INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.

2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.

3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of "sectioning" the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.

4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.

University Microfilms International

300 N. Zeeb Road
Ann Arbor, MI 48106

8415271

Wells, Lennie Lea

BUILDING LEVEL ADMINISTRATIVE COMPUTER APPLICATIONS IN K-12 PUBLIC SCHOOLS OF OAKLAND COUNTY, MICHIGAN

Michigan State University PH.D. 1984

University Microfilms International 300 N. Zeeb Road, Ann Arbor, MI 48106

Copyright 1984

by

Wells, Lennie Lea

All Rights Reserved

BUILDING LEVEL ADMINISTRATIVE COMPUTER APPLICATIONS IN K-12 PUBLIC SCHOOLS OF OAKLAND COUNTY, MICHIGAN

by

Lennie L. Wells

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Administration and Curriculum

1984

© Copyright by

LENNIE L. WELLS

1984

ABSTRACT

BUILDING LEVEL ADMINISTRATIVE COMPUTER APPLICATIONS IN K-12 PUBLIC SCHOOLS OF OAKLAND COUNTY, MICHIGAN

by

Lennie L. Wells

In this study the researcher proposed to determine the type and degree of administrative computer applications by building administrators in the K-12 public schools of Oakland County, Michigan. Specifically, two questions were addressed by the researcher:

Question 1: What is the status of building-level administrative computer applications with respect to equipment and functions in Oakland County's K-12 public schools?

Question 2: What tasks do building administrators perform with respect to these computer applications?

Descriptive methodology was used in the development of this research design. A survey instrument was used to collect information from school building administrators regarding computerized administrative services with which they are involved. Frequency distributions were used for presentation of collected data. Additionally, crosstabulation was employed to discern response differences among the elementary, middle and high school administrative groups.

The major findings were:

- The mainframe was the primary administrative computing tool for Oakland County school principals. Mainframes were used by 68.5% of the survey respondents.

- Statistical analysis indicated that specific computer supported administrative services were directly related to the level of the building.

- Overall, no pupil personnel computer supported service was as frequently used as the most common clerical/utility function (mailing labels--62.4%) or administrative reporting function (state reporting--47.9%).

- The most frequent computing activity for Oakland County administrators was data collection (45.8%) while eighty-six respondents (40.4%) reported no involvement with administrative computing.

- Degree of participation in the computing process was found to be related to the administrator's building level.

TABLE OF CONTENTS

Chapter

LIST OF TABLES

Table

Table

Table

CHAPTER I

INTRODUCTION TO THE STUDY

Background

Public school administrators face a daily challenge of data management. Indications are quite strong that extensive record keeping will continue and expand while administrators are expected to maintain and use information efficiently as well as effectively. Meanwhile, the growth of computer use in information processing is phenomenal.

Today the suburbs of many large cities have among their common characteristics the seeming omnipresence of advanced technology. Operations of retail outlets, medical facilities, office buildings and classrooms are supported by increasing numbers of computers. Consequently, many employee groups have added some electronic data processing ability to their repertoire of skills.

This expansion of computer applications includes tested programs specifically geared for school situations. Although educational institutions do not compare with business and industry in their use of computer facilities, many

school administrators are actively involved with this technology. For those who are, computer literacy becomes crucial to job success.

Some of the educational administrators currently using computers as a management tool have computing experiences dating back to the 1960's. Originally supported by physically large, quite costly equipment, these applications now function with scaled down but similar equipment and/or much smaller, cheaper microcomputer systems. Administrative services which are being facilitated by computers include student attendance, grade reporting and scheduling in addition to preparation of numerous other school reports and correspondence.

In this study the researcher attempted to determine the role computers currently play in assisting Oakland County public school administrators to meet their data management objectives. Oakland Schools (the intermediate school district for Oakland County) has had a long and stable computing history in the area of administrative support services. Since the early 1960's this regional center has offered computer facilitated services to Oakland County schools at both the district and building level. Originally joined in their software development efforts by Detroit Public Schools as well as Macomb and Wayne Intermediate School Districts, Oakland now supports its own system. The educational management software known as R.A.M.S (Remotely Accessible Management System) now services all 28 school

districts (191,274 students) in Oakland County. Thus, this county can function as an example of comparable sophistication to the nation's leaders in educational administrative data processing.

