

A Descriptive Study of the Administrative
Use of Computers in the Senior High
Schools of Virginia

by

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(ABSTRACT)

The purpose of this study was to describe the current status of computer usage for administrative purposes by the senior high school principals in the public schools of the Commonwealth of Virginia. The rationale for selecting the principal was that the administrative leader in the high school must be prepared for the computer revolution and ready to utilize the computer in school management.

Questionnaires were sent to each of the 290 senior high school principals in Virginia. Of the 238 principals responding, 216 were using computers for administrative purposes.

Approximately one-third of the senior high school principals responding to the matter of time saving by use of computers stated that such usage had freed them from routine paperwork. The amount of time that had been saved and thus available for reallocation ranged from one hour to forty hours per week. The most frequently reported estimate of

time saved was approximately five hours. Principals further reported that their freed time was being devoted to a wide variety of acts that, in the main, may be characterized by classroom observation and instructional improvement tasks. However, nearly one-half the principals reported that the chief effect of computer usage had been an improvement in the quality and accuracy of their work.

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CHAPTER 1

THE OVERVIEW

Introduction

The year nineteen hundred forty-six is generally accepted as the beginning of the Computer Age. It was then that the first electronic computer was constructed by Mauchley and Eckert at the Moore School of Engineering of the University of Pennsylvania. Human attitudes toward this nascent technology ranged from the naive to the irrational: "It's God-like a tool of the devil."¹

A steady progression of technological advances leads one to speculate as to future computer capabilities that were inconceivable two decades ago. Programs can and will be created that will not necessarily let the individual work faster but allow for the creation of ways to work better. These programs can turn work into a more productive process

¹Mathews, Walter M., & Wolf, Abraham, W., "Measuring Attitude Toward Computers: The Computer Appreciator-Critic Attitude Scales." Paper presented at the American Educational Research Association, Montreal, Quebec, Canada, April 11, 1983, p. 1.

that is interesting, fun, and result in institutions and individuals being more productive.²

Some experts have suggested that society is still in the infancy of the development phase of the personal computer industry. In 1969, engineers Victor Poor and Harry Pyle developed the concept of placing the arithmetic-logic and control elements of a computer on a silicon chip.³ In 1970, Intel Corporation invented the microprocessor 4004 which was used in minicomputers. Jonathan Titus, a graduate student at Virginia Polytechnic Institute & State University, built the first microcomputer in 1973. In 1974, Titus published a brief description of his microcomputer, Mark-8 (used with the Intel/8008), in the publication, Radio Electronics.⁴ The first commercial microcomputer was advertised in the January, 1975, issue of Popular Electronics. Called the ALTAIR 8800, it sold for \$400.00 (kit).⁵

²Sculley, John, "Looking Forward to the Twenty-First Century," The Delta Pi Epsilon Journal. Summer, 1987, (Vol. XXIX, No. 3), pp. 59-66.

³McLean, Charles E., Administrative Usage of Microcomputers Among Secondary Principals in the State of Oklahoma. Unpublished dissertation from Oklahoma State University, May, 1986, p. 1.

⁴Burton, John K., Associate Professor of Education, Virginia Polytechnic Institute & State University, written comments, November, 1988.

⁵McLean, Charles, E., op cit., p. 2.

In 1977, computers were still little more than amusing toys when the Tandy Corporation marketed the first complete personal computer. In the period prior to the marketing of the personal computer, there were only 50,000 mainframe and minicomputers in the entire world. In 1987, 50,000 microcomputers were manufactured in a single day.⁶ As IBM reminded us: "It was to have been the Nuclear Age. It became the Computer Age."⁷

It has been estimated that the information-technology industry will be by far the largest industry in the world by the end of the century. Already, a shift has occurred from the mainframe with the attendant air conditioned room to a personal computer that can sit on a person's desk while requiring few environmental necessities other than electrical power. By the end of the century, the big question may well be whether to opt for a wrist or pocket model. One thing is for certain; the computer will not look anything like the way it does today.⁸

Currently, three basic computer types have been marketed. The microcomputer is a small, desk-top computer which, in most cases, can perform one task at a time. Some larger microcomputers can interact with several programs si-

⁶Sculley, John, op cit., p. 63.

⁷Mathews, Walter M., & Wolf, Abraham W., op cit., p. 1.

⁸Sculley, John, op cit., p. 64.

multaneously. Home and/or personal computers are terms synonymous with and often used interchangeably with microcomputers.⁹ Microcomputers are generally used for two purposes. As personal assistants, microcomputers can be used for word processing, electronic spreadsheets, personal databases, simple graphics, and education. As communication devices, microcomputers are used to connect users to a data source, such as a company's mainframe computer. Most microcomputers are single-user systems.¹⁰

The mainframe computer differs from the microcomputer in that the mainframes are generally used to process massive jobs such as billing for credit cards or policy processing for insurance companies. Mainframes are sometimes called showcase computers. Because of security reasons, they have disappeared from ground-floor locations. Often times, mainframe computers are locked into special-purpose rooms that have extra air conditioning and even water supplies for water-cooled Central Processing Units (CPU). Terminals for mainframes may be located thousands of miles away from the computer.

Minicomputers are often used in many different environments. For business applications, minicomputers are fre-

⁹McLean, Charles E., op cit., p. 2.

¹⁰Kroenke, David M., Business Computer Systems: An Introduction. Santa Cruz, California, 2nd edition, Mitchell Publishing Company, 1984, p. 9.

quently located in small computer rooms with controlled access. When terminals are connected to a minicomputer, the terminals are usually found in the same building in close proximity to the Central Processing Unit.¹¹ The microcomputer differs from the minicomputer in that the microcomputer has "stand-alone" capabilities and can be used and relocated at the discretion of the user.¹²

For practical use, the personal computer, according to Sculley, is a

. . . bicycle for the mind. It is an instrument for expanding the boundaries of knowledge. It does not replace repetitive-type work - that's one of the things that computers are capable of doing. What it really does is expand the possibilities of how we can communicate, how we can work, and how we learn. It can have as much impact on our lives as the telephone has had during the 20th century. In comparison, one would not stop to think about how to use the telephone . . . why should one have to do that with a computer?¹³

Corporate America's business community managers, with the help of CPAs, are realizing the microcomputer's potential in practical situations. For example, the computer can aid decision making and business planning by utilizing cost accounting and tracking asset depreciation. The computer can monitor investment decisions by analyzing financial trends.

¹¹Kroenke, David M., op cit., pp. 9-10.

¹²Hanley, T. V., "Microcomputers in Schools--Implementation in Special Education." Case Study Report (Report no. 300-82-0250), Arlington, VA: SRA Technologies. (ERIC Document Reproduction Service No. ED 238 222)

¹³Sculley, John, op cit., p. 64.

The computer can also perform basic accounting, monitor inventory, and save time by processing mailing lists, writing checks and completing forms.¹⁴

Compared with the private sector, most school offices are operating roughly the same as they did in the 1800s. This may be true for two reasons. One reason is that most school systems are reticent or financially unable to provide all of their schools with a sufficient number of microcomputers as are needed to bring the administrative functions into the 20th century. Another reason is that data processing experts have convinced school administrators that when it comes to computer programming, special expertise is needed to program a microcomputer. Data processing proponents also tell administrators that a lot of planning must precede any programming effort. It is fair to point out that both of these statements are true when it comes to computer mainframes, but neither statement is necessarily true when it comes to modern microcomputers and software applications.

In point of fact, some forward-thinking administrators are automating their offices on their own with little or no help from their school board or central office. These ad-

¹⁴Wieting, Mark W., "Microcomputers: More Than Just An Office Toy," School Business Affairs (Volume 50, No. 5), May, 1984, p. 68.

ministrators have realized the potential of the microcomputer and how it can make their offices operate more efficiently.¹⁵

Crawford asserted that:

. . . . principals are beginning to discover that the same little microcomputer that the third graders use to play learning games can provide a surprising amount of help with administrative tasks as well.

. . . . Although microcomputers are not yet ready to replace sophisticated mainframe computers, they can certainly supplement them and automate much of the "administrivia" that takes up so much of a principal's time. Smaller, smarter, faster, less expensive, and easier than ever to use, today's microcomputers can handle a new generation of efficient, high quality administrative programs.¹⁶

Most high school administrators have been trained as educators and not as business executives. The evolution of the principalship now requires knowledge in the areas of business administration and automated systems. An automated system may be an effective tool for helping administrators manage resources.¹⁷

Maintaining student records, according to Schneider and Burgos, can be tedious and time-consuming. With the use of the microcomputer, tedium can be reduced and additional data

¹⁵Frankel, Steven, "The Do-It-Yourself Guide to Automating the School Office," NASSP Bulletin, March, 1987, pp. 35-39.

¹⁶Crawford, Chase, "A Principal's Guide to the Administrative Computer," Principal, November, 1987, p. 9.

¹⁷Groves, Donald S., & Wren, Chalmer, "An Affordable High-Tech Solution to School Management Problems," NASSP Bulletin, November, 1987, p. 121.

can be generated. Data collected may also answer other questions of interest to administrators.¹⁸

Hoover and Gould have found that, in addition to teaching youngsters to be computer literate, school administrators now see computers as having applications for information management. Computers are now being used in a number of ways for information management in school administration. Among these are:

1. scheduling,
2. creating mail labels,
3. word/text processing,
4. storing and retrieving information, and
5. displaying various relationships graphically.¹⁹

According to Walters, the microcomputer provides the potential for revolutionizing the principalship. Unfortunately, many principals were and are unprepared to capitalize on the benefits offered by the advent of the microcomputer. Recently prepared administrators may use microcomputers to a greater degree than incumbents who received their preparation

¹⁸Schneider, Gail T., & Burgos, Fermin, "The Microcomputer: A Decision-making Tool for Improving School Discipline," NASSP Bulletin, February, 1987, p. 104.

¹⁹Hoover, Todd, & Gould, Sandra, "Computerizing the School Office: The Hidden Cost," NASSP Bulletin, September, 1982, p. 87.

in administration prior to the advent of the microcomputer.²⁰ One of the major findings that emerged from White's study is that sixty-two percent of the principals that have computers in their offices reported that they do personally operate the computers to help manage their school.²¹

Statement of the Problem

This study describes the status of computer use by the senior high school principals in Virginia as an administrative tool. The study also answers the following related questions:

1. To what extent are computers being used for administrative purposes by the senior high school principals in the public schools of Virginia and the characterization of such usage?
2. How might the personal ability of senior high school principals in the public schools of Virginia to perform selected administrative functions utilizing the computer be best characterized?
3. For what specific administrative tasks do the senior high school principals of Virginia utilize the computer?

²⁰Walters, Donald L., "PC's and the Principalship," Paper presented at the UCEA Convention, Charlottesville, Virginia, October 31, 1987, pp. 1-15.

²¹White, Clarence E., The Utilization of Computers by Secondary Principals for School Management and An Analysis of the Relative Computer Literacy of Selected Secondary Principals, Unpublished dissertation from Temple University, January, 1985, p. 69.

4. What effect/s, if any, has computer usage for administrative purposes by the senior high school principals in the public schools of Virginia had in terms of saving administrative time?

Significance of the Study

To date, no organized investigation into computer usage for administrative purposes has been done on a secondary level in Virginia. This study provides a detailed basis for those administrators not currently using the computer to evaluate the efficacy of such use. In addition, administrators currently utilizing the computer for administrative purposes are provided with fresh insights into techniques and uses not previously considered.

Limitations of the Study

The study was limited to the administrative applications of computers by high school principals in the public schools of the Commonwealth of Virginia.

Definition of Key Terms

For the purposes of this study, key terms are defined as follows:

1. Administrative Purposes: The term administrative purposes, in this study, is what a principal does with his/her time and available resources for the purpose of maintaining and/or changing the operation of his/her school so as to directly influence the achievement of the stated goals of the school or school division.²²

2. Computer: A device capable of accepting information, applying prescribed processes to the information, and supplying the results of these processes.²³ For the purposes of readability, the term computer is generic in nature and is understood to encompass any of the forms such as mainframe computer, minicomputer, and microcomputer. Where clarification is necessary, the appropriate prefix to the term will be utilized.

3. Mainframe Computer: A large and powerful machine that can store a vast amount of information, do multiple tasks, and can be used by many people at the same time.

4. Management: The term management in education encompasses "supervising the educational program, operating and

²²Harris, Ben, & Bessent, Wailand, In-service Education: A Guide to Better Practice. Englewood Cliffs, New Jersey: Prentice-Hall, 1969, p. 11.

²³Automatic Data Processing Glossary, Washington, D.C., Executive Office of the President, Bureau of the Budget (December, 1962), p. 18.

maintaining the plant, keeping the financial affairs in order, and administering personnel policies."²⁴

5. Microcomputer: The microcomputer is often called a personal or home computer and is the smallest of the computer family. The computer cannot store as much information as mainframes or minicomputers. A microcomputer is used primarily as a business tool, educational device, and as a home entertainment center.

