training programs in which they are going to be involved; and

(6) Developing separate training programs for teachers and principals.
APPENDICES
APPENDIX A
Dear Colleague,

The computer revolution is upon us, and as a school administrator, you are in the position to make the right decisions to get the most out of this new technology which offers so much in terms of enhanced learning and administrative effectiveness.

I am conducting a study of the computer training and use by high school principals and teachers. The study will also investigate the use of computers in the high school setting. Your responses will be especially helpful in the analysis since the literature shows that high schools are the largest users of computers as compared to elementary and middle schools.

Please assist me in this endeavor by completing a questionnaire designated for the principal, identifying two teachers that are actively using the computer in the classroom, and distributing the questionnaire designated for teachers to them.

Your completion and return of the questionnaire will be very greatly appreciated. A return self-addressed envelope is enclosed for your convenience. Return envelopes are also enclosed for the teachers.

Please be assured that no individual or school will be identified, and that responses will be held in confidence. Questionnaires are coded to allow the possible follow up.

Thank you for your time and assistance in this study.

Sincerely,

Thelma S. Woodfork
Graduate Student
May 2, 1986

Dear Colleague,

The computer revolution is upon us, and as a school teacher you are in the position to make the right decisions to get the most out of this new technology which offers so much in terms of enhanced learning.

I am conducting a study of the computer training and use by high school teachers. The study will also investigate the use of computers in high school settings. Your responses will be especially helpful in the analysis since the literature shows that high schools are the largest users of computers as compared to elementary and middle school levels.

Your completion and return of the questionnaire will be very greatly appreciated. A return self-addressed envelope is enclosed for your convenience.

Please be assured that no individual or school will be identified, and that responses will be held in confidence. The questionnaire is coded to allow for possible follow up.

Thank you for your time and assistance in this study.

Sincerely,

Thelma S. Woodfork
Graduate Student
TEACHERS' MICROCOMPUTER TRAINING AND USE QUESTIONNAIRE

I. DEMOGRAPHIC INFORMATION: Please answer the following by checking the appropriate item or filling in the blank.

1. Sex: Male _____ Female _____

2. Department: ______________________

3. How many microcomputers are there in your school? _____

4. Please indicate those offices and/or rooms in your school that are supplied with one or more microcomputers.

   Principal's office _____  Computer classroom/ Laboratory _____
   Secretary's office _____  Regular classroom _____
   Media Center _____  Guidance office _____
   Other _____

5. Do all the teachers in your department have access to the computer?

   Yes _____  No _____

6. Are you encouraged by the principal to use the computer or incorporate the use of the computer as a part of your teaching?

   Yes _____  No _____

7. What percentage of teachers use the microcomputer in your department?

   _____

II. TRAINING INFORMATION: Below is a list of potential sources of training in computer use. Please indicate by circling the appropriate number after each item the level of usefulness to your knowledge of computer usage.

1 = not applicable  2 = not useful  3 = somewhat useful
4 = very useful  5 = most useful

80
8. Self taught
9. Peer taught
10. Computer salesperson
11. School system
   a. formal course
   b. informal workshop
12. University
   a. formal course
   b. informal workshop
13. Other
14. How long was your training altogether, based on the training activities that you indicated previously?
15. What would you like to see incorporated into the computer training program for teachers that would increase their effectiveness?

III. TEACHERS' USE OF COMPUTERS: Please indicate the frequency of microcomputer use by teachers in your department by circling the appropriate number after each item.

   1 = not applicable    2 = never used    3 = seldom used
   4 = usually used      5 = always used

   COMPUTER USE IN YOUR DEPARTMENT

   Computer-Managed Instruction by Teachers

   16. In supplementing the curriculum
   17. In student progress and grades
   18. In diagnostic information
19. In IEP development _______ 1 2 3 4 5

20. Other _______ 1 2 3 4 5

21. Based on your computer training, which of the items below would represent your knowledge of computer utilization?

_____ below average  _____ average  _____ above average

 _____ excellent  _____ superior

Thank you for your time and consideration in assisting with this study. Please return to: Thelma S. Woodfork
2138 Jones Road, N.W.
Atlanta, Georgia 30318
PRINCIPALS' MICROCOMPUTER TRAINING
AND USE QUESTIONNAIRE