Although studies exist of early efforts in educational administrative computing, level and type of use by school managers since 1976 is not well documented. Through previous studies in southeastern Michigan the status of specific administrative computing functions and the background of their administrative coordinator were determined. The Cayen study[1] is of limited use now since it was conducted in 1975. Administrators were surveyed prior to the "microcomputer explosion" that has had definite implications for school computing. One educational administrator-author refers to this phenomenon as the "micro-technology invasion" into the school system. He further states that microcomputer use has had, and will continue to have, implications for the practice of educational administration.[2] Given current enrollment figures and financial conditions, the decision-making process in school districts is under constant scrutiny from many vantages. With smaller, more affordable and quite powerful computing equipment available

---

[1]William F. Cayen, "Data Processing of Student Services and the Administrative Coordination in Selected High Schools of Michigan" (Ph.D. dissertation, University of Michigan, 1976).

[2]D. G. Marshall, "The School Administrator and the Microcomputer," Education Canada, Vol. XXII, No. 2, Summer 1982, p. 4.

to school managers, their utilization of this resource is a topic worthy of study.

Another suburban Detroit study[3] addressed the educational computing universe emphasizing instructional computing. Not only was the study targeted primarily at instructional computer use, it also was limited to the nature of microcomputer use only. Since eighty-one percent of the study participants acknowledged use of main frame computers as well, a description of educational administrative computing was not addressed in the report.

Given the characteristics of the two Michigan studies cited above, it is apparent that documentation concerning the type and degree of building-level administrative computer functions would provide significant data which are currently unavailable for Oakland County. It is anticipated that this study could serve as a resource to the following groups in the manner noted:

Prospective school administrators: This research can help these individuals better understand one administrative function and their need to prepare for computer-related responsibilities.

Central office administrators/Boards of education: Knowledge of this research can cause these individuals to recognize the importance of data processing experience/

---

[3]"Oakland Schools Instructional Computing Long Range Planning Opinion Survey," September 1981.

knowledge as a criterion for building administrative candidates. Survey results concerning current building administrative practices could also facilitate many comparative studies in which these groups frequently must engage prior to decision-making.

Current building administrators: Through this research, current building administrators can become aware of data processing operations in other area schools. This awareness could lead to additional communication as well as consideration of other computer options to improve administrative services.

General public: Citizens can be updated on attempts by educational leaders to use technology for improved information processing.

Statement of the Problem

In this study the researcher proposed to determine the type and degree of administrative computer applications by building administrators in the K-12 public schools of Oakland County, Michigan. Specifically, two questions were addressed by the researcher:

Question 1: What is the status of building-level administrative computer applications with respect to equipment and functions in Oakland County's K-12 public schools?

Question 2: What tasks do building administrators perform with respect to these computer applications?

In order to address these questions several assumptions were made by the researcher. It was first assumed that building administrative computer applications are a very active component of daily public school practice in Oakland County. This assumption was based on a review of related literature as well as contacts with public educators in different areas of the county. Since a survey instrument was used to gather data, another assumption was made. Responses to the survey used in this study were assumed to accurately reflect the state of administrative computer applications in the public schools surveyed.

Delimitations

It was the purpose of the researcher to determine educational administrative computing activity for only Oakland County. Therefore the study was limited to public schools in that geographical region. Likewise, the researcher intended to establish the types of functions that were computer supported as well as the degree to which administrators were receiving specific computer facilitated services. However, in this study the researcher excluded any evaluation of the services performed. Neither did the researcher compare various hardware and/or software in use by the building administrators surveyed. Finally, the researcher did not determine the status of computer-assisted or computer-related instruction in the schools surveyed.

Design of the Study

Descriptive methodology was used in the development of this research design. According to Sowell and Casey descriptive methodology involves research methods that seek explanation and prediction as their goals, may use existing situations for data collection and do not involve manipulation of variables. These authors add that careful measurement of variables and appropriate interpretation of results are essential elements of descriptive methodology.[4]

A survey instrument was used to collect information from school building administrators regarding computerized administrative services with which they are involved. The researcher used survey responses for documentation of current educational administrative computing conditions. Additionally, survey results were used to draw conclusions and make recommendations regarding future computer applications by school managers.

The survey instrument was mailed February 1, 1983, with a requested return date of February 15. However, follow-up correspondence and telephone interviews did not terminate until May 17. Thus, data for this study were collected during the period from February 1 through May 17, 1983.

---

[4]Evelyn J. Sowell and Rita J. Casey, Research Methods in Education (Belmont, California: Wadsworth Publishing Co., 1982), p. 37.

Definitions of Terms

Building-level administrative computer application. For the purposes of this study any current, job-related use (excluding instruction/instructional management) of computer equipment by managers of individual schools.

Cathode ray tube (CRT). An input/output device used to display information at many computer terminals.

Central processing unit (CPU). The part of the computer comprising primary storage, the arithmetic logic unit and control circuits.