6. Minicomputer: The minicomputer is smaller than a mainframe and cannot store as much data. It does not have the speed or the choice of input devices that the mainframe has. Minicomputers are used by many small to medium-sized businesses to store and organize data. Minicomputers can perform several different tasks simultaneously.

7. Program: The term program refers to the complete plan for the solution of a problem, more specifically the complete sequence of machine instructions and routines necessary to solve a problem and to plan the procedures for solving a problem.

8. Secondary School: The term secondary school or high school, as defined in this study, consists of any school housing grade 12.

²⁴Serfass, Richard W., The Administrative Use of Microcomputers in Selected New Jersey Elementary Schools, Unpublished dissertation from Temple University, January, 1987, p. 7.

9. Site Management: The term site management, in this study, is everything that goes on in an individual school organization, i.e., scheduling of activities, maintenance, and use of facilities in the most efficient manner.

10. Technology: The term technology, as it is used in this study, is a technical method of achieving a practical purpose.

Organization of the Study

Chapter 1 introduces the problem, states the significance of the study, defines terms and limitations, and outlines the organization of the study. Chapter 2 includes a review of the literature on the computer as a time-saving device and closes with a summary of major points. Chapter 3 details the methodology used. It includes an introduction, the type of research employed, the population surveyed, the instrument utilized, the method of collecting the data, and the method by which the data were treated. Chapter 4 presents the data accumulated by means of appropriate tables, analyzes the data, and concludes with a summary of the findings. Chapter 5 presents the conclusions based upon Chapter 4 findings. Implications, suggestions, and recommendations for further research will conclude the study.

CHAPTER 2

THE LITERATURE

Introduction

The purpose of this study is to describe the current status of computer use as an administrative tool by the senior high school principals in Virginia. This chapter presents relevant literature regarding the efficiency of the computer, site management, software, administrative uses of the computer, and concludes with a summary.

Efficiency of the Computer

A key benefit that administrators perceive when using technology is a reduction in their paperwork. That is one of the major findings in Electronic Learning's First Annual Survey of School and District Administrators conducted in January, 1987.²⁵ In the survey, 2000 questionnaires were sent to randomly selected subscribers who were identified as being most responsible for the use of computers in the adminis-

²⁵Barbour, Andrew, "Office Romance: Why Administrators are Hooked on Technology." Electronic Learning, April, 1987, p. 19.

tration of their school district. From the survey, 328 usable responses were returned which represents a 16% return rate. District superintendents, assistant superintendents, principals, and their assistants were surveyed as regards the role of technology in school administration. Fifty-four percent of those responding cited a savings of time as the biggest advantage offered by the computer over conventional paper-based methods. Other noteworthy findings that emerged from the survey were that thirty-one percent of the respondents were impressed with the variety of methods by which information could be stored, arranged, and easily accessed. Seventeen percent of the respondents cited the accuracy of reports generated by the microcomputer.²⁶

Even though the findings of this study suggested that the use of computers was overwhelmingly positive, administrators felt that there were specific problems hindering the more efficient use of computers in the front office. Forty-one percent of the respondents cited a lack of funds or the high cost of the microcomputer and programs as a major concern. Twenty-five percent of the administrators asserted that they had not been adequately trained to take advantage of the computer's full potential. Seventeen percent said that a fear of computers was the major problem prohibiting the wider implementation in their school or district. On the

²⁶Barbour, Andrew, op cit., pp. 19-20.

basis of the survey, Barbour concluded that it is just a matter of time before the ability of the computer to save time and cut down on administrative paperwork outweighs any fear engendered by the new technology.²⁷

McLean, in his study of administrative usage of the microcomputer among Oklahoma secondary principals, stated that increased education and increased knowledge of the microcomputer tended to result in increased administrative usage. This conclusion was based upon a survey of 625 secondary school principals. Some additional findings that emerged from the study (based on 466 responses) were:

1. the three most popular microcomputer applications among the 233 principals who identified themselves as users were: scheduling, word processing, and recording student attendance,

2. the data indicated that a majority of users were principals from those schools and districts with larger student populations,

3. Overall, Apple and Radio Shack (Tandy) brand computers were the two most popular computer brands in service. IBM, on the other hand, tended to be found in schools with larger student populations. Texas Instruments and Commodore were more often found in smaller schools,

²⁷Barbour, Andrew, op cit., pp. 19-23.

4. thirty-nine percent of the principals who identified themselves as non-users indicated that a lack of qualified personnel was their primary reason for not using microcomputers. Another twenty-nine percent saw no justifiable need for using the microcomputer in connection with their jobs, and

5. fifty-five percent of the 219 principals who used microcomputers identified the district superintendent as a primary influence. When the most influential and the second most influential groups were combined, teachers proved to be the more influential group.²⁸

A second study was conducted by Beck in 1982 on the extent of computer usage in the Texas secondary schools. The questionnaire was mailed to 1,950 secondary principals. The major findings that emerged from the survey (based on 1,191 responses) may be summarized as follows:

1. one principal in five reported a level of computer literacy of sufficient magnitude as to make the principal a decision-maker or prime mover with respect to computer use on his or her campus,

2. in schools where computers were being used, over sixty percent indicated that microcomputers were used exclusively. Nineteen percent indicated exclusive use of remote terminals linked to a mainframe computer while nearly

²⁸McLean, Charles E., op cit., pp. 21-53.

twenty-one percent reported a combination of remote terminals and microcomputers,

3. the most popular administrative use of computers among Texas secondary school principals was student scheduling followed by reporting of grades and attendance, and

4. in spite of the decreasing cost of microcomputers over the last five years, a large percentage of schools still perceived cost to be the greatest factor inhibiting computer usage.²⁹ These results will be compared with the responses of this study so as to make comparisons.

One of the major findings that emerged from Sharman and Cothorn's survey of Virginia's 1,125 elementary school principals was that those principals not using microcomputers in their administrative offices were making their job unnecessarily harder.³⁰ Other findings (based on 540 responses) were:

1. seventy-four percent of the principals surveyed stated that the use of computers reduced the amount of time spent on office chores by 30 percent. Seventy-nine percent affirmed that the computer reduced their paperwork,

²⁹Beck, J. J., Jr., Extent of Computer Usage in Secondary Schools: The Texas Story. San Marcos, Texas: Southwest Texas State University (ERIC Document Reproduction Service No. ED 226 712), pp. 5-13.

³⁰Sharman, Charles C., & Cothorn, Harold L., "Take Advantage of Technology to Boost Principal Power," Executive Educator, March, 1986, p. 29.

2. although two-thirds of the respondents did not use office computers, fifty-eight percent of those not using computers acknowledged the efficacy of computers. Also, those not using computers cited a lack of funds or a lack of training opportunities as the main reasons for not employing computers in the office,

3. the microcomputer was the most commonly reported computer in the school setting (81%); secretaries were the primary users (40%) followed in frequency by principals and assistant principals (38%),

4. principals were learning to use computers through in-service training (26%), nonschool computer classes (20%), independent study (20%), colleagues (19%), and computer company representatives (11%), and

5. nearly half of the computers in the elementary school offices were paid for by funds other than the central office.

On the basis of the survey, Sharman and Cothern concluded that a growing dependence on computers for office work coupled with the easing of price and training obstacles were positioning computers for a rapid future growth in school administration. Computers are in the principal's future.³¹

In 1982, Pogrow asserted that use of the computer in the school office reduced the amount of paperwork between 20 to

³¹Sharman, Charles C., & Cothern, Harold L., op cit., p. 33.

70 percent.³² Three years later, Pogrow amended his earlier study to report that the computer now possessed the capability for reducing normal paperwork by 50 to 90 percent.³³ McLean, in his 1986 study, not only concluded that the computer is a superior tool for reduction of paperwork but that time saving is another benefit of using a microcomputer. The following scenario was cited as an example:

A principal will often have conferences with parents and students regarding future plans for the student. In order to obtain the information needed to talk intelligently about the student, the principal often has to leave the room. First, he/she might visit the registrar regarding grades, credits, and to check on course selection. Then a visit to the attendance clerk must be made for information on attendance, which will require additional time to derive a cumulative figure. The assistant principal may have data regarding the student's character. Finally, the principal may contact the counselor for standardized test data that might indicate academic potential. The parent and student are required to wait in the principal's office during this time. This procedure, which takes a minimum of 20 to 30 minutes, can take only a few seconds with a computer.³⁴

Sharman stated that computers have the capability for increasing an administrator's productivity and enhancing the opportunities for principals to provide the leadership ex-

³²Pogrow, Stanley, "Microcomputerizing Your Paperwork: Easy, Economical, and Efficient," Electronic Learning, (September, 1982), p. 55.

³³Pogrow, Stanley, "Administrative Uses of Computers: What is the Ideal System? What are the Trends?" NASSP Bulletin, (April, 1985), 69, pp. 45-53.

³⁴McLean, Charles E., op cit., p. 11.

pected of them.³⁵ Weintraub advocates, in an article in the American School Board Journal, that computers can save time, boost worker productivity, and finally, save money. Installing a microcomputer in the school office can make employees more productive in one year's time. It might be possible for an employee to double his work output and perform with greater accuracy than before. By computerizing the school office, employees will utilize their time more efficiently which translates into more productive work time.³⁶

Huntington stated that the use of the computer can reduce paperwork and make the principal more efficient in several ways. The computer can be used for a variety of functions such as suspensions to parental form letters. It is further suggested that word-processing is the most effective use of a computer in the school office.³⁷ Teacher evaluations written on the computer can allow the principal more time for classroom observations. However, principals should not expect all of their paperwork problems to be solved overnight. Initial acquisitions should start with a word-processing package, followed by a database system, and com-

³⁵Sharman, Charles C., & Cothorn, Harold L., op cit., p. 33.

³⁶Weintraub, William L., "Computers Boost Productivity (and Save Money) in your School System's Offices," American School Board Journal (March, 1985), p. 45.

³⁷Huntington, Fred, "Using a Microcomputer in the Principal's Office," Thrust for Educational Leadership, (Volume 14, Number 1), September, 1984, p. 19.

pleting the package with a spreadsheet. With these packages, a principal should be able to recognize the capability of the computer and be more aware of what applications to automate.³⁸

Estes and Watkins stated that information can be better managed, accessed, more creatively configured, and more comprehensively retained than ever before through the use of computers. Money, the scarcest of resources, will determine whether educators can acquire and maintain the equipment to move to a full integration of microcomputers in education.³⁹

Hoover and Gould view the computer as no more than a tool. The computer cannot perform miracles or work magic. The better the tool is understood and subsequently used; the better quality work is produced. A school computer can provide better quality information to serve as a database for decision making.⁴⁰

Rolley stated that principals should use the computer as a tool for tasks and analyses. With the computer, principals have the time to utilize their higher order thinking

³⁸Ibid., p. 33.

³⁹Estes, Nolan, & Watkins, Karen, "Implications of the Microcomputer for Educational Administrators," Educational Leadership, (Volume 41, Number 1), September, 1983, p. 28.

⁴⁰Hoover, Todd, & Gould, Sandra, op cit., p. 90.

skills--evaluation, conclusion, and application.⁴¹

Mojkowski perceived that leadership is augmented by the microcomputer. Technology is a crucial aspect of a principal's growth as a leader, manager, and also relates to school improvement. If principals can advance with technology while perceiving it as a tool rather than as an appendage, substantial opportunities for effective and productive leadership and management will emerge.⁴² Other personnel share these expectations.

Teachers and secretaries, according to a study by Bird, assessed the microcomputer as having the potential to remove the drudgery from their everyday tasks. In addition to saving time, teachers expressed the hope that the computer would release administrators more often for increased contact with teachers and students. The second most common reason cited for using microcomputer based administration was to improve efficiency. In the school office, improving efficiency could mean that secretaries are able to do more typing and duplication work for teachers as a result of the computer undertaking some routine tasks. The third most common reason

⁴¹Rolley, Martha, "Administrative Uses of Computers in the Elementary School" (ERIC Document Reproduction Service ED 268 661).

⁴²Mojkowski, Charles, "The Principal and Technology: Beyond Automation to Revitalization," Educational Leadership, (March, 1986), pp. 45-48 (ERIC Document Reproduction Service EJ 335 739).

cited was improving the quality of information. Overall, the purpose of the computer was to gain more accurate and effective information.⁴³

The relationship between speed, efficiency, and economy are aspects of computer use that bear particular scrutiny. Although certain tasks of school administration can be accomplished faster and more efficiently using a microcomputer, it is a mistaken belief that the introduction of computers will reduce educational costs overall. To use a computer effectively will require a significant amount of time. Training programs will have to be established which will result in a substantial investment of both time and money. However, greater efficiency in carrying out administrative and office tasks should result from using the microcomputer. Administrators should be able to reduce the time they spend on collecting and handling routine information. More time should be available for substantive educational issues.⁴⁴ Integrating computers as tools into the life of the school will not only make the school somewhat more efficient, but

⁴³Bird, Patrick, Microcomputers in School Administration. (London: Hutchinson and Co., 1984), pp. 148-149.

