

SELECTION AND USE OF ADMINISTRATIVE
MICROCOMPUTER SOFTWARE BY OKLAHOMA
SECONDARY SCHOOL PRINCIPALS

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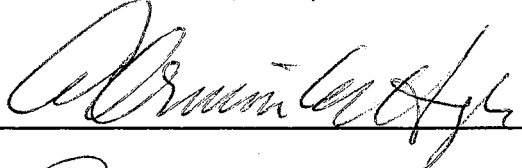
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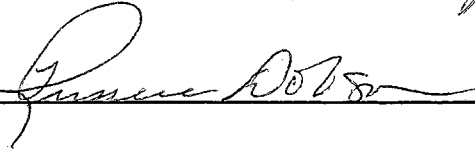
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PREFACE

This study was designed to gather information on the selection and use of microcomputer software for administrative tasks by secondary school principals in the State of Oklahoma. Two studies, by McLean (1986) and Varnum (1990), served as the catalyst for this study in which follow-up information was gathered to further explore the questions considered in those prior surveys. However, just gathering another set of data about the use of the microcomputers in secondary school administration was not considered sufficient. The bulk of this study, therefore, was focused on the selection process for software needed to enable the microcomputer to be used for the intended administrative task(s), the person(s) responsible for the software selection, and the primary operators who use the selected software in the administrative process.

Microcomputer software has become ever more sophisticated within the past few years and the selection of software packages designed for specific tasks has increased tremendously. With the many choices now available to the secondary school administrator, it was the intent of this study to discover which of the various programs are actually

being used and why they were chosen. Through this research, additional information is being presented to secondary school administrators which will hopefully enable them to better engage in the selection process and the administrative operation of software programs.

I wish to express my gratitude to Dr. Gerald Bass, my thesis advisor, for his assistance, encouragement, and counsel during this exercise. I am also indebted to the other members of my committee, Dr. Kenneth St. Clair, Dr. Adrienne Hyle, and Dr. Russell Dobson, for their continued encouragement, advisement, and interest during the course of this endeavor.

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CHAPTER I

INTRODUCTION

Probably no technological innovation has caused as much debate and speculation as has the integration of the microcomputer into the educational system (Marshall, 1982). Since the introduction of the microcomputer in 1974 (Sanders, 1983), the use of this emerging technology has increased yearly. During the 1989-90 academic year, over 1.5 million pieces of microcomputer hardware were purchased at a cost of between \$4 billion and \$5 billion by American schools, faculty, students, and administrators (Green, 1991).

In a 1986 study, McLean explored the use of microcomputers by Oklahoma secondary principals, concentrating solely upon the number and distribution of microcomputers throughout the State of Oklahoma. In a follow-up study, Varnum (1990) expanded the research to determine how those microcomputers were being used. Varnum identified several daily tasks of educational administration that require the manipulation, organization, and/or storage of data, activities that can be performed effectively with a microcomputer including student accounting (attendance, grades,

general data, transcripts, and health information), library/media center operations (circulation, inventory, and records), word processing, athletic administration (statistics and scheduling), inventory and property record keeping, budgeting, staff/personnel record keeping and supervision, and management of student transportation.

Statement of the Problem

Both of the previous studies by Varnum (1990) and McLean (1986) left readers with additional questions regarding administrative use of the microcomputer, especially in the area of software selection and use. While it was not expected that this study would show an extensive increase in the number of secondary school principals using microcomputers, it remained to be seen whether principals were the primary users of the software compared to their support staff, what were the source and method of software selection, and what significance the chosen software has had on the perceived effectiveness of Oklahoma secondary school principals.

This study thus concentrated on identifying the software used by secondary school principals in the State of Oklahoma to perform the tasks identified by Varnum, particularly those associated with student records, word processing, inventory and property records, and

staff/personnel records and supervision. Additionally, this study was designed to provide the reader with information about why Oklahoma secondary school principals are using their particular choices of software, how and where the software was purchased, and what its apparent value is to administrative effectiveness. This study also provided follow-up information to both the study of McLean (1986), which reported the type and amount of microcomputer hardware used by secondary principals in the State of Oklahoma, and the study of Varnum (1990), which dealt with the administrative tasks performed by Oklahoma secondary principals using the microcomputer.

The research questions associated with this particular study, therefore, are the following:

- (1) Are Oklahoma principals the primary users of the microcomputers located in the administrative offices?
- (2) Is there a "standard" software program used by Oklahoma principals in the performance of their administrative duties?
- (3) How and why were the administrative software programs used by Oklahoma principals purchased?
- (4) Do Oklahoma principals consider the use of the microcomputer and the selected software programs to increase their effectiveness in the performance

In order to make a valid comparison of the current use of microcomputers by secondary school administrators to the findings of the McLean and Varnum studies, this research also included the five principal questions that were common to those two efforts:

- (1) Do Oklahoma's secondary school principals use microcomputers as an administrative tool?
- (2) What demographic characteristics are associated with the use of microcomputers as an administrative tool?
- (3) How and for what purposes are secondary school principals in Oklahoma using microcomputer technology?
- (4) Does size of school or district have any relationship to administrative usage of a microcomputer?
- (5) What microcomputer hardware do secondary school principals in Oklahoma use?

Additional issues studied by Varnum (1990) were also used, including a survey of administrative tasks that can be performed with the aid of a microcomputer and an analysis of the principals' perceptions of microcomputer use in their schools.

Significance of the Study

This study may enable secondary school principals in the State of Oklahoma to be more aware of the most widely accepted administrative software, thus empowering them through the use of such capabilities as the electronic transfer of data between schools or districts. It may also allow them the opportunity to narrow their future choices of administrative software programs to those that are currently in use by the majority of public schools in the state, thereby limiting the amount of time spent in review of the varied software programs available. Through the use of the findings of this study, Oklahoma secondary principals may be better prepared to move into the technological area of administrative computer use by realizing what examples of hardware and software are currently being used by their colleagues and why these choices have proven to be the most effective.

Limitations of the study

The conclusions of this study may be limited for several reasons. By concentrating the study only on the secondary schools of Oklahoma, the results may not be practical for generalization to elementary school administration or to that of educational institutions outside the State of Oklahoma. The conclusions may further

be limited by the susceptibility of the survey instrument items and subsequent interview questions to the "socially acceptable" response, indicating that microcomputers are being used in the secondary administrator's office, because of the prevalent attitude that such use is required as an indication of contemporary and effective administrative practices. Finally, the conclusions may be limited due to the rapidly advancing technology which can make the software programs mentioned in this study obsolete almost "overnight."

Definition of Terms

This research is confined to the study of the use of microcomputers as opposed to a mainframe computer or a mini-computer. A microcomputer is defined as a small, stand-alone, desktop computer that can be used and relocated at the discretion of the user and is capable of performing only one task at a time (McLean, 1986; Varnum, 1990). In contrast, a mainframe computer or a minicomputer is a larger, usually stationary machine that is able to perform more than one task at a time and can be centrally controlled and scheduled (McLean, 1986).

Microcomputer software is defined as a pre-written set of program codes designed to allow the microcomputer to perform a particular task.

Secondary schools are defined by the same parameters as used in the previous studies of McLean and Varnum: Schools having a grade configuration including one or more of grades 7-12 with no grade below seven. Although previous studies identified 19 administrative tasks utilizing the micro-computer (Varnum, 1990), administrative tasks in this research will be limited to those dealing with the following areas:

1. Student attendance--record of days, half-days, and/or periods the individual student is present or absent.
2. Student records--general student data including name, address, telephone, social security number, previous schools attended, and courses and grades.
3. Class scheduling--the arrangement of class offerings within a school, usually divided into equal periods of time.
4. Grade reporting--report cards, transcripts, class ranking, and grade point averages.
5. Word processing--the creation, revision, storage, and printing of a wide variety of documents such as letters, memos, newsletters, and reports.
6. Financial accounting--budgeting, activity accounts reconciliation, writing of warrants, purchase

orders, and cash-flow and other reports necessary to the operation of a school system.

Summary

The purpose of this study was to determine the type of computer software that is currently being used by Oklahoma secondary school principals to perform the daily administrative tasks associated with their position. While portions of this study were designed to replicate the earlier studies of McLean (1986) and Varnum (1990), additional questions were posed to determine what specific software is used to perform individual tasks, where the software was purchased, by whom it was purchased, who was actually using the microcomputer and software, and why and how that particular software was chosen.

Chapter II contains a review of literature focused on an overview of hardware development and administrative software development. Chapter III is used to provide a description of the research methodology used while the results of the study are provided in Chapter IV. A summary of the findings, along with conclusions, recommendations, and a commentary are presented in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

The review of literature conducted as an initial step in the development of this study was focused on the use of microcomputers by school administrators. This chapter therefore has been focused on the administrative use of the microcomputer, examples of computer software used in public schools across the nation, and issues related to the selection of administrative software. Persons interested in a review of literature focused more on the history of computing and the development of microcomputer hardware are referred to the previously mentioned studies of McLean (1986) and Varnum (1990).

Administrative Use of the Microcomputer

Administrators in public schools are using microcomputers more extensively than ever before (Varnum, 1990). The microcomputer has become smaller, faster, less expensive, and easier to use than its predecessors, the mainframe computer and the minicomputer (Crawford, 1987). While the microcomputer should not be viewed as the answer

to every problem administrators face daily, four situations occur that generally justify the use of a computer:

- (1) When massive amounts of data are processed through well-defined operations.
- (2) When data processing is highly repetitive.
- (3) When processing speed is important.
- (4) When the task can be performed by a computer, and manual performance is not practical (Crawford, 1987, p. 3).

Although these criteria may seem to question the necessity or even the desirability of using microcomputers in the smaller educational systems in Oklahoma, it is evident from past studies that the acquisition of microcomputers to perform administrative tasks in schools of all sizes has greatly increased (Green, 1991; McLean, 1986; Varnum, 1990; Williams & Siler, 1980).

Certain steps must be taken by school administrators before they can become effective microcomputer users. Hancock (1990) revealed the following five basic competencies.

- (1) They (administrators) should use microcomputers for personal productivity by learning the basic operations of word processing, database, and spreadsheet software.
- (2) Administrators should be aware of the many administrative tasks microcomputers can simplify, including student records, scheduling, attendance accounting, and grade reporting.
- (3) Building administrators should learn to determine appropriate microcomputer

applications for their schools by assessing the costs and benefits for potential applications and by understanding thoroughly the software applications.

- (4) Administrators should be informed enough to select the most appropriate software to meet their schools' needs. This includes knowing what questions to ask: Does this system do everything we want? Is it easy to learn/use? Is it compatible with the hardware/software we already have? Will much user training be required? Can it be upgraded or expanded?
- (5) After acquiring the software for administrative applications, school leaders should be able to develop thorough plans to implement their features, including staffing requirements, training needs, security, and maintenance procedures (p. 85).

Shalvoy and Morgan (1989) presented four good reasons for school district leaders to look closely at introducing the automated process into their administrative tasks.

- (1) An integrated computer system can solve problems in dealing with state mandates in producing and filing reports and test results.
- (2) A centralized printing system can alleviate the paper burden, and at the same time, customize reports at the school level.
- (3) A networked automated system closes the communication gap among a group of separate and different schools, and eases the transfer of important information from person to person.
- (4) A network creates the opportunity for electronic mail, and document retrieval and sharing. It also promotes the co-development of projects within and between school districts (p. 16).

Assistant Superintendent Al Swinyard of Pinellas County, Florida, stated that, for administrators,

our main goal is to deliver a better educational system. When a counselor or principal can look at a student's entire record, they can do a better job of designing a course structure for the student. They can call up the records, look at test scores, attendance, discipline, and other things, and make recommendations that will fit the individual student. The goal is not necessarily to make an educator's job more efficient but to be able to provide the information that will let them be more effective (Shalvoy & Morgan, 1989, p. 17).

Dr. Stanley Pogrow, a professor of educational administration at the University of Arizona, in his book Evaluations of Educational Administrative Software (1987), asserted that "the only reason to use computers is not to computerize but to save time" (p. 25). The only type of software program he perceived to save administrative time is one in which the time required to enter the data is substantially less than the time saved as compared to manually processing the information. This means that the software program must not only be able to accept the data entered but make the data available for all possible applications that may be needed at a later date. Pogrow termed this an automated system which differs from generic software programs such as LOTUS 1-2-3 or DBASE III PLUS that will only accept and apply data one application at a time. An automated program, also identified as an

integrated program, will allow the user to prepare reports and documents for all phases of educational administration (Pogrow, 1987).

Administrative Software

Administrators at Rosemount High School in Minnesota have been using microcomputers in their administrative offices since 1974 (Wilson, 1984). Rosemount, in 1984, was a school of some 2,500 students which had an administrative staff of five principals, all of whom had extensive experience with mainframe and minicomputers prior to the introduction of microcomputers. Virtually all of the correspondence coming from the school office was done using a word processing program. A spreadsheet program was used to enter and store the school's financial records and several database programs were utilized to store and retrieve other school data quickly and accurately. Attendance records of all students were maintained with specially designed software as was information dealing with athletics, transportation, school calendars, and class scheduling.

Orangeburg-Wilkinson High School, a school of 2,000 students in South Carolina, is another system in which microcomputers have been used as administrative tools (Noah, 1988). While teachers continued to turn in attendance

sheets at the beginning of every class, this information was encoded for entry into the microcomputer program. Students who were absent or tardy were identified immediately and parents were notified via computer-generated phone calls if a student failed to show up for one or more classes.

Computer-assisted registration at Briarcrest High School in Memphis, Tennessee, was proven to be both a time- and money-saver for the administration of the 1,500 students enrolled (Williams & Siler, 1980). The software used at Briarcrest for registration and scheduling was developed by one of the faculty members of the school and was tailor-made for that particular system.

In 1985, Kingsville, Texas, administrators decided to begin using microcomputers for scheduling and grade reporting (Williams & Williams, 1991). One of their biggest problems was that they found few computer software companies that produced a packaged program dealing with scheduling and grade reporting. After an extensive search, they found only one company that offered a program to perform the desired tasks and school staff members soon began to encode the required data into the machine. However, this unidentified program had been written for a Radio Shack TRS-80 and had to be transformed to an Apple IIe format. The use of the computer program was expanded in 1986 with the addition of attendance data and administrators later added an automatic

telephone dialing device with a recorded message to be used for contact with the parents or guardians of students who were absent for the day. The middle schools in Kingsville now have microcomputers which are used for grade reports, progress reports, attendance, scheduling, discipline, and automatic parental notification of unexcused absences or tardies. All of this was being accomplished without additional personnel.