Data base management system (DBM). A software system that stores information and manages its organization and access for all who use that set of related records.

Main frame. Physically large computer with powerful computing capabilities that can control other computing systems. Main frame computers are associated with communication networks.

Management information system (or information management system). A computer system designed to assist in the management of a large enterprise. Such a system allows for storing, retrieving and updating information as well as searching files and cross-referencing information on a given subject from different files.

Microcomputer. The smallest computer system with a CPU which is designed for single users.

Network. A system in which several stand-alone computer systems are linked together through high speed communication facilities.

On-line. In direct communication with the processor (CPU).

Off-line. A part of a computer system that is not under control of the central processor. An example would be punched cards which are transcribed to paper tape by means of an off-line "card-to-tape" machine.

Organization of the Study

In Chapter I the researcher has presented the introduction to the study including a statement of the problem, delimitations, a brief overview of research design and definitions of terms. Chapter II contains a review of literature organized by the past, present and future as they relate to educational administrative computing. Chapter III outlines the methodology of the researcher including design of the study, instrumentation and analytic techniques. Chapter IV presents the findings with data analysis. Chapter V contains the researcher's summary statement with conclusions and recommendations.

CHAPTER II

THE REVIEW OF THE RELATED LITERATURE

In order to better understand and use the information gathered in this dissertation, many related works were studied. These included books, periodicals, conference reports, other dissertations, and unpublished documents. Useful material described the history, current state or future of computer applications by and related training for educational administrators in the United States. A summary of literature reviewed is presented in this chapter with the intent of facilitating interpretation and application of data derived from the survey process.

Historical Perspective

Early efforts in educational administrative computer applications occurred in the 1960's when computer training related to education was limited and equipment was quite costly. The authors of Computers and Information Systems in Education noted, "As of the winter of 1964 no institution of higher learning offered a complete course of study for

professional specialization in educational data processing. Only a few colleges offer a single course or a summer workshop."[1] As a result of the personnel and investment required, most projects were sponsored by state boards of education, intermediate school districts or universities rather than local school boards. Financial assistance for many of these data processing plans was received from federal grants under the National Defense Education Act (1958-1963) and the Elementary and Secondary Education Act (1965). Detailed below are some of the documented pioneer efforts (1963-1967) in computer applications by and for educational administrators:

State	Project Title	Sponsoring Group	Administrative Services
California	(C.E.I.S.) California Educational Information System	California State Board of Education	Student-At, G, S, Te
Iowa	(U.P.D.A.T.E.) Unlimited Personnel Data Through Automation Technology in Education	State University of Iowa & six school districts	Student-Ac and research support
	(CARDPAC) Card Packet System	Iowa University, Iowa City	Student-At, G, S

KEY: Ac - Accounting; At - Attendance; G - Grading; S - Scheduling; Te - Testing; Tr - Transportation

[1]John I. Goodlad, F. John O'Toole, and L. Louise Tyler, Computers and Information Systems in Education (New York: Harcourt, Brace and World, 1966), p. 30.

State	Project Title	Sponsoring Group	Administrative Services
Maryland	Pupil Master Record System	Montgomery County Schools	Student-Ac, G, S, Te
Massa-chusetts	(N.E.E.D.S.) New England Education Data Systems	Harvard University	Student-At, G, S, Te; some training of school personnel to apply the data processing technology
Michigan	(I.E.I.S.) Integrated Education Information System	Macomb, Oakland & Wayne Counties with Detroit Public Schools	Student-At, G, S
Minne-sota	(T.I.E.S.) Total Information Educational System	Minneapolis-St. Paul Board of Education with a consortium of suburban districts	Ac and Personnel
New York		Boards of Cooperative Educational Services (B.O.C.E.S.)	Student-Ac, At, G, S, Te, Tr
Oregon	(O.T.I.S.) Oregon Total Information System	Lane Educational Service District	Student-At, G, S, Te

City	Project Title	Sponsoring Group	Administrative Services
Chicago, Illinois	(T.I.S.) Total Information System	Chicago Board of Education	Student-Ac, S; research

---

KEY: Ac - Accounting; At - Attendance; G - Grading; S - Scheduling; Te - Testing; Tr - Transportation

City	Project Title	Sponsoring Group	Administrative Services
Lincoln, Nebraska	(A.D.M.I.R.E.) Assistance for Decision Making Through Information Retrieval in Education	Lincoln Board of Education	Student-S
Phila-delphia, Pennsyl-vania		Philadelphia Board of Education	Pupil data base
Tacoma, Washington		Tacoma Board of Education	Student-S