⁴⁴Cheever, Daniel S., & others, School Administrator's Guide to Computers in Education. Reading, Massachusetts: Addison-Wesley Publishing Co., pp. 25-26.

also demonstrate the role computers play in our working and learning activities.⁴⁵

The implementation of a database management system could prove worthwhile so as to keep updated class lists, health records, library overdues, and equipment inventories. Although implementing a database management system is a time consuming and complex way to make a long term difference in administrative effectiveness, employing a word-processing package will not only improve the efficiency of information flow but served as the fastest way for administrators and staff to become proficient in using computers.⁴⁶ Computers can also enhance administrative effectiveness by contributing to more effective site management.

Site Management

White identified four areas of site management that lend themselves to potential areas of application: energy management, equipment inventory, facilities utilization, and maintenance.⁴⁷

On the basis of his findings, White is convinced that school administrators are underutilizing computer-based man-

⁴⁵Ibid., p. 104.

⁴⁶Cheever, Daniel S., & others, op cit., p. 169.

⁴⁷White, Clarence E., op cit., p. 54.

agement programs. Maintenance, according to White, is a key area where computer-based management programs could be employed.⁴⁸

Huntington called attention to microcomputer uses at both the individual school site and central-office level. A recommendation was included that a database management system for inventories be created.⁴⁹

Cheever suggested using a computerized reservation program similar to that used by hotels and airlines so as to schedule public use of school buildings. Classrooms, auditoriums, gymnasiums, and lecture halls are often booked solid and, generally require a lot of details when constructing a schedule. With the reservation program, the software searches files to either fit the activity into the schedule or offer the closest alternatives. If the request is approved, the software will reserve the date, time, and areas. The program can also print schedules, permits, invoices, and usage reports for the persons in charge. The end result of using such a program will be much better control over facilities.⁵⁰

⁴⁸Ibid., p. 54.

⁴⁹Huntington, Fred, "The Microcomputer in the Administrative Office," AEDS Journal, (Fall-Winter, 1983), pp. 91-97 (ERIC Document Reproduction Service EJ 291 992).

⁵⁰Cheever, Daniel S., & others, op cit., pp. 181-182.

Cheever further suggested microcomputer software be incorporated so as to streamline the annual purchasing process. The preparation of bids, writing of specifications, and determining quantities needed are processes that lend themselves to computer use. Vendors have to be selected, prices calculated, and deliveries scheduled. With a computer program, much of the paperwork at each stage will be handled more efficiently and the purchasing process more streamlined.⁵¹

The word-processing function of a microcomputer can be utilized to produce a simple maintenance and repair report. Work orders coming into a school office can be added to an outstanding file. A code or comment beside each work order number designates the status. Once a work order is complete, the maintenance and repair report can be deleted and moved to a completed work file.⁵² Energy monitoring is another area that lends itself to microcomputer use since it requires detailed record-keeping. An energy monitoring program lets the principal evaluate energy efficiency in terms of building area and the number of occupants. Reports can be generated for system wide use that will compare the efficiency of buildings, pinpoint problems, forecast budgets, and set goals. With a microcomputer and appropriate programs, energy

⁵¹Cheever, Daniel S., & others, op cit., p. 187.

⁵²Cheever, Daniel S., & others, op cit., p. 188.

use can be controlled by turning lights off and on and adjusting the heating, ventilation, and air conditioning in different areas of the building during the day.⁵³

Computer sophistication allows for extensive control of energy use while allowing for customizing such control to match needs. Complete energy management systems have been designed that can control switches, ducts, and heating/ventilation/cooling units in the school building(s). Controlling the introduction of outside air can significantly reduce energy costs over the course of a school year. These units have the capability of being programmed for different seasons of the year and varying environmental conditions. These units can also adjust to variations in temperature in different parts of the building.⁵⁴ For example, high concentrations of people generate body heat that may either be dissipated or used to decrease heating requirements.

Software

Crawford perceives that software is simply a program or a collection of programs often times referred to as a software package along with accompanying documentation. Crawford

⁵³Cheever, Daniel S., & others, op cit., p. 190.

⁵⁴Pogrow, Stanley, Computer Decisions for Board Members: Getting the Most From What Your District Selects. Chicago: Teach'em Inc., 1985, p. 159.

further suggests that it is software, not the hardware, that is the computer. Both software and hardware must be present in order for a computer to process data.⁵⁵

Serfass called attention to several studies that were conducted to evaluate the availability and effectiveness of software for administrative use in the educational setting. The New Jersey School Boards Association, in the 1984-85 edition of Micros for Managers, evaluated the following software: accounting (25 programs); attendance (23 programs); counseling (28 programs); grading (23 programs); inventory (8 programs); library (11 programs); scheduling (19 programs); student records (29 programs); and miscellaneous programs (29 programs). Serfass further stated that the 1985-86 supplement contained seventy new programs that were added to the earlier list.⁵⁶

Crawford called attention to a study conducted by the Florida Department of Education on administrative uses of microcomputers. Recommendations were made by principals in Florida as well as members of the National Association of Secondary School Principals (NASSP). On the basis of the study, the following software is recommended for the processing of data: data management systems; software produced

⁵⁵Crawford, Chase W., Microcomputers for Educational Administrators' Needs. Tallahassee, Florida: 1987, p. 4.1.

⁵⁶Serfass, Richard W., op cit., p. 33.

for specific administrative functions; spreadsheet systems; and integrated software.⁵⁷

Serfass professes that the selection of software is one of the most important functions in developing a computer management system. Since software is really "the computer," software is more important than the hardware.⁵⁸ Gustafson echoed this approach by advocating a study of the important chores in the office through a thorough study of office duties, work routines, and the flow of communications within the district.⁵⁹

Hoover and Gould advocate that when purchasing software, the following items should be considered:

1. ease of use--commonly referred to as user friendly,
2. quality and thoroughness of instructions--documentation,
3. versatility--modifiable to meet individual needs, and
4. initial costs and multiple copy costs.⁶⁰

Gustafson further suggested the following:

⁵⁷Crawford, Chase W., "Administrative Software Recommendations, Parts 1 and 2," Unpublished draft to NASSP Bulletin, Florida Department of Education (January, 1986).

⁵⁸Serfass, Richard W., op cit., p. 35.

⁵⁹Gustafson, Thomas J., Microcomputers and Educational Administration. Englewood Cliffs: Prentice-Hall, 1985, p. 34.

⁶⁰Hoover, Todd, & Gould, Sandra, op cit., p. 88.

1. the package should accomplish the designated task,
2. it should be menu driven if the menu doesn't get in the way after repeated uses,
3. if the office is to be fully automated, then the software should be a fully integrated software package,
4. the software should be tested prior to purchase,
5. support should be available from the vendor, and
6. cost shouldn't be the primary factor. If it does what is specified, the cost is justified.⁶¹

Administrative Uses

Haugo, in his article on the "Management Applications of the Microcomputer," advocates:

In determining a list of possible microcomputer based school management applications, it is necessary: (a) to examine those which currently are available; (b) to identify applications used in the business sector which have applicability for education; (c) to discuss potential applications with persons who have expertise in both school management and computer technology.⁶²

The Florida Department of Education conducted a study in 1983 and found that microcomputers could be used for the following applications: athletics; attendance accounting; guidance information for management; instructional manage-

⁶¹Gustafson, Thomas J., op cit., p. 75.

⁶²Haugo, John, "Management Applications of the Microcomputer: Promises and Pitfalls," Association for Educational Data Systems, Volume 14, Number 4, (Summer, 1981) p. 184.

ment; planning; scheduling; staff personnel; and student records.⁶³ Specifically, Crawford advocates that the following applications be automated: grade reporting; budget and financial accounting; food services; inventory and property records; and media center.⁶⁴

Going beyond theory to practice, Groves and Wren automated the following: activity fund accounting; "student check-in;" and vendor lists.⁶⁵ White found that principals were using the microcomputer for the following applications: class records; census (family); enrollment projection; graduate follow-up; test scoring and analysis. In the area of general applications, the principals were using the microcomputer for: bus routing; mailing lists and labels; project planning and budgeting; and word processing. For school finance, the microcomputer was used in the following areas: accounts receivable/payable; general accounting; general ledger; investment accounting; and vendor requests/purchase orders. For school personnel, the microcomputer was used in the following areas: paycheck calculation; payroll accounting; personnel records; salary simulation; and staff assign-

⁶³Florida Department of Education, "The Educational Administrator's Survival Guide to Administrative Uses of Microcomputers," (June, 1983), pp. 1-38 (ERIC Document Reproduction Service ED 234 745).

⁶⁴Crawford, Chase, op cit., pp. 9-13.

⁶⁵Groves, Donald S., & Wren, Chalmer, op cit., pp. 121-123.

ments. In the area of school facilities, the microcomputer was used for: energy management; facilities/equipment inventory; facilities utilization; and maintenance.⁶⁶

Summary

Chapter 2 presents information regarding the characteristics, selection, and purchase of computer software. Literature was cited regarding the efficiency of the computer and the implications for principals, the utilization of the computer to assist with site management, and finally, administrative applications that are presently being done with the computer.

From the literature, one can conclude that the computer is a superior tool for the reduction of paperwork. Computers have the capability of increasing an administrator's productivity and allow principals to provide the leadership that is expected of them.

⁶⁶White, Clarence, op cit., pp. 52-54.

CHAPTER 3

METHODOLOGY

Introduction

The purpose of this study was to describe the status of computer use by the high school principals in the public schools of Virginia as an administrative tool. Survey research was chosen as the method for collection of data in as much as it allows for the systematic collection of data coupled with the adaptability to a particular situation. A survey instrument was constructed and mailed to every high school principal in Virginia.

The Population

The population studied consisted of each of the 290 senior high school principals in the Commonwealth of Virginia. The rationale for selecting the principal was that the administrative leader in the high school must be prepared for the computer revolution and ready to utilize the computer in school management.

The Instrument

The questionnaire was chosen as the best vehicle to achieve the data collection required for the study.⁶⁷ This technique provided for a standardized method of response and ensured uniform data collection from all senior high principals. Cost, population size, ease of completion, ease of tabulation, and minimal bias were major considerations when selecting the method.⁶⁸ Both the data collection and follow-up investigations were accomplished by means of questionnaires. The survey was divided into sections designed to conform with the major questions posed by the study. Sections A and B focused on status information and administrative uses of the computer and answered research question one. Section C was designed to gain information regarding computer expertise and training of the principal and answered research question two. Section D explored the use of computer equipment and answered research question three. Section E focused on the effects of computer use and answered research question four.

⁶⁷Borg, Walter R. & Gall, Meredith D., Educational Research: An Introduction. New York: Longman, Inc., 1983, pp. 415-435.

⁶⁸Berdie, Douglas R. & Anderson, John F., Questionnaires: Design and Use. Metuchen, New Jersey: The Scarecrow Press, Inc., pp. 17-20.

The questionnaire used in this study was constructed during the Fall of 1988 after consulting White's 1985 study of the utilization of computers by secondary principals for school management⁶⁹ and McLean's 1986 study of administrative usage of microcomputers among secondary school principals in the state of Oklahoma.⁷⁰ Additional inclusions were made after reviewing Sharman and Cothorn's study.⁷¹

The questionnaire was field tested during the first and second weeks of January, 1989. The field test was conducted using respondents deemed to be representative of the population toward whom the questionnaire was intended. Ten administrators, consisting of elementary and junior high school principals and certain central office personnel, were selected on the basis of being representative of, but not in, the population to be studied. Those individuals were used to determine readability and appropriateness of the questionnaire. Validation forms were provided for the survey instrument (see Appendix E) as well as a draft of the cover letter and follow-up letters to be used in the study. Results of the field test indicated that minor adjustments were needed to clarify some of the questions. From the resulting

⁶⁹White, Clarence, op cit., p. 100.

⁷⁰McLean, Charles E., op cit., p. 21.

⁷¹Sharman, Charles C. & Cothorn, Harold L., op cit., p. 29.

feedback, the questionnaire was revised for ease of reading and completion.

Data Gathering Procedures

A personally addressed packet with a cover letter and questionnaire was sent to the 290 senior high school principals in Virginia. An up-to-date listing was acquired from the Virginia Educational Directory, School Year 1988-1989 and augmented by a further up-dating furnished to Chesapeake Public Schools in October, 1988.⁷²

The packet contained a cover letter to introduce the study, stress its usefulness, and a stamped, self-addressed envelope to facilitate the return rate. The cover letter requested the respondent to complete the survey and return it by February 17, 1989. Of the 290 packets mailed, a total of 187 (64.48%) were returned by February 17.