Leaders at Falmouth High School on Cape Cod, Massachusetts, introduced microcomputers into the administrative offices for the purpose of determining the whereabouts of absent students (Waring, 1981). With 1,800 students in the school, classes that varied in length throughout the day, and a six-day class cycle, it had become very easy to "lose" students and extremely time-consuming to "find" them. After the administrators began to use the microcomputer to keep track of absenteeism, however, the time spent was greatly reduced, class cutting dropped, overall attendance improved, and attendance errors were vastly reduced.

Another computerized administrative program being used by over 3,000 school administrators in the nation is the OSIRIS program from Columbia Computer Company of Denver, Colorado ("Software Specs," 1987). OSIRIS is a fully integrated student information system that is flexible in

design and can be used in both public and private schools of all types and sizes (Berrett, 1984). The program consists of several modules that can be implemented separately or can be integrated into a complete package. The modules include a database for information about students, teachers, courses, and classes; a scheduling module; an attendance module; a discipline module; and a grade card and transcript module. The database module fits the suggestion by Crawford (1987) for allowing the operator to design the information in a way that will be convenient for encoding and retrieval. The student database includes such items as name, address, birth date, grade level, activities, locker number and combination, parent's name and telephone numbers, current schedule of classes, health records, enrollment date, withdrawal date, and other demographic information. The teacher database contains the teacher's name, address, class schedule, certification number and area of certification, room numbers, and additional data. The course database is comprised of the course number, the amount of credit allowed for the completion of the course, the class level (normal, advanced, or honor), any prerequisites for the course, the length of the class (period and semesters), and mathematical formulas for computing grade point averages. The class database consists of the class name, number, room number, grade level, and number of students allowed (Berrett, 1984).

An integrated program, such as OSIRIS, is an administrative tool designed to save hours of routine paper work completed by a school administrative staff during the school year (Berrett, 1984). By placing this program on a network of microcomputers, teachers in the system can be responsible for entering attendance information, grades, comments, discipline records, and other items dealing with students (Meyer, 1989). Counselors can make use of the scheduling module and the transcripts; the attendance officer can easily keep current of the necessary information about the whereabouts of the individual students; and the assistant principal can record the discipline information for students (Shalvoy & Morgan, 1989).

One consideration that disquiets many public school administrators is computer security (Marshall, 1982). Whereas information security in the past consisted of records kept in a locked filing cabinet in a locked office, today's administrators must be concerned with electronic vandalism, especially if staff are using a modem (an electronic device that allows a microcomputer to communicate with other computers via telephone lines) (Weinberg, 1985). OSIRIS, and many other integrated administrative software programs, include additional security functions by means of individual "passwords," thus allowing only authorized personnel to access the computer programs ("Software Specs,"

1987). However, even with the additional security functions, it remains true that virtually no computer installation can withstand a determined effort to compromise it (Marshall, 1982).

Arvid Nelson, superintendent of the Indian Springs (Illinois) School District described his recordkeeping process, prior to the introduction of the microcomputer in the administrative offices, as one involving "paper trails of enormous length and complexity" (McCarthy, 1989, p. 6). Now, however, the retrieval of information on a particular student's or teacher's schedule; a student's transcript, attendance record, or health records; or other demographic data (name, address, telephone number, age, sex, ethnicity, parents' names, previous schools attended, grades, disciplinary actions, etc.) can be viewed by an administrator with just the push of a button. Indian Springs personnel began using microcomputers in 1980 and wrote their own software programs because of their perception that very few educational administrative programs were in existence at that time. Through microcomputer use, Indian Springs administrators have eliminated the "paper trails." While they haven't changed the activities of the administrative office workers, they have changed the methods of performing those duties. Attendance is still taken every class period, but instead of gathering the attendance slips

from each teacher and entering them into a master attendance book, the attendance slips are prepared on special "scanner" forms that can be electronically "read" by the micro-computer. When the slips are gathered, they are fed through the scanner and the information is automatically entered into the students' records. Indian Springs staff are using a program produced by IBM called CIMS III (Comprehensive Information Management for Schools), an integrated program that requires a mainframe computer and individual micro-computer terminals (McCarthy, 1989). With the population of Indian Springs School District (one high school, one junior high school, five elementary schools, and one early childhood school, for a total student population of 2,350), one or two stand-alone microcomputers would not be able to fill the needs of the district.

CIMS III has a variety of features that have been favorably received by administrators (Buoni, 1989). One of the special features, called TAGS, allows the administrator to track user-defined groups of students. An example of its use is seen by the identification of all extra-curricular participants who must maintain a passing grade in order to participate in their chosen activity. By generating a list of all students who fall into this defined group, an administrator can easily see who, if anyone, is ineligible for the coming week's games. Students can be given any

number of TAGs and tracked by such variables as geographical areas or ethnic backgrounds. Another feature of the CIMS III program is its scheduling capability. Automated scheduling programs help simplify the burdensome, annual scheduling of students, courses, rooms, and teachers (McCarthy, 1989). The programs can take the tedium out of the job of being certain enough students are available for the class offerings, maintaining adequate numbers of required classes, and making sure that the majority of students get into the courses of their first choice. Other modules offered for CIMS III include grade reporting, transcripts, disciplinary records, attendance, and word processing.

Another district that uses CIMS III is Jefferson County, Colorado. With 119 schools (81 elementary, 18 junior high, 14 high school, and 6 special education), district administrators have found it imperative that student records be accurate and available. In the past, different parts of a student's records were often scattered in different file cabinets in different departments and even in different buildings. Now this information is available to the principal, superintendent, counselor, or teacher when needed (Melvin, 1989).

Administrators in the Pinellas County (Florida) School District had been using microcomputers for several years to

keep track of student data (Shalvoy & Morgan, 1989). They did not use an integrated program like CIMS III but were instead using special programs for individual applications. Word processing was performed by all administrators and central office personnel using a program called DISPLAY WRITE IV. By utilizing one program for all persons involved, the information produced by word processing could be transmitted by modem, by diskettes, or by "hard copy" (printed form), and everyone was assured that each microcomputer user would be able to read the transmitted material. Pinellas County staff members also used LOTUS 1-2-3, an electronic spreadsheet program, to keep track of the more than 3,000 telephones (over 1,000 lines) at 142 different sites throughout the district. With the use of LOTUS 1-2-3, the members of the administration were able to keep continuously informed of the expenses accrued by use of each phone, compare the expense from month to month or year to year, and acquire data useful in the preparation of the annual budget (Shalvoy & Morgan, 1989). A database program, DBASE III PLUS, was used to keep track of all inventory, acquisitions, leasing, and other items of information for which records had previously been maintained by hand and only updated periodically. Now, this information can be continuously updated by use of DBASE III PLUS and can be retrieved quickly, thus eliminating the time-

consuming search for files that had often been misplaced under the old manual system (Shalvoy & Morgan, 1989).

One recent entry into the administrative software market for public schools is a program produced by MACRO Educational Systems entitled SASI (Schools Administrative Student Information), which is designed to be used on IBM or other MS-DOS compatible microcomputers. It is being marketed by IBM and is advertised to be the eventual replacement for the CIMS III program mentioned earlier in this chapter. SASI can boast of one feature that no other administrative software has--student photographs as an additional means of identification (Charp, 1992). These photographs can be arranged into visual seating charts and the teacher (assuming a microcomputer monitor is in the classroom) can simply "click" on a student's photograph to send attendance data to the central office. Other series of "clicks" will allow access by the teacher, counselor, and/or principal to data about the student including test scores, attendance and discipline records, and transcripts.

Software Selection

In this age of expanding technology, more school administrators are required to make decisions for which they have not been trained or about which they have little or no knowledge (Williams & Williams, 1991). Teachers and

administrators receive a great deal of help, through reviews, when selecting appropriate software for instructional purposes, but administrators are finding a deficiency of evaluations to help them in the selection of administrative software (Valesky, Markus, & Meyers, 1986).

Choosing administrative software is a lengthy and detailed process if it is done properly because all administrative software programs are different and what is acceptable in one school district may not be usable in another. It is very important, therefore, that the person responsible for the selection of administrative software review several selections prior to making a choice for the individual school (Caissy, 1984).

Even if the software has been carefully selected by means of review and discussion with other users, there is no guarantee that it will be effective in the school district (Pogrow, 1987). There must be someone in the system who wants to make the system work and who is willing to tolerate some frustration during the implementation stage and spend some extra time and energy making certain the goals of the district are reached. There also must be good management procedures in existence prior to the purchase of the educational administrative software. A microcomputer and/or software program will not turn a weak administrator into a good one. What a microcomputer and carefully selected

educational administrative software can do is make good administrators better by lifting data burdens off their shoulders and giving them more time to deal with education (Pogrow, 1987).

Summary

Management, whether in business, government, or education, has always been concerned with the compilation and use of information. One of the major concerns in all phases of management is the amount of time required to perform the administrative duties connected with the operation of the organization. By utilizing the microcomputer and quality software, the management/administration of an organization can reduce this time spent and can become both more efficient and more effective.

As stated by Al Swinyard, Assistant Superintendent and Management Information System Director for the Pinellas County (Florida) Schools, "Our main goal is to deliver a better educational system" (Shalvoy & Morgan, 1989, p. 17). Instant information, provided via the microcomputer and quality administrative software, can reaffirm that what a school system is doing is right.

CHAPTER III

RESEARCH METHOD

The purpose of this study was to examine the selection and use of administrative software by secondary school principals in the State of Oklahoma. Additionally, this study was designed to provide a follow-up to the studies of McLean (1986) and Varnum (1990) regarding the integration of the microcomputer into the daily administrative tasks of Oklahoma secondary school principals. The research questions associated with this study, therefore, were designed to: (1) discover if Oklahoma principals are the primary users of the microcomputers located in the administrative offices; (2) identify a "standard" software program used by Oklahoma principals in the performance of their administrative duties; (3) determine how, where, and why the administrative software programs used by Oklahoma principals were purchased; and (4) ascertain the degree to which Oklahoma principals consider the use of the microcomputer and the selected software programs to increase their effectiveness.

In order to make a valid comparison of the current use of microcomputers in the State of Oklahoma by secondary school administrators to the findings of the McLean and Varnum studies, this research also included the five principal questions that were common to those efforts:

- (1) Do Oklahoma's secondary school principals use microcomputers as an administrative tool?
- (2) What demographic characteristics are associated with the use of microcomputers as an administrative tool?
- (3) How and for what purposes are secondary school principals in Oklahoma using microcomputer technology?
- (4) Does size of school or district have any relationship to administrative usage of a microcomputer?
- (5) What microcomputer hardware do secondary school principals in Oklahoma use?

Additional issues studied by Varnum (1990) were also used, including a survey of administrative tasks that can be performed with the aid of a microcomputer and an analysis of the principals' perceptions of microcomputer use in their schools.

The study is both descriptive and comparative in nature and was conducted by survey of a random sample of principals

and follow-up interviews with selected principals. This chapter contains a detailed description of the research method, including the population and sample, instrument, data collection, and data analysis.

Population and Sample

The population for this study consisted of all secondary school principals employed by independent school districts in the State of Oklahoma during the 1991-92 school year. A random sample of 300 of the 568 secondary school principals in the State of Oklahoma was selected for the initial instrument survey from the appropriate mailing list of the Oklahoma Public School Research Council by simply choosing every-other name and verified with the Oklahoma Educational Directory 1991/92 (Oklahoma State Department of Education, 1991). Follow-up interviews were scheduled with a random sample of participants equal to five percent of the respondents. A total of 300 surveys were mailed to the randomly selected subjects. Of the 221 respondents, 11 were contacted by telephone or in person for the follow-up, personal interviews.

Instrument

The initial survey instrument used in this research was slightly modified from the one used by Varnum (1990) in his

follow-up of McLean's 1986 study. Questions concerning software selection and use were added. The questionnaire thus consisted of multiple choice items for demographic and general information and other items to identify data regarding software purchase and use (See Appendix A). The survey questionnaire was developed in February of 1992 and was reviewed by a panel of experts, including professors from the Department of Educational Administration and Higher Education and the Department of Curriculum and Instruction of the College of Education at Oklahoma State University.

Section 1 of the instrument was designed to collect demographic and general information regarding school grade configuration, site enrollment, district enrollment, number of teachers, number of microcomputers in use at the school site, number of microcomputers used administratively at the school site, length in time of such use, means of word processing, and provisions for networking. Section 2 focused on the identification of brand names of the microcomputer(s) in use for secondary school administration, the individual(s) primarily responsible for the selection of these microcomputers, and the primary operator(s) of the microcomputer(s) used for administrative purposes. Section 3 centered on questions about the administrative task(s) performed using the microcomputer(s), the name(s) of the software program(s) used, the individual(s) primarily

responsible for the selection of the software, why the software was chosen, and the degree of satisfaction with the overall performance of the software used for administrative functions. This section required the participant to place a checkmark beside the administrative task(s) performed using a microcomputer and then list, by name, the software that was currently in use. Section 4 sought background information on the individual completing the questionnaire, and Section 5 was designed to provide follow-up to the study by Varnum (1990) regarding principals' perceptions of how the microcomputer has affected their management environments.

Personal interviews were conducted both by telephone and in person. Identical questions were asked of all persons interviewed (See Appendix B), but various additional queries were explored within each interview depending upon responses given to the original questions. The information gained through the personal interviews was used to clarify answers given on the survey instrument and to gather additional information regarding why, how, and where administrative software was purchased.

Data Collection

Anonymity was assured to the original participants as well as to those contacted in person. Therefore, in the

section of Chapter IV dealing with the analysis of the personal interview data, care was taken to not identify any of the participants by name, school name, or section of the state.

The survey instrument was mailed to the sample of 300 Oklahoma secondary principals with a cover letter (See Appendix C) explaining the research as well as a self-addressed stamped envelope for the return of the completed questionnaire. The instrument was coded and used for identification of the sender so that additional follow-up studies could be conducted. The respondents were considered to be representative of the total population of secondary school principals in the State of Oklahoma due to the random selection. In addition, personal interviews with five percent of the respondents were used to gather additional information and add clarity to the questionnaire.