KEY: Ac - Accounting G - Grading Te - Testing
At - Attendance S - Scheduling Tr - Transportation

These and other initial administrative computing efforts were so limited in number that Goodlad, O'Toole, and Tyler referred to them as "experimental." They further elaborated that by 1966 only about 300 of the 30,000 public school districts in the U.S. used electronic accounting machines or computers. Those who used computer equipment did so primarily for business services such as payroll and budget preparation. Of twenty-seven sample data processing programs described in this book only eight attempted to integrate a variety of business and student services. Other examples demonstrated the strongest applications in business services (21/27) followed by student scheduling, grading, and attendance respectively.[2]

[2] Ibid., pp. 28; 115-37.

During these developmental stages of computer use by educational administrators, school managers were strongly encouraged to expand their knowledge and use of this relatively new technology. In a lecture delivered at the Fall Joint Computer Conference, December 1965, Ralph Gerard challenged his audience of educators with the statement,

> We are rapidly raising a sea of information in which we must either swim or drown, and the way we must swim is by enhancing our problem solving resources through the new computer technology.

Speaking at the same conference, James F. Blakesly concluded that:

> All phases of educational administration pertaining to the three most significant management functions, namely to plan, to execute, and to review, will be linked with the present and future use of computers.[3]

As Executive Secretary of the American Association of School Administrators in 1967, Forrest Connor reflected,

> The uses of the computer and EDP (Educational Data Processing) in administration of public education are limited only by the imagination of professional educators. The time has come to stretch this creative potential.[4]

Attitudes reflected by this type of statement as well as verified successes in educational administrative computing and federal financial support resulted in growth during the early to mid-seventies. Charted below are

---

[3]Computers and Education, ed. Ralph W. Gerard (New York: McGraw Hill, 1967), pp. xx, 185.

[4]"EDP and the School Administrator" American Association of School Administrators (Washington, D.C., 1967), p. viii.

results of administrative user surveys which demonstrate the nature of this growth pattern.

Year	Population Surveyed	Percentage Administrative Users
1970	Secondary schools nationwide[5]	25-30%
	Nationwide study by American Institute for Research (A.I.R.)	30.5%
1975	Follow-up nationwide study by A.I.R.[6]	53.3%
	Random sample throughout U.S.[7]	58.2%
	All New Jersey public schools[8]	46.0%
	Massachusetts schools[9]	57.9%
1976	Secondary Illinois schools[10]	49.0%

The early to mid-seventies growth period also was marked by an increased interest in information systems rather than single purpose or report-by-report data

---

[5]Charles A. Darby et. al., The Computer in Secondary Schools (New York: Praeger Publishers, 1972), p. 22.

[6]J. Richard Dennis et. al., "Computer Activities in Secondary Illinois Schools," The Illinois Series on Educational Application of Computers, June, 1977, pp. 5-7.

[7]William J. Bukosi and Arthur L. Karotkin, "Computing Activities in Secondary Education," Educational Technology, Vol. XVI, No. 1, January, 1976, p. 18.

[8]Irwin A. Gaydos, Survey of New Jersey Public School Districts Using Computers and Data Entry Equipment, New Jersey State Department of Education, January, 1976, p. 5.

[9]Peter Oliveri, "Computer Usage Trends," S.I.G.C.U.E. Bulletin, Vol. X, No. 2, April, 1976, p. 16.

[10]Dennis et. al., op. cit., p. 11.

processing plans. New York City bought and attempted to modify the California system (C.E.I.S.) while Oakland Schools continued to upgrade the I.E.I.S. system originally shared with Macomb and Wayne counties. Oakland County's improved system was named R.A.M.S. (Remotely Accessible Management System). These efforts were indicative of the growing interest in data based management of public education.

Administrative training to use these data processing systems was primarily operated by individual project supervisors. Documents describing the information systems stressed the importance of staff involvement and training.[11] Details of the training, however were not specified. Results of Cayen's 1975 survey indicate that 39% of the responding Michigan school administrators ("data processing leaders") had received some computer-related pre-service training (29.7% through universities; 9.3% through workshops). After their data processing related job assignment this figure increased to 61% (through university training or in-service projects). Following his study, Cayen emphasized training in the first recommendation he offered:

> The establishment of programs of support and involvement of university personnel with public school personnel in the development of programs of instruction of both a technical and non-technical

---

[11]Raucher, S.M. and Masemore, G. L., "Educational Information Systems," Papers presented at the Association for Educational Data Systems Annual Convention, Phoenix, Arizona, May 1976.