On February 25, the 103 principals not responding were mailed a follow-up letter (see Appendix C) to include another questionnaire and a stamped, self-addressed envelope.

⁷²Virginia Educational Directory, School Year 1988-1989 (January, 1988), Richmond, VA: Department of Education, Commonwealth of Virginia.

Data Analysis

Because the problem was to describe the status of computer use by the senior high school principals in the public schools of Virginia as an administrative tool, descriptive statistics were chosen as the most appropriate treatment so as to accurately communicate the findings. The researcher and two trained assistants manually validated the responses. The responses were transferred to a chart that was constructed by the researcher and tabulations were accomplished by means of an electronic calculator. From the chart, appropriate tables were constructed to present the frequency of each section of responses.

Open-ended responses were reported in total so as to accurately reflect the status of computer usage. The clarity of the responses was such that it was possible to combine those responses that were similar.

CHAPTER 4

RESULTS

Responses to each section of the survey instrument are presented in this chapter. The data collection procedure is followed by a presentation of the data with analysis as deemed appropriate.

Data Collection

The survey instrument consisted of thirty-one questions divided into five sections. Each section dealt with a major component of the study. Section A, Status Information, sought data on whether or not principals utilize the computer for administrative purposes. Those principals not utilizing the computer were asked to indicate the reason/s. Section B, Administrative Uses, sought data on the types of equipment utilized for administrative purposes. Principals were asked about the length of time computers have been used for administrative purposes as well as the source/s of funding for those computers. Section C, Expertise and Training, sought information on the principal's ability to utilize a computer and the training received to utilize the computer. Section D, Use of Equipment, sought to determine which administrative

software applications were employed in the school. Section E, Effects of Computer Use, explored the effects of computer use for administrative purposes. Each section provided directions for the respondents to follow to complete the survey instrument.

Of the thirty-one questions, four were open-ended so as to give the respondents considerable latitude in responding. Three questions were answered by a "yes" or "no" response. Twenty-three multiple choice questions containing from two to fourteen possible answers were interspersed as appropriate. One question was included to give those respondents who did not use the computer for administrative purposes an opportunity to complete the survey. The survey instrument was mailed to each of the two hundred ninety senior high school principals in Virginia.

The survey was pre-labeled identifying the school division and school name for subsequent follow-up. As a result of the first mailing, 187, or 64.48 percent, of the surveys were returned in a complete and usable form. Fifty-one additional surveys were obtained from the second mailing for a total of 238, or a response rate of 82.06 percent. Kerlinger states that response rates of 50 to 60 percent are extremely good but that response rates of less than 80 percent should be followed up so as to determine something of the non-

respondent's characteristics.⁷³ The response rate for this study was in excess of 80 percent and was of sufficient magnitude that was representative of the population to be studied. Table 1 analyzes the response rate to the questionnaire.

Analysis of the Data

Questions in each section are presented by reporting responses in terms of percentage and a brief analysis of those response rates deemed significant.

Section A--Status Information

The three questions in this section sought information on whether or not principals utilize the computer for administrative purposes.

In question one, the 238 respondents were asked to check the best description of the extent of computer usage by the senior high school principals. Table 2 shows the response, "There are computers in my building utilized only for instructing students--not for administrative purposes," was answered by twenty-two principals or 9.2 percent. Those twenty-two respondents completed the survey following ques-

⁷³Kerlinger, Fred N., Foundations of Behavioral Research, (New York: Holt, Rinehart, and Winston, 1973), p. 414.

Table 1. Response Rate to Questionnaire

(N=290)

	Possible Responses From Principals	Responses Received From Principals	Percent of Total
Total	290	238	82.06

Table 2. The Presence and Usage of Computers in Senior High Schools as Reported by the Principals

(N=238)

Response	Number of Responses	Percent of Total Responses
There are computers in my building utilized only for instructing students--not for administrative purposes	22	9.2
There are computers in my building that serve a dual purpose--student instruction and administrative use	32	13.4
There are computers in my building solely for student instruction and computers utilized solely for administrative use	184	77.3
There are no computers in my building	0	0.0

tion three. It is noteworthy that over ninety percent of the principals responding indicated that computers were used for administrative purposes.

Question two presented respondents with seven possible reasons why principals were not using computers for administrative purposes. Table 3 shows that seven, or 31.8 percent of the principals responding, reported that computers were too costly. An additional three, or 13.6 percent of the principals responding to this question, cited a lack of qualified personnel/training. Three respondents, or 13.6 percent of the principals responding, reported that their request had been turned down by a higher authority. Question two was designed so that principals responding that there were no computers for administrative purposes in the school would provide the reason/s why not. Five of the twenty-two respondents did not elect to provide reasons.

Question three provided an exit point for those principals not using computers for administrative purposes.

Section B--Administrative Uses

The nine questions in this section were designed to acquire information about the types of equipment utilized for administrative purposes..

Question four presented respondents with four choices regarding the type of computer system used for administrative purposes. Table 4 shows that the majority of the principals,

Table 3. Rationale for not Utilizing the Computer for Administrative Purposes as Reported by the Senior High School Principals

(N=22)¹

Response	Number of Responses	Percent of Total Responses
Never Considered Their Use	0	0.0
Too Costly	7	31.8
No Justifiable Need	0	0.0
Lack of Qualified Personnel/Training	3	13.6
Request Turned Down by Higher Authority	3	13.6
Fear of Computers	0	0.0
Other	4	18.1
No Response	5 ²	22.7

¹Of the 238 principals responding, only twenty-two are not utilizing computers for administrative purposes.

²Five principals elected to not respond to the question as to the reason for not using them for administrative purposes.

Table 4. Computer Systems Utilized by Senior High Principals to Accomplish Administrative Purposes Reported by Type

(N=216)¹

Types of Computer Systems	Number of Responses ²	Percent of Total Responses ³
Microcomputer	206	95.3
Minicomputer	20	9.2
Mainframe Computer	25	11.5
Remote Terminals Connected to a Mainframe/ Centralized Computer	110	50.9

¹Of the 238 principals responding, twenty-two completed the survey after question three.

²Number of responses = 361 due to multiple types being present in a given school.

³Total percentage of responses exceeds 100 percent due to multiple responses.

two hundred six or 95.3 percent, were using the microcomputer for administrative purposes. Twenty of the respondents, or 9.2 percent, reported using the minicomputer to accomplish administrative purposes. The mainframe was being used by twenty-five, or 11.5 percent, and remote terminals connected to a mainframe by one hundred ten or 50.9 percent. Many of the respondents checked more than one type of computer system employed for administrative purposes.

In question five, principals were asked to check the microcomputer brand/s being used for administrative purposes. Table 5 shows that there were three hundred one responses to this question which clearly indicates that more than one brand of computer system was being utilized within a facility for administrative purposes. One hundred six, or 35.2 percent, were utilizing an IBM personal computer. One hundred one respondents, or 33.5 percent, were using the Apple. Tandy was third with thirty-nine respondents, or 12.9 percent. Epson, NCR, Leading Edge, Commodore, Compaq, and Texas Instruments accounted for a small percentage of computers being used for administrative purposes.

In question six, principals were asked to check the minicomputer brand/s being used for administrative purposes. Table 6 shows that of the twenty-seven respondents, twenty-one, or 77.7 percent, were using an IBM minicomputer. NCR and Honeywell each had one response, or 3.7 percent. Four respondents, or 14.8 percent were in the other category.

Table 5. Microcomputer Utilization for Administrative Purposes Reported by Brand Name

(N=301)¹

Response	Number of Responses	Percent of Total Responses
Apple	101	33.5
IBM	106	35.2
Commodore	4	1.3
Compaq	3	0.9
Texas Instruments	3	0.9
Tandy	39	12.9
Epson	8	2.6
Leading Edge	4	1.3
NCR	6	1.9
Other	17	5.6
No Response	10	3.3

Note. Of the 238 principals responding, twenty-two completed the survey after question three.

¹Number of responses = 301 due to multiple types being present in a given school.

Table 6. Minicomputer Utilization for Administrative Purposes Reported by Brand Name

(N=27)¹

Response	Number of Responses	Percent of Total Responses
IBM	21	77.7
NCR	1	3.7
Honeywell	1	3.7
Other	4	14.8

Note. Of the 238 principals responding, twenty-two completed the survey after question three.

¹27 principals reported the use of minicomputers. This is inconsistent with Table 4 due to respondent error.

In question seven, respondents were asked to check the mainframe computer brands being used for administrative purposes. Table 7 shows that of the one hundred respondents, twenty-eight, or 28.0 percent, used an IBM mainframe. Twelve, or 12.0 percent, of the respondents used a NCR mainframe. Honeywell was used by seven, or 7.0 percent, of the principals. Fifty-three, or 53.0 percent, of the respondents were unable to provide a specific response.

The length of time that computers have been used for administrative purposes was investigated by question eight. The results are presented in Table 8. Ninety-one principals, or 42.1 percent of those responding, reported that they have been using computers three years or less. Seventy respondents, or 32.4 percent, stated that they have used computers from four to six years. Fifty-two, or 24.0 percent, reported using the computer for more than six years.

Question nine was designed to investigate the source(s) of funding for computer(s) being used for administrative purposes. Table 9 reports that one hundred seventy-seven principals, or 81.9 percent, stated that the central office was the primary source of funding for computers used for administrative purposes. Eighty-nine, or 41.2 percent, of those responding, reported that local school funding was their second choice. Respondents generally checked more than one source of funding, usually central office and local school funds. Five principals, or 2.3 percent, reported us-

Table 7. Mainframe Computer Utilization for Administrative Purposes Reported by Brand Name

(N=100)¹

Response	Number of Responses	Percent of Total Responses
IBM	28	28.0
NCR	12	12.0
Honeywell	7	7.0
Other	53	53.0

Note. Of the 238 principals responding, twenty-two completed the survey after question three.

¹100 principals reported use of mainframe computers. This is inconsistent with Table 4 due to respondent error.

Table 8. Length of Time Computers Have Been Utilized for Administrative Purposes as Reported by the Senior High Principals

(N=216)¹

Response	Number of Responses	Percent of Total Responses
3 years or less	91	42.1
4-6 years	70	32.4
More than 6 years	52	24.0
No response	3	1.3

¹Of the 238 principals responding, twenty-two exited the survey after question three.

Table 9. Sources of Funding of Computers Utilized for Administrative Purposes as Reported by the Senior High Principals

(N=216)¹

Response	Number of Responses ²	Percent of Responses ³
Central Office	177	81.9
Local School Funds	89	41.2
P.T.A.	5	2.3
Personal Property	4	1.8
Donation	12	5.5
Other	6	2.7
No Response	11	5.0

¹Of the 238 principals responding, twenty-two exited the survey after question three.

²Number of responses = 304 due to multiple sources of funding within a school.

³Total percentage of responses exceeds 100 percent due to multiple responses.

ing the P.T.A. as a source. Personal property, four respondents or 1.8 percent, and donations, twelve respondents, or 5.5 percent, were other sources of funding.

Ownership of a personal computer was investigated by question ten. Table 10 reflects the responses to this yes or no question in terms of frequency and percentage of responses. Of the two hundred sixteen principals responding, ninety-two, or 42.5 percent, stated that they owned a personal computer. One hundred twenty-two, or 56.4 percent, reported that they did not own a personal computer. Twenty-two principals completed the survey after question three and are not reflected in the total respondents. Two principals elected not to respond to the question. Table 11 reflects the responses to the open-ended part of question ten in terms of frequency and percent of categorical responses. In the table, principals were asked to state the brand name of the personal computer they personally own. IBM and Apple constituted a majority, 51 percent, of computers owned by the respondents. Tandy and Commodore accounted for 18.0 percent. The remaining brands constituted 31 percent of the total response.

Principals were asked, in question eleven, if the computer they personally own was at the office or at home. Table 12 shows that five respondents, or 5.6 percent, stated that the computer was at the office. Seventy-six, or 85.3 percent, reported using the computer at home. Eight principals

Table 10. Extent of Personal Ownership of Computers as
Reported by Senior High Principals

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Yes	92	42.5
No	122	56.4
No Response	2	0.9

¹Of the 238 principals responding, twenty-two completed the survey after question three.

Table 11. Brand of Personal Computers Reported as Being Personally Owned by Senior High Principals

(N=92)¹

Response	Number of Responses ²	Percent of Total Responses
Apple	32	32.0
IBM	19	19.0
Commodore	9	9.0
Tandy	9	9.0
Unknown	5	5.0
Zenith	3	3.0
Compaq	3	3.0
MacIntosh	3	3.0
Laser	2	2.0
Leading Edge	2	2.0
Texas Instruments	2	2.0
Epson	2	2.0
Atari	1	1.0
Amiga	1	1.0
Franklin	1	1.0
NCC	1	1.0
Sperry	1	1.0
ITT	1	1.0
Kaypro	1	1.0
System	1	1.0
Packard-Bell	1	1.0

¹N represents only those owning a personal computer.