The initial mailing of the survey and cover letter was done on May 22, 1992, with a suggested return date of June 1, 1992. By June 5, 1992, a total of 150 responses had been received and a second letter (See Appendix D) was sent to those who had not responded to the first request. In this second letter, the principal was asked to supply the earlier requested information by a new suggested due date of June 12, 1992. This resulted in an additional 71 responses providing a total return of 221 responses (73.6%). Of the

221 responses, two were returned blank (one respondent "just didn't have the time to answer"; another "had already filled out seven previous surveys and did not wish to do any more"), several others left sections of the survey blank, and still others skipped particular questions. At this time the decision was made not to engage in additional follow-up efforts. The 219 completed responses included partial responses and formed the database that was used in the analysis.

Analysis of Data

The statistical procedures used in analyzing the collected data were both descriptive and comparative in nature. Findings for each of the research questions are presented in Chapter IV. Data were analyzed in terms of central tendencies and percentage distributions as well as probabilities of relationship computed with the Pearson Chi-Square Test used to estimate the likelihood that some factor other than chance accounts for the possible apparent relationship (Best, 1981). Analysis of the data gathered through personal interviews, also presented in Chapter IV, was ethnographic in nature.

Throughout Chapter IV, the graphs, tables, and text show varied totals of respondents. This was caused by the lack of response by some of the participants to some

questions. As noted earlier, a total of 221 instruments were returned with 219 being determined usable but, of those 221, some respondents' items were labeled "not reported" and therefore were not computed in the total statistics for those particular questions.

Summary

The population for this study consisted of a random sample of 300 (52%) of the 568 principals in Oklahoma secondary schools (a configuration of more than one of grades 7-12 with no grade below seventh). An existing instrument was modified specifically for this study to determine the use of microcomputer software by these administrators in their daily operations of administration. A total of 221 questionnaires were returned with 219 of them being usable. The statistical procedures used in analyzing the collected data were both descriptive and comparative in nature. Additional information was gained through the personal follow-up interviews.

CHAPTER IV

RESEARCH FINDINGS

This chapter contains the findings of the data analysis for this study. After a section on demographics, including a comparison among the respondents of this and the two previous research projects by McLean (1986) and Varnum (1990), the second segment contains a review of the data from the questionnaire organized according to the research questions that concern the comparison of the three studies and specifically center on the five original questions asked by McLean in 1986 and again by Varnum in 1990. The third section of the chapter is devoted to the analysis of survey data on the additional research questions presented in the current study. The final portion also is focused on those questions and provides the analysis of interview data.

Demographics of Respondents

Figure 1 compares the current study with two previous studies by McLean (1986) and Varnum (1990) by displaying the four major categories of grade configuration making up the secondary schools represented by the respondents. The most prominent configuration in both the current study (N=219)

and the McLean study (N=466) was the one including grades 9-12. While McLean reported 41% of the schools to have a configuration of 9-12, the current study reports 42%. Varnum's 1990 study (N=113) varied from this pattern and reported that only 22% of the responding schools had this configuration. A comparison of the three studies shows a greater amount of consistency in the schools reporting a grade configuration of 7-12, as well as the next category of 7-9. It should be noted that the 1986 McLean study combined those schools having a grade configuration of 9-12 and 10-12 into one category labeled "high school" and is represented in Figure 1 as a configuration of 9-12, therefore no data from the McLean study are shown in Figure 1 for the 10-12 category. The balance of responding schools in the three studies is comprised of grade configurations including 11-12, 7-8, 9-10, K-12, and 8-12. McLean (1986) reported 15% of his respondents within this category, Varnum reported 35%, and the current study reports 8%. In all three studies, a secondary school was defined as one comprised of one or more of grades 7-12 with no grade below seven.

Figure 2 depicts the distribution of respondents by age. Again, comparing the previous two studies with the current research shows an increase in the percentage of younger administrators and a decrease in the percentage of older administrators. McLean reported that 14% of

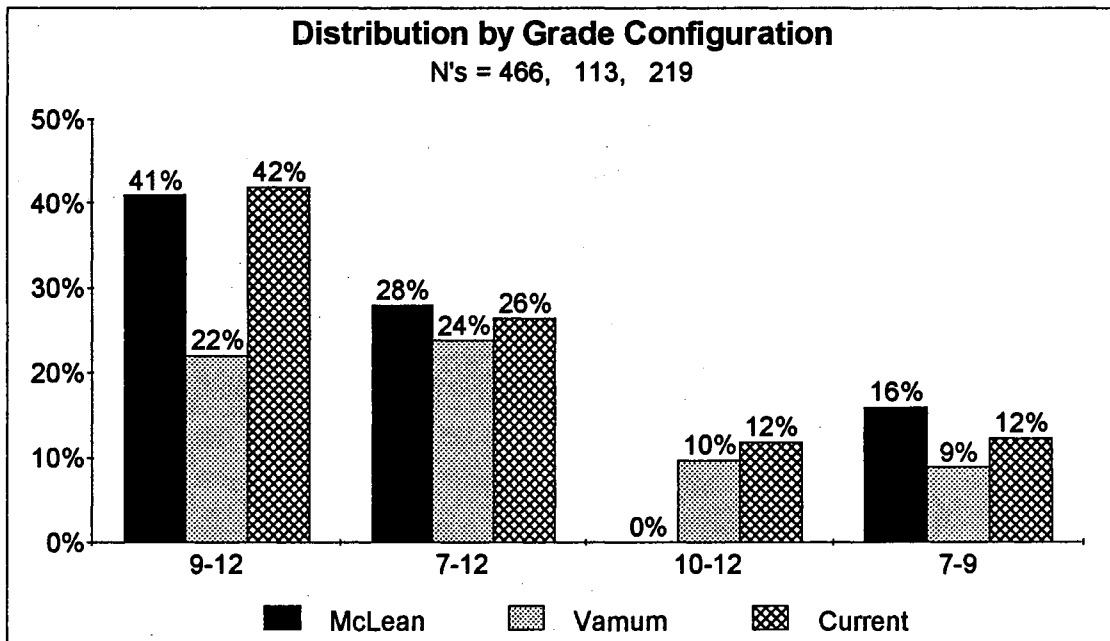


Figure 1. Distribution of respondents by grade configuration of schools

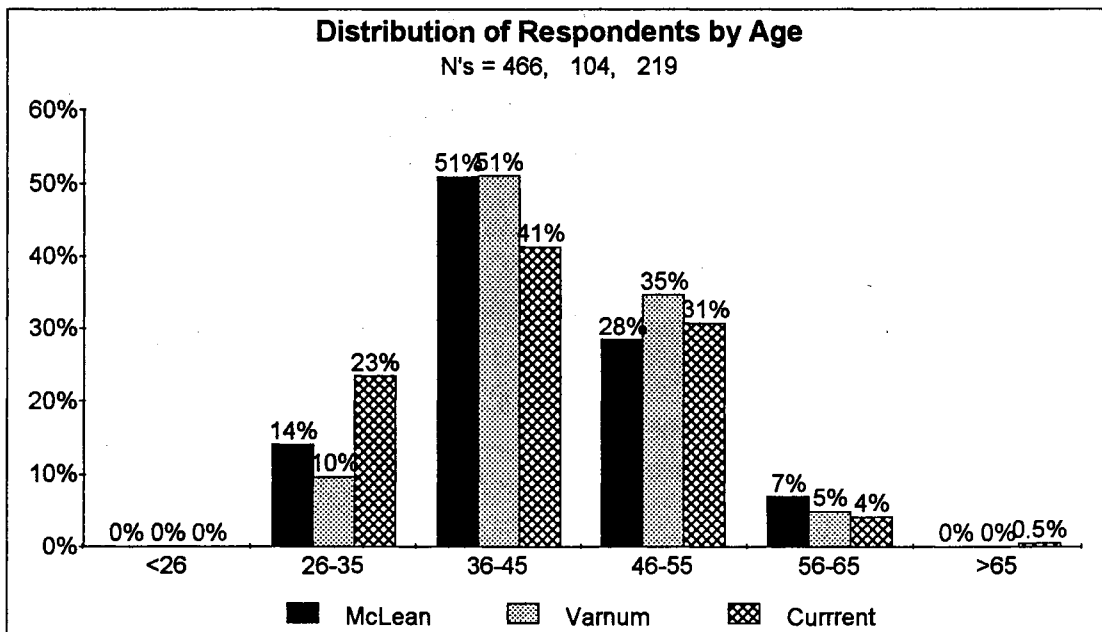


Figure 2. Distribution of respondents by age of Principal

respondents were under the age of 35, while Varnum reported that this same age comprised 10%. In the current study, 23% of the respondents were within the age group under 35. Conversely, the percentage of respondents over the age of 56 has decreased from McLean's study (7%) and Varnum's study (5%) to a current response of 4.5%.

In the 1986 study by McLean, 96.6% of the participants were male and only 3.4% were female. Varnum's 1990 study did not address the variable of gender. The results of the current study show an increase in the proportion of female administrators to 7.3%.

Administrative experience is another demographic variable that was analyzed in all three studies. The distribution of respondents by number of years of administrative experience is shown in Figure 3. The responses were grouped into categories of 5 years or less, 6-10 years, 11-15 years, and over 15 years of administrative experience. The distribution of respondents by years of experience in the current study varies little from that of the two previous studies. While the current study shows that 21% of the responding administrators had less than five years of experience, McLean showed 27% and Varnum reported 33% in that category. Administrators with 6-10 years of experience comprised 32% of the respondents in the current study. McLean's 1986 study had this same group representing

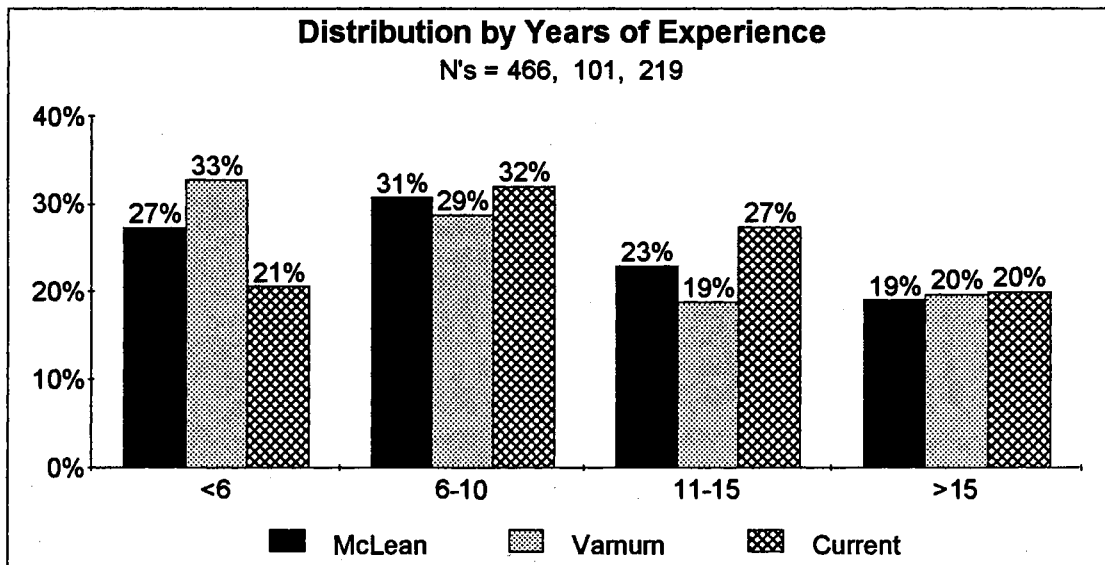


Figure 3. Distribution of respondents by years of administrative experience

31% of the respondents and Varnum in 1990 reported this group at 29%. For the category of 11-15 years of experience, the current study found 27% of the administrators represented, while the McLean study had 23% and the Varnum study had 19% in this group. For the last grouping, those with more than 15 years of experience, McLean and Varnum reported 19% and 20% of the respondents respectively while the current study had 20% of respondents in that category.

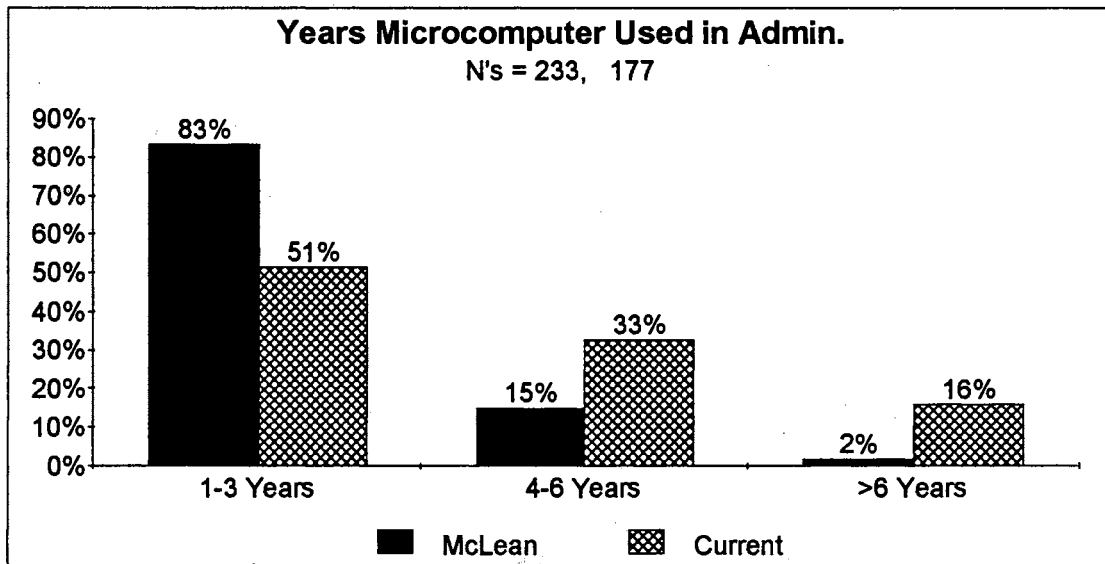


Figure 4. Distribution of respondents by number of years microcomputer used as an administrative tool.

Another topic of inquiry in all three studies, but not reported in Varnum's 1990 study, concerned the length of time microcomputers had been used as administrative tools in the respondents' schools. Figure 4 presents this information and shows that while only 2% of the respondents in the McLean study had been using microcomputers for more than six years, the current study shows an increase in this category to 16%. Similarly, the proportion of those reporting administrative computer use for less than three years has decreased from McLean's findings of 83% to only 51% in the current study.