I. DEMOGRAPHIC INFORMATION: Please answer the following by checking the appropriate item or filling in the blank.

Principal

1. Age: 31-35 ____ 36-40 ____ 41-45 ____ 46-50 ____
   over 50 ____

2. Sex: Male ____ Female ____

3. Educational Attainment: M.A. ____ M.S. ____ Ed.S. __
   Ed.D. ____ Ph.D. ____

4. How many microcomputers are there in your school? ____

5. What size is the student population? ______________

6. Please indicate those offices and/or rooms that are supplied with one or more microcomputers.

   Principal's office ____ Computer classroom/ Laboratory
   Secretary's office ____ Regular classroom
   Media Center ____ Guidance office
   Other ____

7. What percentage of your students are on free or reduced lunch?

   __________________

8. Do you own a personal computer? Yes ____ No ____

II. TRAINING INFORMATION: Below is a list of potential sources of training in computer use. Please indicate by circling the appropriate number after each item the level of usefulness to your knowledge of computer usage.
1 = not applicable  
2 = not useful  
3 = somewhat useful  
4 = very useful  
5 = most useful

9. Self taught
10. Peer taught
11. Computer salesperson
12. School system
13. University
14. Other
15. On what type(s) of computers were you trained? 
16. How long was your training altogether, based on the training activities that you indicated above? 
17. What would you like to see incorporated into the computer training program for principals that would increase their effectiveness?

III. PRINCIPALS' USE OF COMPUTERS: Please indicate the frequency of microcomputer use by circling the appropriate number after each item.
1 = not applicable  
2 = never used  
3 = seldom used  
4 = usually used  
5 = always used

18. In scheduling and registration
19. In attendance
20. In pupil directories, roster, lists
21. In financial accounting
22. Other
Computer-Managed Instruction

23. In supplementing the curriculum 1 2 3 4 5
24. In student progress and grades 1 2 3 4 5
25. In diagnostic information 1 2 3 4 5
26. In teacher/staff profile management 1 2 3 4 5
27. In individualized educational planning development 1 2 3 4 5
28. Other ___________________________ 1 2 3 4 5

IV. Indicate the degree to which the factors listed below are facilitating present use of microcomputers by the staff in your building.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Low</th>
<th>Average</th>
<th>Excellent</th>
<th>Superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment by board</td>
<td>1</td>
<td>2 3</td>
<td>4 5</td>
<td></td>
</tr>
<tr>
<td>Commitment by superintendent</td>
<td>1</td>
<td>2 3</td>
<td>4 5</td>
<td></td>
</tr>
<tr>
<td>Commitment by principals</td>
<td>1</td>
<td>2 3</td>
<td>4 5</td>
<td></td>
</tr>
<tr>
<td>Commitment by teachers</td>
<td>1</td>
<td>2 3</td>
<td>4 5</td>
<td></td>
</tr>
<tr>
<td>Commitment by parents</td>
<td>1</td>
<td>2 3</td>
<td>4 5</td>
<td></td>
</tr>
</tbody>
</table>

34. What do you believe to be the single most important contribution microcomputers can make to education?

35. Based on your computer training, which of the items below would represent your knowledge of computer utilization?

____ below average _____ average _____ excellent

_____ superior

Thank you for your time and consideration in assisting with this study.

Please return to: Thelma S. Woodfork
2138 Jones Road, N.W.
Atlanta, Georgia 30318
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Papers


VITA

Thelma Ann Simmons Woodfork

Candidate for the Degree of Doctor of Education

Personal Data: Born in Cedar Grove, Tennessee on May 4, 1949 to Mr. and Mrs. Rufus Simmons

Married to Jerry D. Woodfork and the mother of two children, Erica Rena and Jerry, Jr.

Education: Bachelor of Science Degree
Lane College, Jackson, Tennessee 1971

Master of Education Degree
West Georgia College, Carrollton, Georgia 1974

Education Specialist Degree
Atlanta University
Atlanta, Georgia 1978

L-6 Certificate in Administration and Supervision
1985

Professional Experience: Teacher in the Atlanta Public School System