²Number of responses exceeds 92 due to 8 principals owning more than one.

Table 12. Location of the Personal Computer Utilized by the Senior High Principals for Administrative Purposes

(N=89)¹

Response	Number of Responses ²	Percent of Total Responses ³
At the Office	5	5.6
At Home	76	85.3
Both Locations	8	8.9

¹Reflects only those principals who personally own a computer.

²Of the 100 computers owned by principals, three elected not to state the location.

³Number of responses equals 89 due to 8 principals owning more than one personal computer.

or 8.9 percent, reported using the computer at both locations.

Question twelve sought to determine the frequency of usage of the personal computer utilized by the senior high principals to assist in the performance of administrative duties. Table 13 reflects the responses to this yes or no question in terms of frequency and percentage of responses. Of the eighty-eight responses, sixty-three, or 71.5 percent, reported that they use the personal computer at home or at the office for administrative duties. Thirty-three, or 37.5 percent of the respondents, stated that their computer was not used in the performance of administrative duties.

Section C--Expertise and Training

The thirteen questions in this section sought information on both the ability of the principal to utilize a computer and the training received to utilize the computer.

In question thirteen, principals were asked to check the response that would best describe their ability to use a computer program to accomplish a word processing task/s. Table 14 shows that of the two hundred sixteen responses, fifty-seven, or 26.3 percent, felt very comfortable with a word processing task. Sixty-eight, or 31.4 percent, were comfortable. Thirty-six, or 16.6 percent, of the principals were wary with word processing. Twenty-nine, or 13.4 percent, stated that they were uncomfortable. Twenty-two re-

Table 13. Frequency of Usage of the Personal Computer by the Senior High Principals to Assist in the Performance of Administrative Duties

(N=88)¹

Response	Number of Responses ²	Percent of Total Responses ³
Yes	63	71.5
No	33	37.5
No Response	4	4.5

¹Reflects only those principals who personally own a computer.

²Of the 100 computers owned by principals, four did not state whether they use it for administrative purposes.

³88 discrete respondents replied to this question. Multiple usage resulted in an N greater than 88.

Table 14. The Ability of the Senior High Principal to Utilize a Computer so as to Accomplish a Word Processing Task

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	57	26.3
Comfortable	68	31.4
Wary	36	16.6
Uncomfortable	29	13.4
Extremely Uncomfortable	22	10.1
No Response	4	1.8

¹Of the 238 principals responding, twenty-two completed the survey after question three.

spondents reported that they were extremely uncomfortable with their ability to accomplish a word processing task.

The ability of the senior high principal to use a computer spreadsheet to manipulate information was investigated by question fourteen. Table 15 reports that twenty-five respondents, or 11.5 percent, stated that they feel very comfortable in using a computer spreadsheet to manipulate information. Sixty-nine principals, or 31.9 percent, reported that they were comfortable in using a computer spreadsheet. Fifty-one, or 23.6 percent, stated that they were wary. Thirty-five, or 16.2 percent, reported they were uncomfortable. Twenty-seven, or 12.5 percent of the respondents, characterized themselves as extremely uncomfortable.

Principals were asked, in question fifteen, to check the response that best describes their ability to use and create database files for scheduling, attendance, inventory, and personnel records. Table 16 shows that forty-three principals, or 19.9 percent of those responding, stated that they were very comfortable in creating database files. Seventy-one respondents, or 32.8 percent, reported feeling comfortable. Thirty-six principals, or 16.6 percent, characterized themselves as wary. Thirty-six respondents, or 16.6 percent, stated that they were uncomfortable in creating database files. Twenty-two principals, or 10.1 percent, characterized themselves as extremely uncomfortable. Twenty-two principals

Table 15. The Ability of the Senior High Principal to Utilize a Computer Spreadsheet so as to Manipulate Information

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	25	11.5
Comfortable	69	31.9
Wary	51	23.6
Uncomfortable	35	16.2
Extremely Uncomfortable	27	12.5
No Response	9	4.1

¹Of the 238 principals responding, twenty-two completed the survey after question three.

Table 16. The Ability of the Senior High Principal to Utilize and Create Database Files for Scheduling, Attendance, Inventory, and Personnel Records

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	43	19.9
Comfortable	71	32.8
Wary	36	16.6
Uncomfortable	36	16.6
Extremely Uncomfortable	22	10.1
No Response	8	3.7

¹Of the 238 principals responding, twenty-two completed the survey after question three.

completed the survey after question three and eight elected not to respond to the question.

The ability of the senior high principal to create pictorial reports such as graphs and charts was investigated by question sixteen. Table 17 reflects the responses to the question in terms of frequency and percentages. Fifteen principals, or 6.9 percent of those responding, reported that they were very comfortable in creating pictorial reports such as graphs and charts. Forty-two respondents, or 19.4 percent, stated that they were comfortable. Thirty-nine principals, or 18.0 percent, characterized themselves as wary. Fifty-five principals, or 25.4 percent responding, reported feeling uncomfortable in creating pictorial reports. Fifty-one principals, or 23.6 percent, characterized themselves as extremely uncomfortable. Fourteen principals reported that the question was non-applicable or elected not to respond.

Question seventeen asked principals to describe their ability to use a program for budgeting and cost projections. The results are presented in Table 18. Sixty principals, or 27.7 percent, reported that they were either very comfortable or comfortable in using a program for budgeting and cost projections. Forty-nine principals, or 22.6 percent, described their ability to use the program as being wary. Fifty principals, or 23.1 percent responding, stated they were uncomfortable in using a program for budgeting and cost projections followed by thirty-six respondents, or 16.6 per-

Table 17. The Ability of the Senior High Principal to Create Pictorial Reports such as Graphs and Charts

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	15	6.9
Comfortable	42	19.4
Wary	39	18.0
Uncomfortable	55	25.4
Extremely Uncomfortable	51	23.6
No Response	14	6.4

¹Of the 238 principals responding, twenty-two completed the survey after question three.

Table 18. The Ability of the Senior High Principal to Utilize a Program for Budgeting and Cost Projections

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	17	7.8
Comfortable	43	19.9
Wary	49	22.6
Uncomfortable	50	23.1
Extremely Uncomfortable	36	16.6
No Response	21	9.7

¹Of the 238 principals responding, twenty-two completed the survey after question three.

cent, who stated that they were extremely uncomfortable. Twenty-one principals stated that the question was non-applicable or elected not to respond.

The ability of the senior high principal to develop a master schedule using the computer was investigated by question eighteen. Table 19 shows that fifty-five principals, or 25.4 percent of those responding, reported that they were very comfortable with their ability to develop a master schedule. Seventy-five respondents, or 35.6 percent, stated that they were comfortable. The next two categories--wary and uncomfortable--each had twenty-five respondents or 11.5 percent each. Twenty-three respondents, or 10.6 percent, characterized themselves as extremely uncomfortable. Eleven principals elected not to respond to the question.

Question nineteen asked principals to describe their ability to use software to enter data related to expenses, enrollment or personnel for administrative decision-making. Table 20 reports that forty principals, or 18.5 percent responding, were very comfortable in using software for administrative decision-making. Sixty-two respondents, or 28.7 percent, reported that they were comfortable with the software. Forty-two, or 19.4 percent, stated that they were wary in using the software and thirty-three principals, or 15.2 percent, characterized themselves as uncomfortable. Twenty-two, or 10.1 percent, of those principals responding, reported that they were extremely uncomfortable to use software

Table 19. The Ability of the Senior High Principal to Develop a Master Schedule Using the Computer

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	55	25.4
Comfortable	75	35.6
Wary	25	11.5
Uncomfortable	25	11.5
Extremely Uncomfortable	23	10.6
No Response	11	5.0

¹Of the 238 principals responding, twenty-two completed the survey after question three.

Table 20. The Ability of the Senior High Principal to Utilize Software so as to enter Data Related to Expenses, Enrollment, Personnel, etc., to aid in Administrative Decision-making

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	40	18.5
Comfortable	62	28.7
Wary	42	19.4
Uncomfortable	33	15.2
Extremely Uncomfortable	22	10.1
No Response	17	7.8

¹Of the 238 principals responding, twenty-two completed the survey after question three.

for administrative decision-making. Seventeen principals stated that the question was non-applicable or elected not to respond.

Principals were asked, on question twenty, on how they felt as regards in using commands necessary to activate a printer. Table 21 shows that seventy-one respondents, or 32.8 percent, felt very comfortable in activating a printer. Seventy-seven principals, or 35.6 percent of those responding, reported that they were comfortable. Twenty-eight, or 12.9 percent of those responding, characterized themselves as wary. Twenty-one respondents, or 9.7 percent, reported that they were uncomfortable. Fourteen principals, or 6.4 percent, stated that they were extremely uncomfortable with their ability to use commands necessary to activate a printer. Five principals reported that the question was non-applicable or elected not to respond.

Question twenty-one was designed to investigate the ability of the principal to use a modem. The results are reported in Table 22. Twenty-nine, or 13.4 percent of the principals reporting, characterized themselves as very comfortable. Fifty-one respondents, or 23.6 percent, stated that they were comfortable in using a modem. Fifty, or 23.1 percent of the principals responding, reported that they were wary of this process. Thirty-eight, or 17.5 percent of those responding to question twenty-one, characterized themselves as extremely uncomfortable. Nineteen principals reported

Table 21. The Ability of the Senior High Principal to Activate a Printer so as to Secure a Hard Copy of Data

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	71	32.8
Comfortable	77	35.6
Wary	28	12.9
Uncomfortable	21	9.7
Extremely Uncomfortable	14	6.4
No Response	5	2.3

¹Of the 238 principals responding, twenty-two completed the survey after question three.

Table 22. The Ability of the Senior High Principal to Utilize a Modem When Available

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	29	13.4
Comfortable	51	23.6
Wary	50	23.1
Uncomfortable	38	17.5
Extremely Uncomfortable	29	13.4
No Response	19	8.7

¹Of the 238 principals responding, twenty-two completed the survey after question three.

that the question was non-applicable or elected not to respond.

Question twenty-two sought to determine whether the principal was able to function as a member of an electronic mail network. As shown by Table 23, nineteen, or 8.7 percent of those responding, reported that they were very comfortable with their ability to function as a member of a network. Forty-five principals, or 20.8 percent, stated that they were comfortable. Forty-four, or 20.3 percent of those responding, reported that they were wary of this process. Forty-three respondents, or 19.9 percent, reported that they were uncomfortable as a member of an electronic mail network. Thirty-five, or 16.2 percent of those responding to question twenty-two, characterized themselves as extremely uncomfortable. Thirty principals reported that the question was non-applicable or elected not to respond.

Senior high school principals were asked, in question twenty-three, for a yes or no answer as to whether or not they had completed a formal computer course. Table 24 reflects the responses to this question in terms of frequency and percent of responses. One hundred thirty-three, or 61.5 percent of the total responding, reported that they had completed a formal course. Eighty-three, or 38.4 percent, stated that they did not complete a course.

Of the 133 who completed a course, thirty-three, or 24.8 percent of those responding, completed an undergraduate

Table 23. The Ability of the Senior High Principal to Function as a Member of an Electronic Mail Network

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Very Comfortable	19	8.7
Comfortable	45	20.8
Wary	44	20.3
Uncomfortable	43	19.9
Extremely Uncomfortable	35	16.2
No Response	30	13.8

¹Of the 238 principals responding, twenty-two completed the survey after question three.

Table 24. Senior High Principals Reporting the Completion of a Formal Computer Course

(N=216)¹

Response	Number of Responses	Percent of Total Responses
Yes	133	61.5
No	83	38.4

¹Of the 238 principals responding, twenty-two completed the survey after question three.

course (see Table 25). Fifty-five, or 41.3 percent, stated that the course was graduate. The majority, sixty-nine or 51.8 percent, of those responding said inservice training. Nonschool computer classes were reported as being completed by nine principals, or 6.7 percent. Sixteen principals, or 12.0 percent responding, reported that they received training from computer company representatives.

The degree to which senior high principals are comfortable with the process of utilizing a computer for administrative purposes was investigated by question twenty-five. Table 26 reports that forty-seven, or 21.7 percent of those principals responding, felt very comfortable. Seventy-six, or 35.1 percent, stated that they were comfortable, but still need occasional assistance. Forty-five principals, or 20.8 percent, characterized themselves as uneasy, but feel it will improve. Thirty-two, or 14.8 percent of those responding, stated that they were very uncomfortable--require too much assistance to feel secure about the procedure/s. Eleven, or 5.0 percent of the respondents fell into the other category. Five principals elected not to respond to question twenty-five.

Section D--Use of Equipment

The three questions in this section sought data on the administrative software applications that were employed in the school.