In summary, the comparison of demographic data among the current study and the two previous studies of McLean (1986) and Varnum (1990) shows areas of stability as well as areas of change. The current study was based on a sampling of the 568 secondary school principals for the year 1991, a decrease in the total number of such administrators from both the 716 secondary school principals noted by Varnum (1990) and the 625 noted by McLean (1986).

Grade configuration in all three studies remained consistent. Both McLean's 1986 study and the current study report the dominant grade configuration of Oklahoma secondary schools to comprise grades 9-12, while Varnum (1990) reported a grade configuration of 7-12 to be the most dominant. An increase in the proportion of schools with the grade configuration of 10-12 is shown when the three studies are compared, as is a decrease in the traditional "junior high" configuration of grades 7-9.

The percentage of Oklahoma secondary principals under the age of 35 has increased, while the percentage of administrators 55 and older has decreased. Oklahoma secondary school principals responding to the current study reported more years of administrative experience than did those in either of the two previous studies. The continued use of the microcomputer in the administrative offices is evident by the increase in the number of years micro-

computers were reported in use. Finally, while certainly not approaching equality, there has been an increase in the number of female secondary principals in Oklahoma.

Use of Microcomputers as Compared
to McLean and Varnum

One objective of the current study was to replicate portions of the previous studies by McLean (1986) and Varnum (1990) with an intent to discover and analyze similarities and/or changes in the respondents' answers. The five questions originally asked by McLean in 1986, and again by Varnum in 1990, were repeated in the current study.

- (1) Do Oklahoma's secondary school principals use microcomputers as an administrative tool?
- (2) What demographic characteristics are associated with the use of microcomputers as an administrative tool?
- (3) How and for what purposes are secondary school principals in Oklahoma using microcomputer technology?
- (4) Does size of school or district have any relationship to administrative usage of a microcomputer?
- (5) What microcomputer hardware do secondary school principals in Oklahoma use?

This portion of the chapter is used to report the findings from these questions.

Degree of Administrative Use

One question asked in all three studies was designed to determine the degree of administrative use of microcomputers by Oklahoma secondary school principals. As shown in Table I, the McLean study contained a report that exactly one half of the Oklahoma secondary principals were using microcomputers as administrative tools, the Varnum study reported this number to have been increased to over 80%, and the current study shows an additional increase in the percent of reported microcomputer users to a level of almost 90% of Oklahoma secondary school administrators.

TABLE I
MICROCOMPUTER USE AS A SECONDARY
SCHOOL ADMINISTRATIVE TOOL

Study	Percent of Schools	
	Use	Don't Use
McLean (1986, p. 30) (N=466)	50%	50%
Varnum (1990, P. 46) (N=111)	82%	18%
Current Study (N=219)	88%	12%

Microcomputer Use and Demographic Variables

The second question used in the previous studies focused on the possible relationship(s) between the respondents' age, level of education, and years of administrative experience and their use of microcomputers. In order to examine the relationship of the principal's age to microcomputer use, the respondents were divided into four age categories: under 36 years of age, 36-45 years of age, 46-55 years of age, and over 55 years of age. Table II shows that there was not a statistically significant correlation, computed with the Pearson Chi-Square Test, between the respondent's age and microcomputer use ($p > .05$) even though data from all three studies show younger respondents are more likely to use microcomputers. The finding in the current study is thus consistent with the two previous studies. A reprint of the statistical tables from both the McLean and Varnum studies is presented in Table II for comparison purposes.

The analysis of the relationship between the highest degree held by the secondary principal and the use of the microcomputer as an administrative tool is presented in Table III. As in the previous studies by McLean and Varnum, the participants were divided into four major degree categories: bachelor, master, specialist, and doctorate. The majority (74.8%) of the respondents to the current

TABLE II
 RELATIONSHIP BETWEEN ADMINISTRATIVE USE
 OF MICROCOMPUTERS AND PRINCIPAL'S AGE

Age	Administrative Use of Microcomputer					
	yes		no		Total	
	N	%	N	%	N	%
McLean Study (1986, p. 32)						
Under 35	30	46.2	35	53.8	65	13.9
36 to 45	119	50.2	118	49.8	237	50.9
46 to 55	63	50.8	65	49.2	132	28.3
Over 55	<u>17</u>	<u>53.1</u>	<u>15</u>	<u>46.9</u>	<u>32</u>	<u>6.9</u>
Totals	233	50.0	233	50.0	466	100.0
Pearson Chi-Square = 0.54 P > .05 Rho = -.029 =====						
Varnum Study (1990, p. 47)						
Under 35	8	80.0	2	20.0	10	9.8
36 to 45	42	82.4	9	17.6	51	50.0
46 to 55	28	77.8	8	22.2	36	35.3
Over 55	<u>5</u>	<u>100.0</u>	<u>0</u>	<u>0.0</u>	<u>5</u>	<u>4.9</u>
Totals	83	81.4	19	18.6	102	100.0
Pearson Chi Square = 1.496 P = 0.683 Rho = -.0070 =====						
Current Study						
Under 36	38	80.9	9	19.1	47	23.3
36 to 45	72	87.8	10	12.2	82	40.6
46 to 55	57	90.0	6	10.0	63	31.2
Over 56	<u>10</u>	<u>100.0</u>	<u>0</u>	<u>0.0</u>	<u>10</u>	<u>4.9</u>
Totals	177	87.6	25	12.4	202	100.0
Pearson Chi-Square = 3.867 P = 0.423 Rho = -0.129 =====						

TABLE III

RELATIONSHIP BETWEEN ADMINISTRATIVE USE OF MICROCOMPUTERS
AND THE HIGHEST DEGREE HELD BY THE ADMINISTRATOR

Highest Degree Held	Administrative Use of Microcomputers					
	yes		no		Total	
	N	%	N	%	N	%
McLean study (1986, p. 35)						
Bachelor	9	24.3	28	75.7	37	7.9
Master	185	52.4	168	46.7	353	75.8
Specialist	30	46.2	35	53.8	65	13.9
Doctorate	<u>9</u>	<u>81.8</u>	<u>2</u>	<u>18.2</u>	<u>11</u>	<u>2.4</u>
Totals	233	50.0	233	50.0	466	100.0
Pearson Chi-Square = 15.41 P < 0.002 Rho = 0.09						
=====						
Varnum study (1990, p. 49)						
Bachelor	1	100.0	0	0.0	1	1.0
Master	65	78.3	18	21.7	83	81.4
Specialist	12	92.3	1	7.7	13	12.7
Doctorate	<u>5</u>	<u>100.0</u>	<u>0</u>	<u>0.0</u>	<u>5</u>	<u>4.9</u>
Totals	83	81.4	19	18.6	102	100.0
Pearson Chi-Square = 2.972 P = 0.396 Rho = -0.1456						
=====						
Current Study						
Bachelor	6	85.7	1	14.3	7	3.5
Master	132	86.8	20	13.2	152	74.8
Specialist	31	91.2	3	8.8	34	16.7
Doctorate	<u>8</u>	<u>88.9</u>	<u>1</u>	<u>1.1</u>	<u>9</u>	<u>4.4</u>
Totals	177	87.7	25	12.3	203	100.0
Pearson chi-Square = 0.662 P = 0.956 Rho = -0.050						
=====						

survey fall into the masters degree sub-group which is comparable to the findings of the Varnum study (81.4%) and the McLean study (75.8%). While McLean (1986) reported a positive statistical correlation ($p < 0.002$) between administrators holding higher degrees and a tendency toward the use of the microcomputer, no such correlation was found in either the Varnum (1990) study ($p = 0.396$) or the current study ($p = 0.956$).

Another variable associated with the second research question is the relationship that might exist between the use of the microcomputer as an administrative tool and the number of years of administrative experience of the respondent. Table IV depicts the results of the current study and its predecessor studies and shows that there is no correlation between the number of years of administrative experience and the use of the microcomputer for administrative tasks. Both of the previous studies reported that the majority of respondents had 10 years or less of administrative experience (McLean, 57.8%; Varnum, 60.6%). The current study also shows the majority of respondents having 10 years or less administrative experience, but to a slightly lesser degree (51.2%). Also, the proportion of administrators with more than 15 years of experience has increased from the findings of the previous studies and the percentage with less than five years of experience has

TABLE IV

RELATIONSHIP BETWEEN ADMINISTRATIVE USE OF THE MICROCOMPUTER
AND THE LENGTH OF ADMINISTRATIVE EXPERIENCE

Years of Administrative Experience	Administrative Use of Microcomputers					
	yes		no		Total	
	N	%	N	%	N	%

McLean study (1986, p. 36)

Less than 5 years	59	46.5	68	53.5	127	27.3
6 to 10 years	65	45.5	78	54.5	143	30.0
11 to 15 years	62	57.9	45	42.1	107	23.0
16 to 20 years	31	56.4	24	43.6	55	11.8
More than 20 years	<u>16</u>	<u>47.1</u>	<u>18</u>	<u>52.9</u>	<u>34</u>	<u>7.3</u>
Totals	233	50.0	233	50.0	466	100.0

Pearson Chi-Square = 5.53 P > .05 Rho = .07

Varnum Study (1990, p. 51)

Less than 5 years	26	83.9	5	16.1	31	31.3
6 to 10 years	19	65.5	10	34.5	29	29.3
11 to 15 years	17	89.5	2	10.5	19	19.2
16 to 20 years	6	75.0	2	25.0	8	8.1
More than 20 years	<u>12</u>	<u>100.0</u>	<u>0</u>	<u>0.0</u>	<u>12</u>	<u>12.1</u>
Totals	80	80.8	19	19.2	99	100.0

Pearson Chi-Square = 6.569 P = .087 Rho = -.0847

Current Study

Less than 5 years	34	82.9	7	17.1	41	20.2
6 to 10 years	53	84.1	10	15.9	63	31.0
11 to 15 years	53	93.0	4	7.0	57	28.1
16 to 20 years	25	92.6	2	7.4	27	13.3
More than 20 years	<u>13</u>	<u>86.7</u>	<u>2</u>	<u>13.3</u>	<u>15</u>	<u>7.4</u>
Totals	178	87.7	25	12.3	203	100.0

Pearson Chi-Square = 3.696 P = 0.449 Rho = -0.105

TABLE V

RELATIONSHIP BETWEEN ADMINISTRATIVE USE OF MICROCOMPUTERS
AND THE GRADE CONFIGURATION OF A SCHOOL

Grade Configuration	Administrative Use of Microcomputers					
	yes		no		Total	
	N	%	N	%	N	%
McLean Study (1986, p. 45)						
7-12	53	41.1	76	48.9	129	27.7
9-12 (includes 10-12)	107	55.7	85	44.3	192	41.2
7-9	41	55.4	33	44.6	74	15.9
Other	<u>32</u>	<u>45.1</u>	<u>39</u>	<u>54.9</u>	<u>71</u>	<u>15.2</u>
Totals	233	50.0	233	50.0	466	100.0
Pearson Chi-Square = 8.18 P < 0.05 Rho = -0.01 =====						
Varnum Study (1990, p. 58)						
7-12	22	84.6	4	15.4	26	23.6
9-12	22	88.0	3	12.0	25	22.7
10-12	9	100.0	0	0.0	9	8.2
7-9	6	60.0	4	17.4	10	9.0
Other	<u>31</u>	<u>79.5</u>	<u>8</u>	<u>20.5</u>	<u>39</u>	<u>35.5</u>
Totals	91	82.7	19	17.2	110	100.0
Pearson Chi-Square = 14.142 P = 0.292 Rho = 0.0135 =====						
Current Study						
7-12	48	87.3	7	12.7	55	27.1
9-12	71	85.5	12	14.5	83	40.9
10-12	27	100.0	0	0.0	27	13.3
7-9	19	82.6	4	17.4	23	11.3
Other	<u>13</u>	<u>86.7</u>	<u>2</u>	<u>13.3</u>	<u>15</u>	<u>7.4</u>
Totals	178	87.7	25	12.3	203	100.0
Pearson Chi-Square = 13.823 P = 0.086 Rho = -0.022 =====						

decreased. As in the studies by McLean and Varnum, the current study shows that whether a principal has been in school administration for less than 5 years or more than 20 is not a significant factor in determining whether the microcomputer is used as an administrative tool.

Table V depicts the relationship between the various grade configurations of the respondents' schools and the use of the microcomputer as an administrative tool. No significant correlation was shown in the current study or in the 1990 Varnum study; however, McLean (1986) did report a significant correlation ($p < 0.05$) between grade configuration and the use of microcomputers as administrative tools which he used to support other findings related to school size. Results of all three studies are shown in Table V with the 1990 Varnum study findings aggregated to correspond to data from the other two studies.

Microcomputer Use in Administrative Tasks

The third research question common to the three studies was designed to determine the application of the microcomputers to administrative tasks. As reported in Chapter III, the respondents were asked to check those tasks for which a microcomputer was used and then list the name of the software program currently being used for each such task.

Table VI compares the results of microcomputer use in the administrative tasks reported by the three studies. McLean (1986) reported computerized class scheduling as the dominant use (57.5%) of the microcomputer in secondary schools, and Varnum (1990) reported the same primary use (48.9%). Data from the current study, however, while showing approximately the same percentage of use for class

TABLE VI
ADMINISTRATIVE TASKS IDENTIFIED BY RESPONDENTS
FOR WHICH THE MICROCOMPUTER IS USED

	<u>Percentage of Users</u>		
	McLean (1986) (N=233)	Varnum (1990) (N=90)	Current Study (N=219)
Word Processing	44.6	47.8	90.9
Attendance	42.9	46.7	85.6
Grade Reporting	35.6	40.0	81.4
Student Records	39.0	37.8	74.9
Accounting	31.3	28.9	68.4
Budgeting		22.2	55.4
Scheduling	57.5	48.9	53.1
Inventory	31.3	20.0	51.4
School Calendar	11.6	24.4	48.3
Personnel Records	26.1	22.2	25.7
Athletic		24.4	16.4
Transportation		14.4	15.4
Newsletters			33.7
Library/Media		35.6	
Guidance		16.7	
Data Bank Usage		14.4	
Instructional Mgmt.		12.2	
Spreadsheets	12.0		
Other uses	14.6	17.8	3.4

scheduling (53.1%), indicate that the most frequent use (90.8%) of the microcomputer is in word processing, followed by student attendance, grade reporting, student records, financial accounting, district or site budgeting, and then class scheduling. While the use of the microcomputer for class scheduling has remained fairly constant, other uses have increased by more than 50% including student attendance (42.9 % to 85.6%), grade reporting (35.6% to 81.4%), student records (39% to 74.9%), and those areas dealing with financial accounting and budgeting (31.3% to 68.4% and 22.2% to 55.4%, respectively). It should be noted that only the 1986 McLean study reported spreadsheets (12.0%) as one of the administrative tasks for which a microcomputer is used, and that Varnum (1990) also reported additional uses not reflected in the other two studies: library/media (35.6%), guidance (16.7%), data banks (14.4%), and instructional management (12.2%). Neither the McLean study nor the current study addressed those tasks. A new category, not found in either of the previous studies, is that of newsletters (33.7%).