Table 25. Types of Formal Computer Courses Completed by Senior High Principals

(N=133)¹

Response	Number of Responses ²	Percent of Total Responses
Undergraduate	33	24.8
Graduate	55	41.3
Inservice Training	69	51.8
Nonschool Computer Classes	9	6.7
Computer Company Representatives	16	12.0
Other	2	1.5

¹Only those principals who completed a formal computer course responded to this question.

²Number of responses = .184 due to multiple courses.

Table 26. The Degree to Which Senior High Principals are Comfortable with the Process of Utilizing a Computer for Administrative Purposes

(N=216)¹

Degree	Number of Responses	Percent of Total Responses
Very Comfortable	47	21.7
Comfortable, but still need occasional assistance	76	35.1
Uneasy, but feel it will improve	45	20.8
Very Uncomfortable--require too much assistance to feel "on top" of the procedure/s	32	14.8
Other	11	5.0
No Response	5	2.3

¹Of the 238 principals responding, twenty-two did not respond after question three.

In question twenty-six, principals were asked to check those administrative software applications that were currently employed in their school either by them or a member of their staff who are doing so in support of the administrative function of the school. Table 27 shows the responses to this question in terms of frequency. One hundred forty-three respondents reported annual attendance. One hundred fifty-nine principals reported that they use the computer for daily attendance. One hundred fifty-nine principals used the computer for mailing lists and labels. One hundred eighty-one respondents reported using the computer for word processing. Other applications reported were: library circulation; activity fund accounting; guidance records; and class records.

In question twenty-seven, principals were asked to list special administrative software applications which could be employed by the computer. Table 28 shows the responses to this open-ended question. Six principals listed discipline-referrals. Ten principals reported using scheduling. Selected others were: athletics; automated dialing to parents; principal's newsletter; and school newspaper.

Future administrative software applications were investigated by question twenty-eight. Table 29 shows the results of the open-ended question. Seventeen principals stated that scheduling was an application they would like to use in the future. Seventeen principals would like to use attendance

Table 27. Administrative Uses of Computers as Reported
by Senior High Principals

(N=216)¹

Response	Number of Responses ²
Word Processing	181
Attendance (Daily)	159
Mailing List/Labels	159
Attendance (Annual)	143
Grade Reporting	139
Library Circulation	120
Class Records	114
Information Storage & Ret.	113
Activity Fund Accounting	104
Guidance Records	102
Student Records	101
Letter File	89
General Accounting	83
Accounts Receivable/Payable	82
Test Scoring & Analysis	78
Enrollment Projection	77
Athletic Eligibility List	76
General Ledger	73
Staff Assignments	72
School Calendar	67
Facilities/Equip. Inv.	62
Activities Scheduling	55
Payroll Reporting	54
Personnel Records	54
Paycheck Calculation	53
Instructional Management	46
Media Reservations	44
Statistical Analysis	41
Cafeteria Records	41
Project Planning & Budgeting	38
Vendor Requests/Purc. Orders	37
Census (Family)	36
Energy Management	33
Electronic Mail	32
Graduate Follow-up	31
Health Records	25
Financial Forecasting	24

(continued)

Table 27 (continued)

Response	Number of Responses ²
Facilities Utilization	22
Bus Routing	21
Maintenance	16
Custodial Supplies	16
No Response	3

¹Of the 238 principals responding, twenty-two exited the survey after question three.

²Number of responses = 2916 due to multiple uses.

Table 28. Special Administrative Software Applications
as Reported by Senior High Principals

(N=216)

Response	Number of Responses ¹
Scheduling	10
Discipline-Referrals	6
Automated Dialing/Parents	2
Athletics	2
Principal's Newsletter	2
School Newspaper	2
Guidance Records	1
Career Counseling	1
Library Overdues	1
PTA Announcements	1
Teacher Evaluations	1
Free & Reduced Lunch Appl.	1
Textbook Records	1
School Bulletin Announcements	1
Special Education Tracking	1
Signs & Graphics	1
Database Searches	1
Film Booking	1
Parking Permits	1
Incident Reports	1
Locker Numbers	1
Career Info. Service	1
Food Service Ordering	1
Personnel Records	1
Accounts Receivable/Payable	1
Word Processing	1
Yearbook	1
Special Project Management	1
Lunch Tickets Generated	1
Class Rank	1
Tardies	1
Grade Point Average	1
Failure Counts	1
No Response	184

¹Number of responses = 235 due to multiple applications.

Table 29. Future Administrative Software Applications
as Reported by Senior High Principals

(N=216)

Response	Number of Responses ¹
Scheduling	17
Attendance	17
Grade Reports	10
Accounting	9
Discipline	6
Student Database	5
Grade Reporting	5
Student Records	5
Word Processing	4
Bookkeeping	4
Networking	4
Business Affairs	3
Guidance Records	3
Library Circulation	3
Student Records	2
Inventory	2
Budgeting	2
Facilities Utilization	2
Free & Reduced Lunch Appl.	2
Graduate Follow-up	2
Software for Teachers'	
Registers	1
Supply Requisitions	1
Cafeteria Payroll	1
Energy Management	1
Custodial Supplies	1
Letter File	1
Monthly State Reports	1
County Reports	1
Statistical Analysis	1
Electronic Bulletin Board	1
Automated Transcripts	1
Electronic Mail	1
No Response	148

¹Number of responses = 267 due to multiple applications.

software. Ten principals reported that grade reports was an application they would like to use in the future. Nine respondents would like to use accounting software. Other applications that principals would like to use were: guidance records; word processing; and student database.

Section E--Effects of Computer Use

The three questions in this section asked principals to consider very carefully the effect/s of computer use for administrative purposes.

Principals were asked, in question twenty-nine, to choose the description that best describes their experience with computers. Respondents were given the opportunity to select more than one item. Table 30 shows the results. Ninety-five principals, or 43.9 percent of those responding, stated that the computer freed them from routine paperwork thus giving them more time to devote to other tasks. One hundred forty-two, 65.7 percent, reported that the computer had improved the quality and accuracy of their work. Thirty-three respondents, or 15.2 percent, stated that the computer made very little difference in terms of increasing time for other tasks or improving the quality of work. Nine principals, or 4.1 percent, reported that the computer consumed time that would have been spent in conferences, in the halls, or in classroom observations. Sixteen respondents, or 7.4 percent, fell into the other category.

Table 30. Effects of Computer Use on Administrative Time
as Reported by Senior High Principals

(N=216)¹

Response	Number of Responses ²	Percent of Total Responses
Freed me from routine paperwork so that I have more time to devote to other tasks	95	43.9
Has improved the quality and accuracy of my work	142	65.7
Made very little difference in terms of either increasing time for other tasks or improving the quality of my work	33	15.2
Consumes time I previously would have spent in conferences, in the halls, or in classroom observations	9	4.1
Other	16	7.4
No Response	11	5.0

¹Of the 238 principals responding, twenty-two completed the survey after question three.

²Number of responses = 306 due to multiple effects.

Hours per week saved by the computer was investigated by question thirty. Table 31 reflects the results of this open-ended question in terms of frequency. Fifty principals stated that the computer saved from one to five hours per week which could be devoted to other tasks. Eighteen respondents asserted that the computer gave them from six to ten additional hours per week. The most frequently reported amounts of time saved were three, five, and ten hours which was represented by eleven, sixteen, and twelve respondents respectively. Approximately 70 percent of those responding fell into the category of one to five hours saved per week.

Question thirty-one was a follow-up question to thirty. Principals were asked to list those tasks to which the time had been applied reported saved by computer usage. Table 32 reflects the results in terms of frequency and percentage. Twenty-eight principals reported that they were using the freed time for classroom observations. Fifteen principals reported instructional improvement. Twelve respondents had applied their time to general supervision. Nine principals used their freed time for individual conferences. Selected others where principals were devoting their freed time were: being visible in schools; word processing; and curriculum.

Table 31. Hours per Week Saved by Computer Use as Reported by Senior High Principals

(N=216)¹

Hours	Number of Responses
One to Five	50
Six to Ten	18
Unable to Determine	1
Other	2 ²
Did Not Respond	145

Note. The most frequently reported amounts of time saved were three and five hours.

¹Of the 238 principals responding, twenty-two exited the survey after question three.

²Respondent stated that it was equivalent to one secretarial position.

Table 32. Tasks to Which the Senior High Principals Have Applied the Time Reported Saved by Computer Usage

(N=216)

Tasks	Number of Responses ¹
Classroom Observations	28
Instructional Improvement	15
General Supervision	12
Individual Conferences	9
More Time in Halls	5
Student Counseling	5
Planning	4
Word Processing	3
Curriculum	3
More Time with Students	3
Being Visible in School	2
Student Scheduling	2
More Time in Lunchroom	1
Staff Development	1
Special Projects	1
Student Files	1
Grade Reporting	1
Public Relations	1
General Management	1
Reports	1
Paperwork	1
Data Analysis	1
Committee Meetings	1
Discipline	1
Media Contacts	1
Filing	1
Calling Parents	1
Student Achievement	1
Attendance	1
Daily Problems	1
No Response	151

¹Number of responses = 260 due to multiple tasks.

Summary

Chapter 4 presented the data collected on the administrative use of computers in the senior high schools of Virginia as reported by two hundred thirty-eight senior high principals in the Commonwealth of Virginia. Conclusions and recommendations are presented in Chapter 5.

Section A, Status Information, sought information on whether principals utilized the computer for administrative purposes. Over 90 percent of the respondents to the survey were utilizing the computer for administrative purposes. Of those not using computers, 31 percent reported that the equipment was too costly and another 13 percent stated that their request had been turned down by a higher authority.

Section B, Administrative Uses, sought data on the types of equipment utilized for administrative purposes. The microcomputer was the computer system utilized by the majority of senior high school principals. Ninety-five percent were using the microcomputer in the school office, followed by the mainframe at 12 percent, and the minicomputer at 9 percent.

IBM and Apple were the preferred brand names of microcomputers among Virginia's senior high principals. Over 35 percent of the principals were utilizing the IBM personal computer for administrative purposes followed by the Apple

at 34 percent. Tandy was another choice among the principals at 13 percent.

Of the senior high principals in Virginia, IBM was the preferred brand name for the mainframe and minicomputers. Approximately 28 percent of the computer users were utilizing the IBM mainframes followed by the IBM minicomputer at 77 percent.

Forty-two percent of the senior high principals had been using the computer for administrative purposes three years or less. Another 32 percent had been using it from four to six years.

Central office funds had paid over 81 percent of the senior high school principals' computers. Forty-one percent of the computers were purchased with local school funds. Other funding sources included private donations, approximately 6 percent, followed by the P.T.A. at 2 percent.

Fifty-six percent of the senior high principals did not personally own a microcomputer. Those that did generally had an IBM or an Apple. They preferred to use the computer at home for administrative purposes rather than at the office.

Section C, Expertise and Training, sought information on the principal's ability to utilize a computer and the training received to utilize the computer. The senior high school principals in Virginia were learning how to use computers in a variety of ways. Approximately 66 percent received their training through college courses. Another 52

percent received their training from the school system. Nonschool computer classes accounted for 7 percent.

Over 56 percent of the senior high school principals felt comfortable to very comfortable in utilizing a computer for administrative purposes. Another 20 percent felt uneasy with the computer, but believed it would improve. Approximately 15 percent were very uncomfortable with utilizing the computer for administrative tasks.

Section D, Use of Equipment, sought data on the administrative software applications that were employed in the school. An analysis of responses regarding administrative use revealed that the most frequently reported usages were for word processing, mailing list/labels, daily attendance, annual attendance, grade reporting, and library circulation. More complex functions such as financial forecasting, maintenance, bus routing, and facilities utilization were not in common usage.

Section E, Effects of Computer Use, sought information on effects of computer use for administrative purposes. Over 43 percent of the principals stated that the computer freed them from routine paperwork giving them more time for other tasks. Sixty-six percent believed that the computer had improved the quality and accuracy of their work. Fifteen percent of the principals felt that the computer had made little difference as far as increasing time for other tasks or improving the quality of their work. Approximately four per-

cent believed that the computer consumed time that previously would have been spent in conferences, or in the halls.

Seventy-one percent of the senior high principals felt that the computer had saved them anywhere from one to five hours per week in administrative time.

Principals had applied the time saved by the computer to classroom observations, planning, instructional improvement, general supervision, individual conferences, curriculum, and student scheduling.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter is devoted to answering the purposes of the study as set out in Chapter 1, and making a recommendation for further research.

Summary of Findings

To what extent are Computers Being Used for Administrative Purposes by the Senior High School Principals in the Public Schools of Virginia and the Characterization of Such Usage?

Of the two hundred thirty-eight senior high school principals responding to the survey, two hundred sixteen, or 90 percent of the respondents, are utilizing the computer for administrative purposes. Those twenty-two principals who are not using computers primarily cite reasons such as cost, and the lack of qualified personnel to operate them.

In a similar study on the administrative use of computers by the elementary school principals in Virginia, Sharman and Cothern concluded that only about 33 percent of the elementary school principals were using computers for administrative purposes. Of those not using computers, 72 percent cited a lack of funds. McLean, in his 1986 study of the ad-

ministrative use of computers by secondary school principals in Oklahoma, found that 28 percent cited a lack of funds.

In comparing those studies, it is apparent that there is still a problem with funding on both the elementary and secondary levels. The microcomputer is the computer system that is utilized by two hundred six, or 95 percent, of Virginia's senior high school principals. The mainframe is being used by approximately 12 percent of the principals followed by the minicomputer at 9 percent. These findings are similar to the results of Sharman and Cothern's study as well as that of McLean. Sharman and Cothern found that microcomputers were utilized by 81 percent of the elementary principals, followed by the mainframe at 14 percent, and the minicomputer at 5 percent. McLean found that over half of the secondary principals in Oklahoma were using the microcomputer as an administrative tool. From these studies, it is apparent that the microcomputer is the preferred computer system for performing administrative tasks.

IBM and Apple are the preferred microcomputer brands among Virginia's senior high school principals. Over 68 percent of the principals are utilizing these systems to accomplish administrative purposes. Tandy was another choice among the principals at 13 percent. In McLean's study, he found that Apple and Tandy were the most often used microcomputers among the principals in Oklahoma.

Forty-two percent of the senior high school principals in Virginia have utilized the computer for administrative purposes for three years or less. Thirty-two percent have been using it from four to six years. Although McLean's study dealt strictly with microcomputers, he found that approximately 84 percent had been using the computer for three years or less. The popularity of the microcomputer accompanied by the decreasing cost of hardware and software over the last several years constitute the primary reasons why principals are just now beginning to use the device for administrative purposes. Central office and local school funding represented the means by which the overwhelming majority of computers were purchased for administrative purposes. Other funding sources include private donations, approximately 6 percent, followed by the P.T.A. at 2 percent. Sharman and Cothorn found that the central office paid for 57 percent of the computers utilized by the elementary school principals. It would appear that secondary schools are better funded in this regard. In their study, private donations accounted for 5 percent of the computers followed by the P.T.A. at 15 percent. Those principals that were unable to secure central office funding for the purchase of computers to improve the quality and accuracy of their work are using other sources for fund raising purposes.

Slightly over half of the senior high principals do not personally own a microcomputer. The ninety-two principals

who do report owning a microcomputer use it for school-based administrative purposes at home.

How might the Personal Ability of Senior High School Principals in the Public Schools of Virginia to Perform Selected Administrative Functions Utilizing the Computer be Best Characterized?

The senior high school principals in Virginia are learning how to use computers in a variety of ways. Of the one hundred thirty-three principals completing a course, 66 percent received their training through college courses. Another 52 percent received their training from the school system. Nonschool computer classes accounted for 7 percent.

One hundred twenty-three principals, or approximately 56 percent, feel comfortable to very comfortable in utilizing a computer for administrative purposes. Forty-five, or one-fifth of the principals, felt uneasy with the computer. Thirty-two principals, or 14.8 percent, are uncomfortable with utilizing the computer for administrative tasks.

Principals feel comfortable to very comfortable with the following administrative tasks: word processing; creating database files; master scheduling; and activating a printer. Principals characterize themselves as wary to extremely uncomfortable with the following tasks: computer spreadsheets; creating pictorial reports; and budgeting and cost projections (see Table 33).

Table 33. The Ability of the Principal to Utilize a Computer, Summary Table

(N = 216)

Response/Activity	Percent of Total Responses									
	Table 14 Word Processing	Table 15 Spreadsheet	Table 16 Create Database	Table 17 Create Pictorial Reports	Table 18 Program for Budgeting Cost Projections	Table 19 Master Schedule	Table 20 Software for Expenses Enrollment	Table 21 Activating a Printer	Table 22 Utilize a Modem	Table 23 Electronic Mail Network
Very Comfortable	26.3	11.5	19.9	6.9	7.8	25.4	18.5	32.8	13.4	8.7
Comfortable	31.4	31.9	32.8	19.4	19.9	35.6	28.7	35.6	23.6	20.8
Wary	16.6	23.6	16.6	18.0	22.6	11.5	19.4	12.9	23.1	20.3
Uncomfortable	13.4	16.2	16.6	25.4	23.1	11.5	15.2	9.7	17.5	19.9
Extremely Uncomfortable	10.1	12.5	10.1	23.6	16.6	10.6	10.1	6.4	13.4	16.2
No Response	1.8	4.1	3.7	6.4	9.7	5.0	7.8	2.3	8.7	13.8

For What Specific Administrative Tasks do the Senior High School Principals of Virginia Utilize the Computer?

An analysis of responses regarding administrative use of the computer reveals that the most frequently reported usages are for word processing, mailing list/labels, daily attendance, annual attendance, grade reporting, and library circulation. More complex functions such as financial forecasting, maintenance, bus routing and facilities utilization are not in common usage.

Special applications for which principals utilize computers are: scheduling; discipline-referrals; principal's newsletter; and school newspaper.

Future administrative applications are: business affairs; accounting; bookkeeping; budgeting; supply requisitions; scheduling; attendance; and grade reporting.

What Effect/s, if any, has Computer Usage for Administrative Purposes by the Senior High School Principals in the Public Schools of Virginia had in Terms of Saving Administrative Time?

Forty-four percent of the principals stated that the computer freed them from routine paperwork giving them more time for other tasks. Nearly 66 percent of the principals reported that the computer improved the quality and accuracy of their work. Fifteen percent of the principals felt that the computer has made little difference as far as increasing time for other tasks or improving the quality of their work.

The ninety-five principals who reported that the computer freed them from routine paperwork assert that the com-

puter saves them from one to ten hours per week in administrative time.

Principals have applied the time saved by the computer to a wide variety of activities such as: classroom observations; tasks related to instructional improvement; and general supervision.

Responses to the question regarding the time saved by computer usage were divided into two groups based upon the amount of time reported saved (1-5 hours vs. 6-10 hours). There was no difference in the group responses. Both groups tended to stress instructional matters as the activity to which the time saved was directed.

Based upon the results of this study, it can be concluded that the senior high school principals in the Commonwealth of Virginia make wide usage of computers to aid in the performance of various administrative tasks.

Conclusions

Over 90 percent of the respondents to this survey are utilizing the computer for administrative purposes. This exceeds the findings of Sharman and Cothorn in their study on the administrative use of computers by the elementary school principals in Virginia by approximately 60 percent.

Approximately one-third of the senior high school principals responding to the matter of time saving by using com-

puters stated that such usage has freed them from routine paperwork. The amount of time that has been saved and thus available for reallocation range from one hour to forty hours per week. The most frequently reported estimate of time saved was approximately five hours. Principals further reported that their freed time is being devoted to a wide variety of acts that, in the main, may be characterized by classroom observation and instructional improvement tasks. However, nearly one-half the principals reported that the chief effect of computer usage has been an improvement in the quality and accuracy of their work and not saving time. Virginia's senior high school principals, it would appear, differ from those administrators cited in other studies in this regard.

Recommendations

This study has demonstrated that over two hundred of Virginia's two hundred ninety senior high school principals are utilizing the computer for administrative purposes.

The following recommendations are based on the findings from this study and are intended to provide direction for the decision-makers identified:

1. The State Department of Education should provide the needed financial resources to enable the principals to purchase the software necessary to perform administrative applications.

2. The State Department of Education should provide the funding for the purchase of computers by those school divisions that are presently unable to afford them.
3. Departments of Educational Administration should recognize that computer technology is being used by the principals and provide them with the training needed to successfully use it as a management tool.
4. Local school divisions should conduct workshops for principals so that they can become more familiar with those applications that show an immediate time savings and potential for increased efficiency.
5. Local school divisions should develop computer literacy programs for those principals who lack the necessary skills to cope with the computer revolution.

A Recommendation for Further Research

This study set out to describe the status of computer use by the senior high school principals in the Commonwealth of Virginia as an administrative tool as outlined in Chapter 1. Each of the objectives of the study has been met. No major question remains unanswered.

In regards to a recommendation for further research, the key to successful administrative usage of the computer is software. The Virginia Department of Education should develop software packages to correspond to the types and kinds of data needed to complete reports to the state department of education. With these recommendations, principals should not purchase software that will soon be obsolete.

Networking of computers for schools and school divisions is an area that lends itself to further research. Duplicating services due to a lack of a network could be eliminated.

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**APPENDIX A. ADMINISTRATIVE USE OF COMPUTERS IN THE SENIOR
HIGH SCHOOLS OF VIRGINIA**

Administrative Use of Computers
in the Senior High Schools of Virginia

SCHOOL _____ DIVISION _____

GENERAL INSTRUCTIONS

Please respond to each of the following questions as they apply to your school. This survey is an effort to accumulate and share important data on the extent and use of computers for administrative purposes. All respondents are to answer Section A. Principals utilizing computers will continue with the survey instrument. Please feel free to use "other" in each case that you deem appropriate. If you wish to comment on any question or qualify your answers, please use the space in the margins. Your comments will read and taken into account.

Thank you for your help.

Please return this survey by February 17, 1989 to:

Lee B. Armistead

Work Phone:

Home Phone:

A. Status Information (Check the appropriate response)

Q-1 Please check the best description and associated portions where applicable.

☐ **1 THERE ARE COMPUTERS IN MY BUILDING UTILIZED ONLY FOR INSTRUCTING STUDENTS - NOT FOR ADMINISTRATIVE PURPOSES. THESE COMPUTERS ☐ ARE ☐ ARE NOT APPROPRIATE FOR ADMINISTRATIVE USE.**

☐ **2 THERE ARE COMPUTERS IN MY BUILDING THAT SERVE A DUAL PURPOSE - STUDENT INSTRUCTION AND ADMINISTRATIVE USE.**

☐ **3 THERE ARE COMPUTERS IN MY BUILDING SOLELY FOR STUDENT INSTRUCTION AND COMPUTERS SOLELY FOR ADMINISTRATIVE USE.**

☐ **4 THERE ARE NO COMPUTERS IN MY BUILDING.**

Q-2 If there are no computers for administrative use, please check the reason/s.

☐ **1 NEVER CONSIDERED THEIR USE**

☐ **2 TOO COSTLY**

☐ **3 NO JUSTIFIABLE NEED**

☐ **4 LACK OF QUALIFIED PERSONNEL/TRAINING**

☐ **5 REQUEST TURNED DOWN BY HIGHER AUTHORITY**

☐ **6 FEAR OF COMPUTERS**

☐ **7 OTHER (PLEASE SPECIFY) _____**

Q-3 If your answer to Q-1 was response 1 or 4, please place the survey in the self-addressed, stamped envelope provided. Thank you for your cooperation.

If your answer to Q-1 was response 2 or 3, please resume with Section B, Q-4 and complete the survey.

B. Administrative Uses (Check the appropriate responses)

In this survey, administrative purpose is defined as what a principal does with time and available resources for the purpose of maintaining and/or changing the operation of the school so as to directly influence the achievement of the stated goals of the school or school division.

Q-4 Please check the type of system/s you employ for administrative purposes:

- ☐ 1 MICROCOMPUTER: INDIVIDUAL USE - LIMITED CAPACITY
- ☐ 2 MINICOMPUTER: MID-SIZED SYSTEM
- ☐ 3 MAINFRAME COMPUTER: MOST POWERFUL - EXTENSIVE STORAGE
- ☐ 4 REMOTE TERMINALS CONNECTED TO A MAINFRAME/CENTRALIZED COMPUTER

Q-5 If a microcomputer/s is being used for administrative purposes at your school, please check the brand/s.

- ☐ 1 APPLE
- ☐ 2 IBM
- ☐ 3 COMMODORE
- ☐ 4 COMPAQ
- ☐ 5 TEXAS INSTRUMENTS
- ☐ 6 TANDY
- ☐ 7 EPSON
- ☐ 8 LEADING EDGE
- ☐ 9 NCR
- ☐ 10 OTHER (PLEASE SPECIFY) _____

Q-6 If a minicomputer is being used for administrative purposes at your school, please check the brand/s.

- ☐ 1 IBM
- ☐ 2 NCR
- ☐ 3 HONEYWELL
- ☐ 4 OTHER (PLEASE SPECIFY) _____

Q-7 If a mainframe computer is being used for administrative purposes at your school, please check the brand/s.

- ☐ 1 IBM
- ☐ 2 NCR
- ☐ 3 HONEYWELL
- ☐ 4 OTHER (PLEASE SPECIFY) _____

Q-8 How long have computers been used for administrative purposes at your school?