School Size and Microcomputer Use

The fourth question to be analyzed had to do with the relationship between the school size (site enrollment) or district size (district enrollment) and the use of the

microcomputer as an administrative tool. All three studies showed a statistically significant ($p < 0.05$) positive relationship between the size of the school and use of the microcomputer for administrative tasks. The same positive relationship also was found to exist between the size of the district and the use of the microcomputer for administrative tasks. Table VII contains data regarding the relationship between the size of the district (total number of students enrolled in the entire district, regardless of grade) and the use of the microcomputer, while Table VIII depicts the relationship involving the size of the school site (number of students in the respondent's individual secondary school). In analyzing both of these variables, it was noted that the school size and the district size have a direct relationship to the use of the microcomputer as an administrative tool. In fact, only one respondent among those in districts with more than 1,000 students reportedly did not employ a microcomputer in the performance of administrative tasks. Every respondent with more than 300 students in the individual school reported administrative use of microcomputers.

While the comparison of the three studies confirms the relationship between the administrative use of the microcomputer and the school district size, it must also be noted that administrative use of the microcomputer has

TABLE VII

RELATIONSHIP BETWEEN USE OF THE MICROCOMPUTER
AS AN ADMINISTRATIVE TOOL AND DISTRICT SIZE

District size (no. of students)	Percentage of Administrative Use of Microcomputers					
	McLean (1986)		Varnum (1990)		Current Study	
	yes	no	yes	no	yes	no
< 301	36.0	64.0	55.0	45.0	72.4	27.6
301 to 500	36.8	63.2	93.3	6.6	78.4	21.6
501 to 1000	46.4	53.6	73.1	26.9	90.0	10.0
1001 to 5000	68.0	32.0	93.3	6.6	97.7	2.3
> 5000	62.2	37.8	93.3	6.6	100.0	0.0
Totals	50.0	50.0	81.1	18.9	87.3	12.5
Pearson Chi-Square =	33.07		15.859		17.636	
p <	0.0001		0.003		0.001	
Rho =	-0.25		-0.2878		-0.302	

TABLE VIII

RELATIONSHIP BETWEEN THE USE OF THE MICROCOMPUTER AS AN
ADMINISTRATIVE TOOL AND SCHOOL SITE ENROLLMENT

School size (no. of students)	Percentage of Administrative Use of Microcomputers					
	McLean (1986)		Varnum (1990)		Current Study	
	yes	no	yes	no	yes	no
< 100	36.0	64.0	54.5	45.5	70.6	29.4
101 to 300	40.8	59.2	76.0	23.9	83.7	16.3
301 to 500	53.0	47.0	89.6	10.3	100.0	0.0
501 to 1000	65.6	35.4	94.4	5.5	100.0	0.0
> 1000	71.0	29.0	100.0	0.0	100.0	0.0
Totals	50.0	50.0	81.8	18.2	87.6	12.4
Pearson Chi-Square =	-22.55		10.975		21.142	
p <	0.0002		0.027		0.000	
Rho =	-0.22		-0.3039		-0.315	

increased in districts in all size categories with the exception of those having between 301 and 500 students.

Hardware Identification

The fifth research question presented by both McLean and Varnum and continued in this study was designed to identify the brand name of the microcomputer hardware used in secondary schools for administrative tasks. Since respondents were given the opportunity to indicate more than one brand, the data presented in the tables indicate totals greater than the total number of schools reporting use of the microcomputer as an administrative tool. Table IX shows that the IBM or IBM-compatible microcomputer is currently used in 88.8% of the 179 respondents' schools in which the microcomputer is used as an administrative tool. In comparison, McLean (1986) reported IBM and IBM-compatible microcomputers being used in only 13.3% of the schools while Varnum (1990) reported 57.8% of the schools using such microcomputers. Another contrast among the three studies shows that the first choice of hardware in the McLean study, the Apple IIe, with 48.1% of the schools reporting its use, dropped to the second choice in the Varnum study (31.9%) and remains in second place in the current study but use has dropped to only 21.2%. Microcomputer brands identified as

TABLE IX
 MICROCOMPUTER BRANDS USED BY SECONDARY
 SCHOOLS AS ADMINISTRATIVE TOOLS

Brand of Microcomputer	Percentage of School Use		
	McLean (1986) (N=233)	Varnum (1990) (N=301)	Current Study (N=179)
IBM/IBM-Compatible*	13.3	57.8	88.8
Apple IIe	48.1	31.9	21.2
Tandy	0.0	10.0	5.0
Macintosh	0.0	0.0	10.1
Radio Shack III/IV	47.6	0.0	2.8
Other	28.3	0.3	0.0

* includes IBM compatibles other than Tandy

"other" included Osborn, Epson, Commodore, Franklin, and Texas Instrument.

A comparison was made between school size and the choice of microcomputers (Table X). In McLean's 1986 study, school size was an indicator of the brand of microcomputer chosen for administrative purposes. He indicated that the Apple IIe and Radio Shack III/IV microcomputers were most popular in schools with student populations of less than 1,000 while IBM and IBM-compatible computers were used more often in school sites having student populations over 1,000. Varnum's 1990 study continued to show that schools with less than 1,000 students were more likely to have Apple IIe and

TABLE X

RELATIONSHIP BETWEEN THE CHOICE OF
MICROCOMPUTER BRANDS AND SCHOOL SIZE

School Size	Percent of Use by Brand of Microcomputer					
	IBM*	Apple IIe	Macintosh	Tandy	RS III/IV	Other
<u>McLean Study (1986)</u>						
< 101	0.0	30.0	0.0	0.0	50.0	20.0
101- 300	7.2	35.1	0.0	0.0	32.0	25.8
301- 501	6.4	38.3	0.0	0.0	34.0	21.3
501-1000	11.8	38.2	0.0	0.0	38.2	15.8
> 1000	25.8	22.6	0.0	0.0	35.5	16.1
=====						
<u>Varnum Study (1990)</u>						
< 101	66.7	33.3	0.0	0.0	0.0	0.0
101- 300	34.0	45.5	0.0	20.5	0.0	0.0
301- 501	68.4	19.0	0.0	11.4	0.0	1.2
501-1000	50.0	39.0	0.0	2.0	0.0	0.0
> 1000	96.4	0.0	0.0	3.6	0.0	0.0
=====						
<u>Current Study</u>						
< 101	70.8	45.8	0.0	0.0	4.2	0.0
101- 300	87.0	27.3	11.7	5.2	2.6	0.0
301- 501	91.1	11.8	11.8	5.9	0.0	2.9
501-1000	100.0	8.3	8.3	4.2	4.2	0.0
> 1000	88.9	0.0	1.1	1.1	1.1	0.0
=====						

* includes IBM compatibles other than Tandy

Radio Shack III/IV microcomputers. However, the current study data show that, while the Apple IIe is still a moderately popular choice of schools with less than 300 students, the IBM/IBM-compatible is the preferred hardware choice in the majority of the school sites, regardless of size.

Principals' Perceptions of Microcomputer Use

In addition to the five research questions common to all three studies, Varnum (1990) expanded the research to include secondary school principals' perceptions of microcomputer usage. The current study repeated the five statements by Varnum in order to continue the comparisons of the related studies.

- (1) Microcomputers are used too much for the management tasks in my school.
- (2) Microcomputer use has saved time or other resources in my school office.
- (3) I would like to use microcomputers to a greater extent in my school's management tasks.
- (4) I would have more time to engage in instructional leadership if microcomputer were used more extensively for management tasks in my school.

The administrators were asked to respond to the four questions by choosing either to strongly disagree, disagree, remain neutral/not sure, agree, or strongly agree. Table XI

TABLE XI

PRINCIPALS' PERCEPTIONS OF DEGREE OF MICROCOMPUTER USE

Question: Microcomputers are used too much for the management tasks in my school.

Varnum Study (1990, p. 65)
(N=99)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
	55.6%	37.4%	5.0%	0.0%	2.0%

P = 0.385

Current Study by Gender
(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
Male	65.1%	20.0%	6.5%	.5%	.9%
Female	5.6%	1.4%	0.0%	0.0%	0.0%

P = 0.903

Current Study by Age
(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
> 25--No respondents					
26-35	20.6%	2.8%	0.0%	0.0%	0.0%
36-45	25.7%	12.2%	2.8%	.5%	.5%
46-54	1.9%	5.1%	2.8%	0.0%	.5%
56-65	2.8%	.9%	0.0%	0.0%	0.0%
< 65	0.0%	.5%	0.0%	0.0%	0.0%

P = 0.429

reviews the data provided by Varnum's study for all respondents and presents new data showing the relationship between the principal's age and gender and the answer to the first question. In Varnum's study, when asked if the microcomputer was being used too much for administrative tasks, 93% of the total respondents responded with answers that either disagreed or strongly disagreed with the statement. The current study data, when broken down by gender, confirms this same response with 92.1% of the respondents answering in the same fashion, and is further supported when viewed as a relationship to age with 92.5% of the respondents answering negatively, regardless of their age. It is interesting to note that 100% of the female respondents disagreed with the statement that microcomputers are being used too much for school's management tasks as compared to 85.1% of the male respondents.

Table XII deals with the principals' perceptions as to whether the use of a microcomputer may save time or other resources in the school office. Varnum (1990) reported that 86.4% of all respondents answered by either agreeing or strongly agreeing with this statement. While the current study reflects the same results, the percentage has dropped to 78.8% with the strongest dissenting answer being given by 36 to 45 year old males, 6.6% of whom either disagreed or

TABLE XII

PRINCIPALS' PERCEPTIONS OF SAVINGS CREATED
BY MICROCOMPUTER USE

Question: Microcomputer use has saved time or other
resources in my school office.

Varnum Study (1990, p. 66)

(n=96)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
	0.0%	5.2%	8.3%	35.4%	51.0%

P = 0.000

Current Study by Gender

(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
Male	8.5%	5.6%	6.1%	28.6%	44.1%
Female	.5%	0.0%	.5%	2.8%	3.3%

P = 0.848

Current Study by Age

(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
> 25--No respondents					
26-35	1.9%	1.4%	1.4%	7.6%	11.3%
36-45	3.8%	2.8%	2.8%	11.8%	20.3%
46-55	2.4%	.9%	2.4%	11.3%	13.2%
56-65	.9%	0.0%	0.0%	.9%	2.4%
< 65	0.0%	.5%	0.0%	0.0%	0.0%

P = 0.131

strongly disagreed with the statement that the use of a microcomputer has saved time in their schools' offices.

The next statement presented by Varnum (1990) and repeated in the current study pertained to the principals' desire for an increase in microcomputer use in the management tasks of their schools. Data from this item are presented in Table XIII and again reflect a similar answer in the current study (83.3%) to that reported in Varnum's study (83%) with the vast majority of the respondents either agreeing or strongly agreeing with the desire to increase microcomputer use in their school's management tasks. The most notable variance from the prevalent answer came from the respondents in the 46 to 55 year range with 8.4% of them answering either as neutral or disagreeing that the microcomputer should be used to a greater extent.

Table XIV presents data from the fourth statement asked by Varnum (1990) and repeated in the current study. This item was concerned with principals' perceptions of whether increased microcomputer use would have a tangible effect on the amount of time the principal would have to spend on instructional leadership. This is the one item in both studies that showed the most varied responses. Varnum (1990) reported responses of 2% strongly disagreeing, 10% disagreeing, 28% neutral, 28% agreeing, and 28% strongly agreeing with the question. In comparison, the current

TABLE XIII

PRINCIPALS' PERCEPTIONS OF INCREASED MICROCOMPUTER USE

Question: I would like to use microcomputers to a greater extent in my school's management tasks.

Varnum Study (1990, p. 67)

(N=100)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
	2.0%	2.0%	13.1%	37.4%	45.6%

P = 0.001

Current Study by Gender

(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
Male	2.8%	2.8%	9.7%	26.4%	50.9%
Female	0.0%	0.0%	1.4%	2.8%	3.2%

P = 0.622

Current Study by Age

(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
< 25--No respondents					
26-35	0.0%	0.0%	1.8%	3.7%	17.7%
36-45	1.4%	1.4%	2.8%	14.9%	20.9%
46-55	1.4%	1.4%	5.6%	9.3%	13.0%
56-65	0.0%	0.0%	.5%	1.4%	2.3%
> 65	0.0%	0.0%	.5%	0.0%	0.0%

P = 0.027

TABLE XIV

PRINCIPALS' PERCEPTIONS OF IMPACT OF MICROCOMPUTER USE ON
INSTRUCTIONAL LEADERSHIP

Question: I would have more time to engage in instructional leadership if microcomputers were used more extensively for management tasks in my school.

Varnum Study (1990, p. 68)
(N=100)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
	2.0%	10.0%	28.0%	28.0%	32.0%

P = 0.0074

Current Study by Gender
(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
Male	3.2%	3.2%	20.4%	27.3%	38.4%
Female	0.0%	.5%	2.3%	1.8%	2.8%

P = 0.812

Current Study by Age
(N=200)

	Strongly Disagree	Disagree	Neutral Not Sure	Agree	Strongly Agree
< 25--No respondents					
26-35	0.0%	0.0%	3.7%	6.5%	13.0%
36-45	1.4%	1.9%	7.9%	13.5%	16.7%
46-55	1.9%	1.9%	9.3%	8.4%	9.3%
56-65	0.0%	0.0%	.9%	.9%	2.3%
> 65	0.0%	0.0%	.5%	0.0%	0.0%

P = 0.264

study shows the respondents answered 3.2%, 3.7%, 22.7%, 29.1% and 41.2% respectively. While this is an increase in the proportion of the respondents who strongly agree, there continues to be a major divergence in their answers.

Administrative Use of Microcomputers As Identified Only by The Current Study

Additional data were sought in the current study regarding the management tasks performed with the use of the microcomputer, the identification of the microcomputer user(s), the software being used to perform administrative tasks, and the reason(s) that particular software was purchased.

Following the identification of the administrative tasks using the microcomputer, the survey instrument contained a space for the administrator to identify the brand name of the software being using to perform the identified task. Table XV indicates the two most frequently listed software packages chosen by Oklahoma secondary school principals for use in each of the administrative tasks previously identified in Table VI.

While this portion of the study was designed to identify the brand names of microcomputer software, it must be noted that in all administrative tasks presented in Table VI, from three percent to five percent of the respondents

TABLE XV
SOFTWARE MOST USED BY RESPONDENTS
TO PERFORM ADMINISTRATIVE TASKS*

Task	Software	
	Greatest Use	Next Greatest Use
Word Processing	WordPerfect	PFS 1st Choice
Student Attendance	OSIRIS	ADPC
Grade Reporting	OSIRIS	ADPC
Student Records	OSIRIS	ADPC
Financial Accounting	ADPC	MAS, Inc.
District/Site Budgeting	ADPC	MAS, Inc.
Class Scheduling	OSIRIS	MAS, Inc.
Inventory	PFS 1st Choice	AppleWorks
School Calendar	OSIRIS	Print Shop
Newsletters	WordPerfect	Microsoft Works
Personnel Records	SYNTEC	ADPC
Athletic Scheduling	MicroSoft Works	AppleWorks
Transportation	OSIRIS	MAS Inc.

* A full chart showing all software packages identified is presented in Appendix E.

reported using administrative software on a district mainframe computer rather than microcomputer software. The principals who reported such use all had school site enrollments above 1,000 students.

The software package that the largest proportion of secondary school administrators reported in use, OSIRIS, is an integrated software program consisting of several modules to perform different administrative tasks and was reviewed in detail in Chapter II. The software package known as

ADPC, an integrated program provided by a data processing firm in Ponca City, Oklahoma, and the accounting program of "MAS Inc.," Municipal Accounting Service of Shawnee, were selected as having the next greatest use of all software packages.

Another question in the survey was designed to identify the administrative user(s) of the microcomputer(s) and software. Respondents were asked to indicate the user(s) and were allowed to provide more than one answer. They were asked to choose users from the categories of building principal, superintendent, secretary, student aide, or others. "Others" listed included assistant principal, counselor, and computer instructor. Among the respondents who had identified only one user, the majority (93.4%) identified the secretary as the sole user of the microcomputer. For the responses identifying more than one user, the percentage of principals identifying the secretary along with one or more other user(s) increased to 95.3%. Table XVI depicts the percentage of both the single user, identified by respondents who only indicated one user of the microcomputer, and the same individual when reported as one member of a number of users of the microcomputer(s). For example, only 1.8% of the respondents reported the counselor as the single user of administrative microcomputers, but 8.0% of the respondents included the counselor as one of the

users of administrative microcomputers along with other members of the staff. The information presented in Table XVI clearly shows that the microcomputer is being used administratively in the schools, but that the administrative tasks are being handled predominantly by the administrators' secretaries, not by the administrators.

Another focus of this study was related to the selection of the particular software program(s) used to perform the administrative tasks identified in Table XV.

TABLE XVI

USERS OF MICROCOMPUTERS
FOR ADMINISTRATIVE TASKS

User	Percentage as Individual N=106	Percentage as Group N=179
Secretaries	93.4%	95.3%
Superintendent	3.8%	33.7%
Building Principal	0.0%	15.7%
Counselor	1.8%	8.0%
Student Aid	0.0%	3.5%
Computer Instructor	0.0%	2.4%
Assistant Principal	1.0%	2.3%

Two questions were included in the survey to identify the individual(s) responsible for the selection of administrative software and the reason(s) why the particular software was chosen. For both questions, the respondents were given the opportunity to mark more than one selection. Table XVII lists the persons identified as responsible for the selection of software and Table XVIII describes the major reasons given for that selection. As can be seen from the figures in Table XVII, when a single person was responsible for the selection of administrative software, the superintendent made the decision in most cases (50.7%); however, if a joint decision concerning the software selection was made based on input from the intended users, the other central office personnel were included in the decision more than anyone else (82.1%).

The final information specifically sought in this study had to do with the reason(s) secondary school administrators selected the software packages they were using. Respondents were asked to provide, in rank order, the reasons for the selection of administrative software. It was expected that the purchase of software packages would be based mainly upon suggestions from hardware and/or software dealers. However, when the responses were divided by rank order, the most frequent response (45.8%) identified a recommendation from another administrator as the reason for software selection.

TABLE XVII
 PERSON(S) RESPONSIBLE FOR THE
 SELECTION OF ADMINISTRATIVE SOFTWARE

Staff	Level of Involvement	
	Sole Responsibility	Group Input
Superintendent	50.7%	51.4%
Other C/O Personnel	25.6%	82.1%
Building Principal	18.2%	28.5%
Computer Instructor	2.1%	8.4%
Software Committee	2.1%	1.7%
Counselor	1.3%	1.7%
Assistant Principal	0.0%	1.1%

The second most frequently cited reason (29.4%) was a recommendation from a software dealer, while the third most frequent response was software reviews from periodicals (19.7%). As can be expected in this type of survey, some respondents placed different emphasis on the importance of the choices; therefore, one respondent may have selected a review from a periodical as the number one reason for software selection while another respondent may have

TABLE XVIII
REASONS FOR ADMINISTRATIVE SOFTWARE SELECTION

Reason for Software Selection	Percentage of Respondents			Total
	1st Choice	2nd Choice	3rd Choice	
Recommendation from another administrator	45.8%	13.7%	10.5%	70.0%
Recommendation from a hardware dealer	6.0%	3.9%	9.2%	19.1%
Recommendation from a software dealer	11.3%	29.4%	19.7%	60.4%
Recommendation from computer instructor	9.5%	19.4%	13.2%	42.3%
Recommendation from microcomputer sales person	4.2%	2.0%	7.9%	14.1%
Software review from periodicals	3.0%	6.9%	19.7%	29.6%
Personal review of several selections before choice	17.9%	24.5%	18.4%	60.8%
Recommendation from counselor	1.2%		1.3%	2.5%
Choice because of special training	1.2%			1.2%

selected periodical reviews as the third reason for such selection. When the answers were grouped together, the number one reason for choosing administrative software remained a recommendation from another administrator (70.0%). The second reason, when all choices were compiled,

was personal review of several selections (60.8%), and recommendation from a software dealer fell to third place (60.4%). Table XVIII displays the most frequently cited reasons given by Oklahoma secondary school administrators for their selection of administrative software.

General Information Questions

The questionnaire sent to the 300 Oklahoma secondary school administrators contained other questions that were focused on general information that does not fit into other previous categories. The information gathered, however, is of concern to those interested in the selection of administrative software and its use.

One item on the survey directed the respondent to choose the scenario that best described the manner in which microcomputer use was integrated into the administrative process at the respondent's school. This same question was asked by Varnum (1990) and similar results were received. It was expected that, in the majority of the schools, equipment would first be purchased, followed by selection of necessary software. This would have led to a majority of the schools using either Apple II or Radio Shack computers based upon their prevalence in the McLean study of 1986. However, according to Varnum (1990) and supported by the current study, the majority of schools are now using IBM or

IBM-compatible microcomputers for administrative tasks (Table IX). The actual results from this question are illustrated in Table XIX with the majority (80.9%) of the respondents reporting that a task was first identified for computer use and then required hardware and software was selected.

TABLE XIX
INTEGRATION OF THE MICROCOMPUTER INTO
SECONDARY SCHOOL ADMINISTRATION

Question: Which of the following scenarios most accurately describes the manner in which microcomputer use was integrated into the administrative purposes at your school?

Response to Question	Percentage
Equipment was acquired and then a use was identified	5.6%
A task was identified and the equipment was selected to accomplish that task	80.9%
Existing equipment was used and software to meet administrative needs was purchased	13.5%

Another question that was focused on the extent of technology currently used in the field of educational administration was used to determine if any of the microcomputers used administratively were networked together. Networking allows two or more computers to share the same software and/or data at the same time. For example, administrative programs mentioned earlier, such as OSIRIS, ADPC, and MAS, Inc., are network-capable programs which allow the principal to access a student's schedule, discipline record, and attendance information while, at the same time, a counselor can have access to the same student's transcript, schedule, or discipline record. The question concerning networks was not asked in either the McLean study (1986) or the Varnum study (1990), perhaps because they assumed that such technology would not be readily available in schools using microcomputers at those times. The results of this question show that in nearly one half (47.7%) of the Oklahoma secondary schools in which microcomputers are used for administrative tasks, two or more computers are networked together.

When asked if they had access to a computer at home, 47.4% of the respondents reported that they did have a computer in their homes while 52.6% did not. This compares to 34.9% of the respondents with home computers as reported in Varnum's 1990 study.

Finally, a question was asked both by Varnum (1990) and in the current study to determine the comparative use of the typewriter and the microcomputer in the production of letters, memos, announcements, and other printed materials. The results of both the Varnum study and the current study are represented in Table XX and show an increase of 26.3% in the use of the microcomputer to perform word processing tasks in the administrative offices. Conversely, the use of the typewriter in daily word processing tasks has decreased by the same amount.

TABLE XX

COMPARATIVE USE OF THE TYPEWRITER VS. THE MICROCOMPUTER
IN THE PRODUCTION OF PRINTED MATERIALS

Question: Which is used more often for word processing in
your office?

Varnum (1990, p. 70) (N=99)	Typewriter	Microcomputer
	51.6%	48.4%
Current study (N=177)	25.3%	74.7%

Results of Follow-Up Interviews

As stated in Chapter III, follow-up interviews were conducted by phone or in person with 5% of the respondents. Identical questions (See Appendix B) were presented to all persons interviewed, with additional questions used to clarify and expand upon responses to the original questions. No statistical reporting is included with this section as the interviews were used only to clarify answers given on the survey instrument and gain additional information regarding the purchase and use of the administrative software. As with the original survey, anonymity has been provided to the respondents in this section.

A common theme that ran through the interviews was a desire to have more input into the decision-making process concerning purchases. One administrator noted that

I have been told to use this program, when I know many other programs can do the same or better, and I'm more familiar with them.

Another stated that

If I had it to do all over again, I would be more forceful in my suggestion to purchase OSIRIS. Now I have a program that won't do everything I need. We'll be looking at making additional purchases in the future--something that could have been avoided if the correct purchase had been made in the first place.

Another theme was that of doing "too much, too soon."

Responses ranged from

We tried to buy everything at once. I would feel more comfortable if we had gotten into computer use one step at a time

to

I didn't have time to become familiar with the program before I was required to implement it. More training is very necessary.

Of course, not everyone interviewed was excited about the "invasion" of technology into their job. One respondent stated that he was "too old and set in my ways" to make any attempt to change. He viewed the new technology as a threat to his way of management. He reported that the computer would "tie him down" and cause him to spend too much time in his office, mainly because he was not familiar with the workings of a computer and was fearful it would take too much time to learn how to operate it. Another respondent said she favored writing notes in long-hand rather than sending a computer-generated note to a student's parents. She stated that

The computer-generated note is so impersonal. I much prefer to have the parents think of me as a person and not as a machine.

It was evident from the interviews that none of the administrators had received any formal training in the use of the microcomputer software they were using. The learning

process for some had been traumatic. One administrator said

I can see how the microcomputer will be able to save time, be more accurate, provide instant information, and help me become more effective in my leadership role--I just wish it had not taken so much of my time to become familiar with the operation of the program. I feel I slighted some of my other responsibilities while learning how to use the microcomputer and software.

Another reported that

I took some computer courses while attending college; however, those classes taught me nothing about the software programs that are currently available. There is a definite need for specialized training in administrative software programs as a part of educational administration preparation.

Another general theme discovered while conducting the personal interviews was that of a lack of conformity among the administrative programs available to schools.

I was using the ADPC program in my last position. When I changed locations, I was required to use OSIRIS. While both programs are good, OSIRIS is totally different from ADPC. The method of entering data is different; the screens are different; the reports generated look different. I had to learn everything all over again. Some degree of unity would be nice.

The general consensus of the respondents interviewed was that the microcomputer and its related technology are going to become even more prevalent in the day-to-day operations of the secondary school principal. With the ever-increasing requirements for student data from the various state and federal governmental agencies, the growing numbers of transient students and the resulting need for

quick transfer of records, and the need for accurate accounting of student membership, attendance, and status for the purpose of determining financial support to the schools, secondary school principals can see the need for recording, maintenance, and analysis of accurate data, actions that are not always feasible without the aid of electronic technology. As one respondent stated, "The microcomputer is here to stay. We need to prepare ourselves."

Summary of Findings

The findings of this study indicate that the use of the microcomputer as an administrative tool has expanded from use in 50% of secondary schools in 1986 to almost 90% in 1992. Only the demographic variables of school size and district size were found to have statistically significant relationships with microcomputer use. Administrators in larger districts were more likely to use the advanced technology provided by the microcomputer than were those in smaller districts. No significant correlation was discovered between any of the other demographic variables and the use of the microcomputer as an administrative tool. This is consistent with the findings of both McLean (1986) and Varnum (1990).

Whereas both of the previous studies showed the three most popular administrative applications to be scheduling,

word processing, and student attendance, the current study shows that word processing has become the most frequent task associated with administrative use of the microcomputer, followed by student attendance, grade reporting, and other student recordkeeping. The microcomputers currently being used by the majority (88.8%) of secondary school administrators are either IBM or IBM-compatible. While McLean (1986) and Varnum(1990) both reported that smaller schools, those with less than 1,000 students, preferred the Apple IIe and larger schools chose the IBM or IBM-compatible, the current study shows that the preferred choice of microcomputers is the IBM or IBM-compatible, regardless of school size. No single software program was reported as being used in a majority of respondents' schools. The only administrative task that presented any form of consensus was word processing, with WordPerfect used by individuals in 23.4% of the respondents' schools. The school secretary was identified as the primary user of the microcomputer used in completing the identified administrative tasks while also having a great deal of input into the choice of software being used. The microcomputer was integrated into the administrative tasks of a school primarily through identification of a task and then selection of hardware and software to accomplish the task. The top three reasons for choosing specific administrative

software were recommendation from another administrator, software reviews from periodicals, and recommendation from a software dealer. The proportion of Oklahoma school administrators who reported use of a microcomputer in their homes has increased from the Varnum (1990) finding of one third (34.9%) to almost one half (47.7%). Finally, the number of schools using more advanced technology associated with the microcomputer is demonstrated by the percentage (47.4%) of principals who reported use of networked microcomputers.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND COMMENTARY

This chapter contains a final overall view of the study. The purpose, method, and findings are summarized in the first section of the chapter. Conclusions and recommendations based on the findings are then provided. The final segment of the chapter is used to provide a commentary on a variety of issues related specifically to this study and generally to microcomputer use in secondary school administration.