- ☐ 1 3 YEARS OR LESS
- ☐ 2 4-6 YEARS
- ☐ 3 MORE THAN 6 YEARS

Q-9 What was the source/s of funding for your computer/s being used for administrative purposes? (please check)

- ☐ 1 CENTRAL OFFICE
- ☐ 2 LOCAL SCHOOL FUNDS
- ☐ 3 P.T.A.
- ☐ 4 YOUR PERSONAL PROPERTY
- ☐ 5 DONATION (PLEASE SPECIFY SOURCE) _____
- ☐ 6 OTHER _____

Q-10 Do you own a personal computer?

- ☐ 1 YES BRAND _____
- ☐ 2 NO

If your answer to Q-10 was no, skip Q-11 and Q-12 resuming with Section C.

Q-11 Is this computer:

- ☐ 1 AT THE OFFICE
- ☐ 2 AT HOME

Q-12 Do you use this personal computer to assist you in the performance of your administrative duties?

- ☐ 1 YES
- ☐ 2 NO

C. Expertise and Training

Expertise

Please check the response that best describes your personal ability to:

Q-13 Use a computer program to accomplish a word processing task/s.

- ☐ 1 VERY COMFORTABLE
- ☐ 2 COMFORTABLE
- ☐ 3 WARY
- ☐ 4 UNCOMFORTABLE
- ☐ 5 EXTREMELY UNCOMFORTABLE

Q-14 Use a computer spreadsheet to manipulate information.

- ___1 VERY COMFORTABLE
- ___2 COMFORTABLE
- ___3 WARY
- ___4 UNCOMFORTABLE
- ___5 EXTREMELY UNCOMFORTABLE

Q-15 Use and create data base files for scheduling, attendance, inventory, and personnel records.

- ___1 VERY COMFORTABLE
- ___2 COMFORTABLE
- ___3 WARY
- ___4 UNCOMFORTABLE
- ___5 EXTREMELY UNCOMFORTABLE

Q-16 Create pictorial reports such as graphs and charts.

- ___1 VERY COMFORTABLE
- ___2 COMFORTABLE
- ___3 WARY
- ___4 UNCOMFORTABLE
- ___5 EXTREMELY UNCOMFORTABLE

Q-17 Use a program for budgeting and cost projections.

- ___1 VERY COMFORTABLE
- ___2 COMFORTABLE
- ___3 WARY
- ___4 UNCOMFORTABLE
- ___5 EXTREMELY UNCOMFORTABLE

Q-18 Develop a master schedule using a computer.

- ___1 VERY COMFORTABLE
- ___2 COMFORTABLE
- ___3 WARY
- ___4 UNCOMFORTABLE
- ___5 EXTREMELY UNCOMFORTABLE

Q-19 Use software to enter data related to expenses, enrollment, personnel, etc. for administrative decision-making.

- ___1 VERY COMFORTABLE
- ___2 COMFORTABLE
- ___3 WARY
- ___4 UNCOMFORTABLE
- ___5 EXTREMELY UNCOMFORTABLE

Q-20 Use commands necessary to activate a printer so as to secure a hard copy.

- ☐ 1 VERY COMFORTABLE
- ☐ 2 COMFORTABLE
- ☐ 3 WARY
- ☐ 4 UNCOMFORTABLE
- ☐ 5 EXTREMELY UNCOMFORTABLE

Q-21 Use a modem when available.

- ☐ 1 VERY COMFORTABLE
- ☐ 2 COMFORTABLE
- ☐ 3 WARY
- ☐ 4 UNCOMFORTABLE
- ☐ 5 EXTREMELY UNCOMFORTABLE

Q-22 Function as a member of an electronic mail network.

- ☐ 1 VERY COMFORTABLE
- ☐ 2 COMFORTABLE
- ☐ 3 WARY
- ☐ 4 UNCOMFORTABLE
- ☐ 5 EXTREMELY UNCOMFORTABLE

Training

Q-23 Have you completed a formal computer course?

- ☐ 1 YES
- ☐ 2 NO

Q-24 If you completed a formal computer course, was it:
(please check)

- ☐ 1 UNDERGRADUATE
- ☐ 2 GRADUATE
- ☐ 3 INSERVICE TRAINING
- ☐ 4 NONSCHOOL COMPUTER CLASSES
- ☐ 5 COMPUTER COMPANY REPRESENTATIVES
- ☐ 6 OTHER (PLEASE SPECIFY) _____

Summary Statement

Q-25 Please check the response that best characterizes how comfortable you are with the process of using a computer for administrative purposes.

- ☐ 1 VERY COMFORTABLE
- ☐ 2 COMFORTABLE BUT STILL NEED OCCASIONAL ASSISTANCE
- ☐ 3 UNEASY, BUT FEEL IT WILL IMPROVE
- ☐ 4 VERY UNCOMFORTABLE - REQUIRE TOO MUCH ASSISTANCE TO FEEL "ON TOP" OF THE PROCEDURE/S.
- ☐ 5 OTHER (PLEASE DESCRIBE) _____

D. Use of Equipment

Q-26 Please check those administrative software applications that are currently employed in your school either by you or a member/s of your staff who are doing so in support of the administrative function of your school.

INSTRUCTION/STUDENTS

- ☐ 1 ATHLETIC ELIGIBILITY LIST
- ☐ 2 ATTENDANCE (ANNUAL)
- ☐ 3 ATTENDANCE (DAILY)
- ☐ 4 CLASS RECORDS
- ☐ 5 CENSUS (FAMILY)
- ☐ 6 ENROLLMENT PROJECTION
- ☐ 7 GRADUATE FOLLOW-UP
- ☐ 8 GUIDANCE RECORDS
- ☐ 9 HEALTH RECORDS
- ☐ 10 INSTRUCTIONAL MANAGEMENT
- ☐ 11 GRADE REPORTING
- ☐ 12 SCHOOL CALENDAR
- ☐ 13 STUDENT RECORDS
- ☐ 14 TEST SCORING AND ANALYSIS

IN GENERAL

- ___ 15 ACTIVITIES SCHEDULING
- ___ 16 BUS ROUTING
- ___ 17 INFORMATION STORAGE/RETRIEVAL
- ___ 18 LIBRARY CIRCULATION
- ___ 19 MEDIA RESERVATIONS
- ___ 20 MAILING LIST/LABELS
- ___ 21 PROJECT PLANNING AND BUDGETING
- ___ 22 STATISTICAL ANALYSIS
- ___ 23 WORD PROCESSING
- ___ 24 LETTER FILE
- ___ 25 ELECTRONIC MAIL

BUSINESS AFFAIRS

- ___ 26 ACCOUNTS RECEIVABLE/PAYABLE
- ___ 27 ACTIVITY FUND ACCOUNTING
- ___ 28 FINANCIAL FORECASTING
- ___ 29 CAFETERIA RECORDS
- ___ 30 GENERAL ACCOUNTING
- ___ 31 GENERAL LEDGER
- ___ 32 VENDOR REQUESTS/PURCHASE ORDERS

PERSONNEL

- ___ 33 PAYCHECK CALCULATION
- ___ 34 PAYROLL REPORTING
- ___ 35 PERSONNEL RECORDS
- ___ 36 STAFF ASSIGNMENTS

SCHOOL FACILITIES

- ___ 37 ENERGY MANAGEMENT
- ___ 38 FACILITIES/EQUIPMENT INVENTORY
- ___ 39 FACILITIES UTILIZATION
- ___ 40 MAINTENANCE
- ___ 41 CUSTODIAL SUPPLIES

Q-27 OTHER SPECIAL APPLICATIONS (PLEASE LIST) _____

Q-28 What future applications do you foresee? _____

E. Effects of Computer Use

Please consider very carefully the effect/s of computer use for administrative purposes.

Choose the description that best describes your experience with computers.

Q-29 The use of computers for administrative purposes has:
(please check)

NOTE: You may check more than one item.

___ 1 FREED ME FROM ROUTINE PAPERWORK SO THAT I HAVE MORE TIME TO DEVOTE TO OTHER TASKS.

___ 2 HAS IMPROVED THE QUALITY AND ACCURACY OF MY WORK.

___ 3 MADE VERY LITTLE DIFFERENCE IN TERMS OF EITHER INCREASING TIME FOR OTHER TASKS OR IMPROVING THE QUALITY OF MY WORK.

___ 4 CONSUMES TIME I PREVIOUSLY WOULD HAVE SPENT IN CONFERENCES, IN THE HALLS, OR IN CLASSROOM OBSERVATIONS.

___ 5 OTHER (PLEASE SPECIFY) _____

Q-30 If computer use has decreased the amount of time you spend on paperwork, please give the approximate amount of time that is now available per week for other tasks.

_____ hour/s per week

Q-31 If you responded to Q-30, please list the task/s to which you have applied the time shown in Q-30.

Are there other comments that you would like to make about the administrative use of computers? If so, please use this space for that purpose.

Please place the completed survey in the self-addressed, stamped envelope provided. If you would like a copy of the dissertation abstract, please print your name and address on the back of the return envelope. I will see that you get a copy.

APPENDIX B.

Office Phone:
Home Phone:

Dear Fellow Administrator:

Under the guidance of Dr. Glen I. Earthman of Virginia Polytechnic Institute and State University, I am writing a dissertation on the administrative usage of the computer by the senior high school principals in Virginia. This is an area that has not been addressed in the past.

This study is being made with the hope that the information obtained will be beneficial to those administrators who are presently using a computer for administrative purposes or who are considering using a computer for administrative purposes.

No person, school, or school division will be identified. The identification of your school and division on this survey is necessary due to the need for follow-up in certain cases. Copies of the dissertation abstract will be available upon request.

The majority of the questions on the survey instrument will require only the marking of the appropriate responses. Please complete and return the instrument in the self-addressed, stamped envelope by February 17, 1989.

Thank you very much for your time and cooperation.

Sincerely,

Lee B. Armistead

APPENDIX C.

Office Phone:
Home Phone:

Dear Fellow Administrator:

I am concluding the data collection phase of the study on the administrative use of computers in the senior high schools of Virginia. To this date, I have not received a completed questionnaire from you and I am eagerly awaiting its return.

This study is being made with the hope that the information obtained will be beneficial to those administrators who are presently using a computer for administrative purposes or who are considering using a computer for administrative purposes. The view of the principal who occupies a major leadership role is critical to achieving meaningful data. Failure to include data from your school leaves a crucial void in my data base.

Please take just a few minutes of your valuable time to complete the survey. A self-addressed, stamped envelope is enclosed for your convenience.

Please contact me at either of the above phone numbers if clarification or any other assistance can be rendered.

Thank you for your time and cooperation.

Sincerely,

Lee B. Armistead

APPENDIX D.

Office Phone:
Home Phone:

Dear Fellow Administrator:

Under the guidance of Dr. Glen I. Earthman of Virginia Tech, I am studying the administrative usage of the computer by the senior high school principals of Virginia. This is an area that has not been addressed in the past.

This study is being made with the hope that the information obtained will be beneficial to those administrators who are presently using the computer for administrative purposes or who are considering using the computer for administrative purposes.

As a panel member, will you please review the cover and follow-up letters along with the survey instrument? Your comments will be greatly appreciated on these. I am enclosing some forms for your responses but please feel to write on the instruments.

Please accept my thanks in advance for your cooperation in helping me validate my instrument and complete the study.

Sincerely,

Lee B. Armistead

APPENDIX E. VALIDATION FORM FOR INSTRUMENTS/LETTERS

Validation Form for Instruments/Letters

To Be Used in the Administrative Use of the Computer Study

Name of Reviewer _____ Title _____

Title of Instrument _____

Please check/comment as appropriate:

A. Readability

1. Ambiguity of questions/responses:

Clear _____ Needs Improvement _____

Comments: _____

2. Grammar:

Satisfactory _____ Needs Improvement _____

Comments: _____

3. Sufficient "white space":

Satisfactory _____ Needs Improvement _____

Comments: _____

B. Validity

1. Appears to cover the topic:

Satisfactory _____ Needs Improvement _____

Comments: _____

2. Likelihood that answers will be truthful:

Satisfactory _____ Needs Improvement _____

Comments: _____

C. Reliability--Likelihood that all respondents will interpret the instrument alike

Satisfactory _____ Needs Improvement _____

Comments: _____

D. Type and amount of data is sufficient to draw conclusions

Satisfactory _____ Needs Improvement _____

Comments: _____

E. Length is appropriate and will not adversely affect return rate

Satisfactory _____ Needs Improvement _____

Comments: _____

F. Adequate provision made for responses including those which might be unanticipated

Satisfactory _____ Needs Improvement _____

Comments: _____

G. Format

1. Ease of completion

Satisfactory _____ Needs Improvement _____

Comments: _____

2. Instructions--clear and adequate

Satisfactory _____ Needs Improvement _____

Comments: _____

3. Logical sequence of presentation

Satisfactory _____ Needs Improvement _____

Comments: _____

4. Interest and challenge presented by questions

Satisfactory _____ Needs Improvement _____

Comments: _____

5. Professional appearance

Satisfactory _____ Needs Improvement _____

Comments: _____

H. Other Comments You May Have

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