Summary

The purpose of this study was three-fold: first, to conduct a follow-up to the study performed by McLean (1986) dealing with the amount of administrative usage of the microcomputer by secondary school principals in the State of Oklahoma; second, to provide a follow-up to the study by Varnum (1990) determining the degree of integration of the microcomputer into the administrative tasks performed by those secondary school principals; and, finally, to collect

information concerning software use, purchasing, and selection. The study used a survey instrument to gather data concerning the use of microcomputers in Oklahoma secondary schools and their integration into the administrative offices. Subsequent personal interviews were used to clarify information about the selection, purchase, and end-user(s) of specific administrative software packages.

The research questions associated with this study were designed to (1) discover if Oklahoma principals are the primary users of the microcomputers located in the administrative offices; (2) identify "standard" software programs used by Oklahoma principals in the performance of their administrative duties; (3) determine how, where, and why the administrative software programs used by Oklahoma principals were purchased; and (4) ascertain the degree to which Oklahoma principals consider the use of the micro-computer and the selected software programs to increase their effectiveness.

In order to make valid comparisons between the current study and the previous studies by McLean (1986) and Varnum (1990), this research also included the five principal questions common to those efforts:

- (1) Do Oklahoma's secondary school principals use microcomputers as an administrative tool?

- (2) What demographic characteristics are associated with the use of microcomputers as an administrative tool?
- (3) How and for what purposes are secondary school principals in Oklahoma using microcomputer technology?
- (4) Does size of school or district have any relationship to administrative usage of microcomputers?
- (5) What microcomputer hardware do secondary school principals in Oklahoma use?

Additional data from sections of the survey instrument and interview questions were used to further analyze the principals' perceptions of microcomputer use in their schools.

A random sample of 300 (52%) of the 568 secondary school principals employed in the State of Oklahoma during the 1991-92 school year was selected as representative of the population for this study. The survey instrument was developed and reviewed by a panel of experts in February of 1992. The first mailing of the survey instrument resulted in a return of 150 questionnaires being returned. A second letter of request resulted in an additional 71 responses for a total of 221 (73.6%). Follow-up interviews (see Appendix

B) were conducted in person or by phone with 11 (5% of the) randomly selected respondents to the initial survey.

Microcomputers were found to be used as administrative tools in 88% of the respondents' schools. The only demographic variables that were found to have statistically significant relationships with microcomputer use were those of school size and district size. Administrators in larger districts were more likely to use the advanced technology provided by the microcomputer than were those in smaller districts. While the comparison of the three studies confirmed the relationship between administrative use of the microcomputer and the school district size, it must also be noted that administrative use of the microcomputer has increased in districts of all sizes except those having between 301 and 500 students.

This study found no positive correlation between the administrative use of the microcomputer and the demographic variables of age, years of experience, or highest degree held by the administrator. This is consistent with the findings of McLean (1986) and Varnum (1990) with the exception of the variable of highest degree held by the administrator. McLean (1986) found that administrators holding more advanced degrees were more likely to use the technology offered by the microcomputer ($p < 0.002$); however

no such correlation was shown in either the Varnum (1990) study ($p = 0.683$) or the current study ($p = 0.956$).

Although McLean (1986) reported a significant statistical relationship between the grade configuration of a school and the administrative use of microcomputers, he stated that this relationship actually dealt with the population of the school and not the grade configuration. Both the Varnum (1990) study and the current study reported no significant statistical relationship between grade configuration and the administrative use of the microcomputer.

McLean (1986) reported a positive correlation between the demographic variables of a principal's level of education and size of school. Varnum (1990) reported a significant relationship only between the demographic variable of school size and the administrative use of the microcomputer. The current study confirms the findings of Varnum (1990) and shows the relationship continues between school size and/or district size and the administrative use of microcomputers. As student population increases, so does the percentage of administrators using the microcomputer.

The microcomputers currently being used by the majority of secondary school administrators are either IBM or IBM-compatible. Although McLean (1986) and Varnum (1990) reported that IBM and IBM-compatible microcomputers were

most popular only in the larger schools, the current study reports that IBM and IBM-compatibles are the choice of the majority (88.8%) of schools regardless of size.

Whereas both of the previous studies reported the three most popular administrative applications of the microcomputer to be scheduling, word processing and student attendance, the current study shows that word processing has become the most frequent task associated with administrative use of the microcomputer, followed by student attendance, grade reporting, and other student recordkeeping.

Answers to all four of the questions concerning the principals' perceptions of microcomputer use revealed similar responses to those received by Varnum (1990). The administrators strongly disagreed with the statement that microcomputers are used too much in the management tasks, while they agreed that the microcomputer has saved time or other resources in the performance of those tasks, that the use of the microcomputer should be increased, and, to a lesser extent, that principals would have more time to engage in instructional leadership activities if the microcomputer were used more extensively for management tasks.

No single software program was reported as being used in a majority of schools. The only software that presented

any form of consensus was WordPerfect, a word processing software package, used in 23.4% of the respondents' schools.

The school secretary was identified as the primary microcomputer user in the administrative office and, along with other central office personnel, was identified as having a great deal of input into the choice of software being used. Selected administrative software was chosen by receiving recommendations from other administrators, by receiving recommendations from a software dealer, and by reviewing articles in periodicals. The primary method of integrating the microcomputer into the administrative tasks of a school was through identification of a task and then selection of the hardware and software to accomplish that task.

Conclusions

1. Secondary school principals are less likely to use microcomputers than are members of their clerical staff. This study has shown that, while 88% of Oklahoma secondary school principals report the use of microcomputers as administrative tools, the school secretary is the primary operator of the microcomputer and its software.

2. There is no generally accepted software for administration of secondary schools. The data gathered in this study reveals no "standard" administrative software program in the State of Oklahoma. While many of the

principals reported using the integrated software program OSIRIS to perform the administrative tasks identified in this study, others reported using everything from other integrated programs to a variety of programs designed for individual tasks.

3. Administrative software used by Oklahoma secondary schools is selected by the superintendent following input from the central office personnel and recommendations from other administrators (70%). It was postulated that the superintendent would be the individual responsible for the selection of administrative software and that software purchases would be influenced by the computer dealer who had provided the hardware to the schools. This study has shown, though, that the central office personnel have a great deal of input into the selection of administrative software and that the selection of such software is based primarily upon recommendations from other administrators rather than computer dealers.

4. The microcomputer is an effective tool in the performance of Oklahoma secondary school administrative duties. Based on the continuation of Varnum's study (1990) and the personal interviews conducted in the current study, Oklahoma secondary school principals still feel the microcomputer is an effective tool in the performance of their administrative duties.

5. Microcomputer use for administration has not changed in most aspects since 1990 and, in some ways, since 1986. Data gathered in the current study revealed only slight fluctuation from both of the previous studies of McLean (1986) and Varnum (1990). Larger schools continue to be more likely to use the microcomputer as an administrative tool, although the percentages have increased in all categories. While smaller schools persevere in their use of the Apple IIe computer, the use of IBM and IBM-compatible microcomputers has become the hardware of choice in the majority of all schools, regardless of size.

Recommendations

A portion of this study was devoted to the replication of the two previous studies of McLean (1986) and Varnum (1990), including a review of the conclusions and recommendations coming from those studies. It is interesting, and sad, to note that some of this study's recommendations are the same as those made by McLean almost seven years ago.

1. As recommended by McLean in 1986 and by Varnum in 1990, it is still strongly suggested that the State Department of Education and/or institutions of higher learning implement additional training in the areas of computer use, especially as it involves administrative

software programs, as a prerequisite for educational administration certification. It is speculated that this recommendation has not occurred because the State Department of Education expects this to be incorporated into the existing required certification courses and/or because university certification courses are based more on theory and content areas without concern for various "mechanics" such as speaking, writing, or computer literacy.

2. Adequate information on available administrative software is still lacking, particularly in a concise format. While administrators reported having reviewed several articles about administrative software prior their selection, it seems only logical that a neutral, non-profit organization should be able to present a dependable and honest investigation and critique of all available administrative software programs in an annual, if not quarterly, publication.

3. Just as all schools in the State of Oklahoma are now required to report the revenue and expenditures of a school district using the Oklahoma Cost Accounting System (OCAS), it is recommended that a "standard" format be developed by the State Department of Education for the electronic recording of student attendance, personal data, transcripts, and grades to improve the transfer of student data between school districts as the student transfers from

school to school. OCAS does not require the use of a specific software program and neither should this recommendation. It will require, however, the different companies now providing administrative software to alter their programs somewhat to allow for the electronic transfer of data from one school to another and from all schools to the State Department of Education.

4. While each of the two previous studies and the current study have reported that administrators using micro-computer technology in their administrative duties perceive that their effectiveness as educational leaders has improved, none of the studies has been focused sufficiently to provide data to determine if microcomputer-using administrators are indeed more effective leaders. Continued research needs to be done in this area.

Commentary

Just two short years prior to the current research, Varnum (1990) stated that

The day when the microcomputer is regarded as the undisputed answer for the timely and efficient management of school information may be closer than some have thought (p. 78).

It is this researcher's belief that this day has arrived. In almost 90% of all Oklahoma secondary schools, micro-computers are being used for administrative tasks while close to one half of the schools have two or more micro-

computers linked together in a network configuration. Therefore, it is evident that administrators now realize the need for the immediacy and efficiency provided by the microcomputer.

From the beginning, this study was focused on the use of administrative software. The data concerning hardware choice and use were only gathered to replicate the previous studies centered on microcomputer use by Oklahoma secondary school administrators. What has been discovered is almost a repeat of history. Just a few years ago, there was a great variety of microcomputers available for use in the schools (Apple, Commodore, Epson, Radio Shack III, IBM PCjr, Texas Instrument, and others). Today, while school districts have selected the IBM or IBM-compatible microcomputer as their hardware of choice, there are various administrative software programs available (OSIRIS, ADPC, SYNTEC, MAS, Inc., and others) and numerous specific software programs (WordPerfect, MicroSoft Works, AppleWorks, PFS 1st Choice, and others) in use by each district, but no single piece of software has achieved widespread recognition and use.

When this study was being designed, it was assumed that administrators in a majority of school districts were using a common administrative software package and that revealing this information to all school administrators would perhaps provide some unity in the method and procedures of reporting

student information. Any school administrator knows the frustration of receiving a transfer student's files and not being able to interpret data in the files. This same administrator knows the pleasure of receiving student data in the same format being used at the receiving school. It was this researcher's intent to allow all school administrators in the State of Oklahoma to have the opportunity to conform to the "standard" program in use and thereby reduce or eliminate at least some of the frustration associated with the transfer of student data. This, however, did not prove to be the case. It now appears that until "someone" takes charge of the situation and provides a recommended standardized data format or program for all schools to follow or adopt, the amount of time spent and the amount of frustration suffered in the selection of software will remain constant.

Readers of this study can now realize the degree of integration of the microcomputer into the school administrators' offices. They can understand the effectiveness and efficiency perceived by the use of the microcomputer in the various administrative tasks. It remains to be seen if any conformity takes place in the use of administrative software programs in the State of Oklahoma.

One question of concern was raised during this study. With the continued integration of the microcomputer into the administrative duties of Oklahoma secondary principals, will these administrators become less "people" oriented and more "machine" oriented? One of a principal's main duties is to interact with students and faculty. If this interaction is diminished to a large degree, will the principal become more of a microcomputer operator and less of an instructional leader? Effective school research has shown that, for a principal to be an effective instructional leader, they must be visible to both faculty and students. It is imperative that the secondary school principal learn to use the microcomputer as another "means" to reach the desired "end," an effective school and not to allow the use of the microcomputer to become an "end" in itself.

This study should finalize the investigation into the administrative use of the microcomputer in Oklahoma secondary schools. Future studies should concentrate on the true, as opposed to the perceived, effectiveness of the secondary principals who are using microcomputer technology.

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APPENDIXES

APPENDIX A
QUESTIONNAIRE

SURVEY OF THE ADMINISTRATIVE USE OF
MICROCOMPUTER SOFTWARE BY
OKLAHOMA SECONDARY PRINCIPALS

Section 1 -- General Information

1. Grade level configuration at your building site?
(Please check one)
a) 7-12____ b) 9-12____ c) 10-12____ d) 7-9____ e) 7-8____
f) Other _____ (explain)_____

2. Student enrollment at your building site? _____
3. Student enrollment of your district? _____
4. Number of teachers at your building site? _____
5. Does your school have any microcomputers? yes no

IF THE RESPONSE TO QUESTION 5 IS NO, PLEASE SKIP TO SECTION 4.

6. How many microcomputers are in use at your building? _____
7. Are any of your school's microcomputers used in the
administrative management process? yes no

IF THE RESPONSE TO QUESTION 7 IS NO, PLEASE SKIP TO SECTION 4.

8. If response to question 7 is yes, for how many years? _____
9. Which of the following scenarios most accurately
describes the situation prevalent at the time of the
microcomputer integration into the administration
management process at your school?

- Equipment was acquired and then a use was identified.
 A task was identified and the equipment was selected
to accomplish that task.
 Existing equipment was used and additional software to
meet management task needs was purchased.

10. How many microcomputers in your school are being used for
management tasks? _____
11. Which is used most often for wordprocessing (letters,
memos, newsletters, etc.) Typewriter Microcomputer
12. Are any of the microcomputers in your building networked?
 yes no

Section 2 -- Equipment

13. Please check the brand name of the microcomputers used for administrative tasks.
- IBM and/or compatibles
 - Apple IIe and/or compatibles
 - Macintosh
 - Tandy
 - Radio Shack III/IVs Others (please list)
14. Who was responsible for the selection of the microcomputers used for administrative tasks.
(Check all that apply)
- Building principal
 - Superintendent
 - Computer instructor
 - Central office personnel
 - Others (please list) _____
15. Who is the primary operator of the microcomputers used for the administrative management process?
- Superintendent
 - Building principal
 - Secretaries
 - Others (please list) _____

Section 3 -- Integration

16. From the list provided below, please mark the administrative tasks that occur at your building site using the microcomputer and the name of the software used.

<u>Administrative task</u>	<u>Name of software</u>
<input type="checkbox"/> Athletic scheduling and/or statistics	_____
<input type="checkbox"/> Student attendance	_____
<input type="checkbox"/> District or site budgeting	_____
<input type="checkbox"/> Financial accounting	_____
<input type="checkbox"/> Grade reporting	_____
<input type="checkbox"/> Inventory & property records	_____
<input type="checkbox"/> Class scheduling	_____
<input type="checkbox"/> School calendar	_____
<input type="checkbox"/> Staff/Personnel records and supervision	_____
<input type="checkbox"/> Student records (transcripts, etc.)	_____
<input type="checkbox"/> Transportation	_____
<input type="checkbox"/> Word processing (letters, memos, etc.)	_____
<input type="checkbox"/> Newsletters	_____
<input type="checkbox"/> Other (please specify)	_____

17. Who was responsible for the selection of software used in the administrative process?
(check all that apply)
- Building principal
 - Superintendent
 - Computer instructor
 - Central office personnel
 - Others (please list) _____
18. Why was particular software chosen?
- Recommendation from another administrator.
 - Recommendation from hardware vendor.
 - Recommendation from software vendor.
 - Recommendation from computer instructor.
 - Recommendation from microcomputer salesperson.
 - Software review from periodical.
 - Personal review of several selections before choice.
 - Other (please explain) _____
19. Are you pleased with the performance of the software selection used in the administrative management process.
- Yes, very much pleased
 - Somewhat pleased
 - Somewhat displeased
 - No, very much displeased

Section 4--Building Principal Background Information

20. What is your age?
- Under 25 26-35 36-45 46-55 56-65 Over 65
21. What is your gender? Male Female
22. How many years of administrative experience do you have?
- 5 or fewer years 6-10 years 11-15 years
 16-20 years More than 20 years
23. What is the highest degree that you presently hold?
- Bachelor's degree
 - Master's degree
 - Doctor's degree
 - Specialist's degree
 - Other (please specify) _____
24. Do you use a microcomputer at home? yes no

Section 5 -- Principal's Opinion

Using a scale of:

1--strongly disagree

2--disagree

3--neutral/not sure

4--agree

5--strongly agree

Please answer the following questions:

25. Microcomputers are used too much for the management tasks in my school.

1 2 3 4 5

26. Microcomputer use has saved time or other resources in my school office.

1 2 3 4 5

27. I would like to use microcomputers to a greater extent in my school's management tasks.

1 2 3 4 5

28. I would have more time to engage in instructional leadership if microcomputers were used more extensively for management tasks in my school.

1 2 3 4 5

Please check here if you would like to receive the results of this survey.

Thank You!

APPENDIX B

INTERVIEW QUESTIONS

INTERVIEW QUESTIONS

1. Tell me about your role as a secondary school principal. What do you perceive as your primary duty?
2. How much time do you spend in your office doing paper work? Could this time be reduced? How?
3. Is the time spent doing this paper work affecting your instructional leadership?
4. Does your office use a microcomputer in daily operations?
5. Tell me about your microcomputer. What software are you currently using? Why are you using that specific software?
6. Who makes the decision about computer purchases for your office? about software purchases?
7. How do you feel about this process?
8. Describe your position five years from now. What will be your duties? How will you accomplish them?

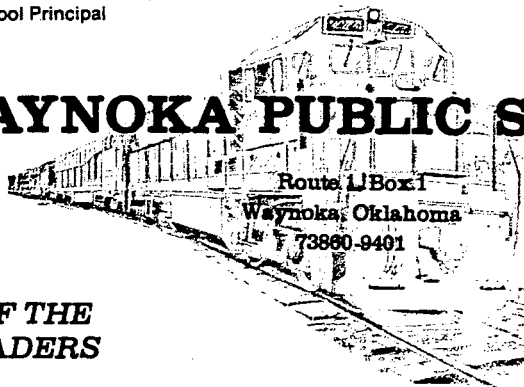
APPENDIX C

FIRST CORRESPONDENCE

Bob Yadon, Sr., High School Principal
(405) 824-4341

Bill Evans, Elementary Principal
(405) 824-4841

WAYNOKA PUBLIC SCHOOLS



**HOME OF THE
RAILROADERS**

R. Wayne Stewart
Superintendent
(405) 824-6561

May 22, 1992

Dear Principal,

Since the introduction of the microcomputer in 1979, there has been no area of our society that has remained untouched by its technology. Previous studies have shown the extent of microcomputer integration into the public school administrative/management process. Dr. Gerald Bass, Assistant Dean of Education, OSU, and I are asking your assistance in determining the actual usage of this technology.

This survey is being sent to a random sample of secondary principals throughout the State of Oklahoma. The questionnaire has been number coded so that the study directors will be able to identify individuals in order to set-up possible interviews at a later date. Only the study directors will be able to link the codes to the individuals. The information will be strictly confidential and will be presented in a manner that will assure anonymity for all respondents. Will you please take about ten minutes of your time to complete the enclosed survey. The questionnaire needs to be returned by June 1, 1992.

After completing the questionnaire, please return it in the self-addressed, stamped envelope provided. Thank you in advance for your contribution to this study.

Sincerely,

R. Wayne Stewart
Doctoral Candidate

Dr. Gerald Bass
Assistant Dean of
Education, OSU

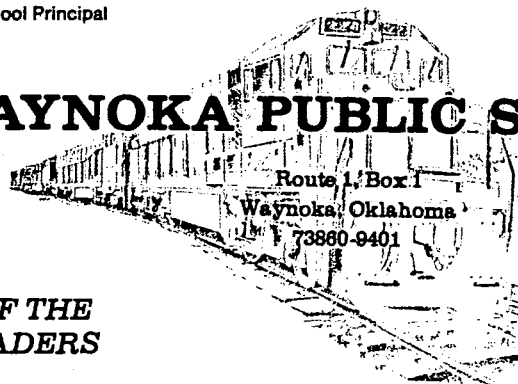
APPENDIX D

SECOND CORRESPONDENCE

Bob Yadon, Sr., High School Principal
(405) 824-4341

Bill Evans, Elementary Principal
(405) 824-4841

WAYNOKA PUBLIC SCHOOLS



**HOME OF THE
RAILROADERS**

R. Wayne Stewart
Superintendent
(405) 824-6561

June 9, 1992

Dear Principal,

You recently received a questionnaire from Dr. Gerald Bass, OSU, and myself asking about computer usage in your school's administrative tasks. This short note is to remind you of this questionnaire and ask for your assistance in the completion of my dissertation.

I know this is a very busy time for you, but if you could just take about ten minutes to complete the survey you received and return it to me in the provided self-addressed stamped envelope, it will enable me to compile the necessary information for my study.

If you have already returned your survey, thank you. Perhaps this note and the survey crossed in the mail. If you have not yet returned it, won't you please dig it out from the stack of "to do" papers and return it to me today.

Thanks, again, for your participation. The information provided with your assistance will become a valuable resource for the secondary school administrators in the State of Oklahoma.

Have a happy and relaxed summer!

Sincerely,

R. Wayne Stewart,
Doctoral Candidate

Dr. Gerald Bass,
Assistant Dean of
Education, OSU

APPENDIX E

COMPLETE ADMINISTRATIVE

SOFTWARE CHART

APPENDIX E

SOFTWARE BRAND NAMES USED BY RESPONDENTS
TO PERFORM ADMINISTRATIVE TASKS

TASK: Word Processing--Used by 90.86% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
WordPerfect	23.43%
PFS 1st Choice	10.28%
MicroSoft Works	8.57%
AppleWorks	4.00%
Display Writer	1.71%
Others (Crystal Writer, Display Writer, Desk Mate, MAS, Inc., Electric Pencil, MacSchool, NCS, OSCAR, PC-Write, SYNTEC, ProWriter, Professional Writer, VolksWriter, OSIRIS)	15.44%
Not Reported	27.43%

TASK: Student Attendance--Used by 83.62% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
OSIRIS	9.60%
ADPC	8.47%
MAS, Inc.	7.34%
SYNTEC	4.52%
EPES	3.95%
Others (A.Webb, Administrator, AppleWorks, FilePro1, Gaeslin, Harts, MicroSoft Works, MacSchool, NCS, OSCAR, PFS 1st Choice, SIMS, Sun Valley, Local Program)	20.36%
Not Reported	29.38%

TASK: Grade Reporting--Used by 81.36% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
OSIRIS	10.17%
ADPC	9.04%
MAS, Inc.	5.65%
EPES	4.52%
SYNTEC	4.52%
Others (A.Webb, Administrator, AppleWorks, FilePro1, Gaeslin, Harts, MicroSoft Works, MacSchool, NCS, OSCAR, PFS 1st Choice, SIMS, Sun Valley, Local Program)	21.47%
Not Reported	25.99%

TASK: Student Records--Used by 74.86% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
OSIRIS	10.86%
ADPC	8.57%
SYNTEC	4.57%
EPES	3.43%
Local Program	2.29%
Other (Administrator, Harts, FilePro1, AppleWorks, Lotus 1-2-3, MAS, Inc., MicroSoft Works, NCS, OSCAR, Rediker, SIMS, Socrates, Sun Valley)	22.85%
Not Reported	22.29%

TASK: Financial Accounting--Used by 68.36% of
respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
ADPC	10.73%
MAS, Inc.	6.78%
SYNTEC	4.52%
MacSchool	1.69%
Local Program	1.69%
Other (AppleWorks, EPES, OSIRIS, PFS 1st Choice, Plan Perfect, School Ledger, WOS/Faralon)	13.57%
Not Reported	29.38%

TASK: District/Site Budgeting--Used by 55.37% of
respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
ADPC	9.04%
MAS, Inc.	6.21%
SYNTEC	4.52%
MacSchool	1.69%
Local Program	1.69%
Other (AppleWorks, EPES, NCS, OSIRIS, PFS 1st Choice, Plan Perfect, SIMS, WOS/ Faralon)	8.49%
Not Reported	23.73%

TASK: Class Scheduling--Used by 53.11% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
OSIRIS	8.47%
MAS, Inc.	5.08%
SYNTEC	4.52%
EPES	3.39%
Local Program	2.26%
Other (Finesse, Gaeslin, Harts, MacSchool, NCS, OSCAR, PFS 1st Choice, ProFile1, Rediker, SIMS, Socrates, Sun Valley)	15.27%
Not Reported	14.12

TASK: Inventory--Used by 51.41% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
PFS 1st Choice	5.65%
AppleWorks	3.95%
MicroSoft Works	3.38%
EPES	1.69%
MacSchool	1.69%
WordPerfect	1.69%
Other (DeskMate, Gaeslin, NCS, Lotus 1-2-3, Local Program, MAS Inc., MicroSoft Works, OSIRIS, Plan Perfect, Q&A, ProFile1, Reporter, SYNTEC, Socrates)	13.02%
Not Reported	20.34%

TASK: School Calendar--Used by 48.30% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
OSIRIS	4.55%
Print Shop	4.55%
PFS 1st Choice	3.41%
MAS, Inc.	2.84%
EPES	1.14%
WordPerfect	1.14%
Other (AppleWorks, Calendar Creator, Display Writer, Local Program, MicroSoft Works, MacSchool, Q&A, PageMaker, Plan Perfect, Rediker, SYNTEC, Word Perfect)	11.92%
Not Reported	18.75%

TASK: Newsletters--Used by 33.71% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
WordPerfect	4.57%
MicroSoft Works	3.43%
Page Maker	2.29%
PFS 1st Choice	1.71%
Display Writer	1.14%
SYNTEC	1.14%
Other (MAS Inc., MicroSoft Publisher, MacSchool, NCS, PFS 1st Publisher, Print Shop, ProWriter, Publish It)	5.14%
Not Reported	14.29%

TASK: Personnel Records--Used by 25.71% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
SYNTEC	2.29%
ADPC	1.71%
OSIRIS	1.71%
MAS Inc.,	1.71%
MacSchool	1.14%
Other (AppleWorks, EPES, NCS, Gaeslin, Local Program, PFS 1st Choice, Q&A, Reporter, WOS/Faralon, WordPerfect)	9.15%
Not Reported	8.00%

TASK: Athletic Scheduling/Statistics--Used by 16.38% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
MicroSoft Works	2.26%
Local Program	1.13%
AppleWorks	1.13%
Other (EPES, MacSchool, PFS 1st Choice, SYNTEC, Word Perfect)	4.52%
Not Reported	7.34%

TASK: Transportation--Used by 15.43% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
OSIRIS	2.86%
MAS Inc.	2.29%
SYNTEC	1.14%
Other (AppleWorks, EPES, WOS)	4.57%
Not Reported	4.57%

TASK: Other Programs--Used by 3.43% of respondents

<u>Brand Name</u>	<u>Percentage of Use</u>
(Avery Labels, Cafeteria Program, Local Program)	1.72%
Not Reported	1.71%

VITA

Robert Wayne Stewart

Candidate for the Degree of

Doctor of Education

Thesis: SELECTION AND USE OF ADMINISTRATIVE MICROCOMPUTER
SOFTWARE BY OKLAHOMA SECONDARY SCHOOL PRINCIPALS

Major Field: Educational Administration

Biographical:

Personal Data: Born in Sentinel, Oklahoma, March 5, 1947, the son of William D. and Mae Ola Stewart, Married to Elaina Bell Fulkerson on December 30, 1967.

Education: Graduated from Hollis High School, Hollis, Oklahoma, in May, 1965; received Bachelor of Arts degree from Central State University in May, 1971; received Master of Arts degree from Southwestern Oklahoma State University in July, 1986; completed requirements for the Doctor of Education degree at Oklahoma State University in May, 1993.

Professional Experience: Speech and Dramatics teacher, Artesia High School, Artesia, New Mexico, August, 1971 to May, 1973; Farmer and Rancher, Hollis, Oklahoma, May, 1973 to August, 1984; Owner, Studio S and TV-6, Hollis, Oklahoma, August 1984 to December 1986; Principal and English teacher, Eldorado High School, Eldorado, Oklahoma, August 1985 to May, 1987; Principal, Yale High School, Yale, Oklahoma, August 1987 to May, 1991; Superintendent, Waynoka Schools, Waynoka, Oklahoma, July, 1991 to present.