> orientation must be made to deal with the emerging technology and its relationship to education. This could be accomplished at the university level by requiring prospective school administrators to enroll in a data processing experience.[12]

Both use of and training for computers in education expanded significantly during the period represented by the literature reviewed in this section. From the early sixties to mid-seventies computer-facilitated school management grew from a subject for limited experimental studies to a widely accepted and utilized educational practice.

Current State

Currently, educational administrative computer applications are centered in two spheres of activity. Continuing from growth and successes in the seventies, main frame information management systems provide crucial support for administrative practice in many school districts. Likewise, single purpose and report-by-report computer users still exist in the educational administrative community. Some of these administrators, however, are using microcomputer technology to enchance or substitute for mainframe capabilities.

Specific examples of mainframe-based information management systems presently operational are those in Oregon, Minnesota, and Oakland County, Michigan. O.T.I.S.

---

[12]Cayen, op. cit., pp. 96, 98, 160.

(Oregon), Management Information Services Division (Minnesota), and R.A.M.S. II (Michigan) all provide administrative support services to a variety of users throughout their respective geographical regions. The powerful mainframes employed in these systems are storing, comparing, and reporting information concerning pupils, personnel, finances, and facilities. Current literature offers some strong support to these exemplary information management systems. Writing concerning "Education in a Postindustrial Society," Orrin Hatch makes the comment,

> A postindustrial society is one that is organized around information and the codification of information in very complex systems and the use of that information in guiding government, employers, and the public-at-large.[13]

Likewise, another U.S. Department of Education document notes that,

> Today we find ourselves with the biggest problems and the best solutions. The U.S. has suddenly become an information society in which on-line computers are becoming the predominant mode of information delivery. Sharing computerized data banks allows managers to have immediate access to large stores of information which cut across a wide system of organizations.[14]

---

[13]Orrin G. Hatch, "Education in a Postindustrial Society," American Education, U.S. Office of Education, Vol. XVIII, No. 5, June, 1982, p. 4.

[14]Mary E. Moran, "Improving Schools Through Private Sector Partnerships," American Education, U.S. Department of Education, Vol. XIX, No. 1, January/February 1983, pp. 7-8.

Very recently software has been developed for microcomputer-based information management systems.[15] However, to-date, such systems for educational administration have gone largely unexplored. Currently, educational administrative microcomputer programs are designed primarily to perform one function such as scheduling, attendance, or grade reporting.[16] Even without the benefits of a management system approach, these and other needs of school administrators can be serviced through microcomputer technology. With literally hundreds of microcomputer programs available that promise to ease the task of student management,[17] educators may soon echo the enthusiasm of microcomputer users in business and industry.

One office executive claims that the new microcomputers will "reshape the office of the 1980's becoming essential tools for the professional."[18] An indicator of this range of usefulness is the worldwide microcomputer sales record of 6.1 billion dollars in 1982. This impressive figure is expected to climb to an even more impressive

---

[15]Edgar Coudal, "Managers Computerize to Organize with DBM," Personal Computing, Vol. VI, No. 8, August, 1982, p. 112.

[16]Kenneth Jones and Thomas Dukes, "Microcomputers in School Administrative Management," Education Technology, Vol. XXIII, No. 3, March 1983, pp. 38-9.

[17]Stanley Pogrow, "Microcomputerizing Your Paperwork," Electronic Learning, Vol. II, No. 2, October 1982, p. 20.

[18]Cary Lu, "Microcomputers: The Second Wave," High Technology, Vol. II, No. 5, September/October 1982, p. 36.

21 billion dollars by 1986.[19] The overwhelmingly positive response of business managers to the microcomputer is attributed to its power, portability, and price. These three factors allow microcomputers to operate with respect to the needs, interests, and abilities of individual users. Through this process some authors think the microcomputer has effectively shifted computing power from the priesthood (data processing managers) to the people ("non-technical" managers) and is "catalyzing an overhaul in this country's work habits."[20]

To what extent school administrators are employing microcomputer technology is not well documented. Seventy-seven percent of the respondents to Antoinette Burke's dissertation survey reported use of microcomputers in their southeastern Michigan K-12 schools. Only one to ten percent (varying by application and building level) of the respondents reported administrative microcomputer use, however.[21] In spite of a business environment which claims that "the most effective mid- and top-level managers are those who are

---

[19]Cary Lu, "The Coming Shakeout in Personal Computers," Business Week, November 22, 1982, No. 2766, p. 72.

[20]Jeffrey Rothfeder, "Get Ready For Prime-Time Playing," Personal Computing, April 1982, Vol. VI, No. 4, p. 26-7.

[21]Antoinette Burke, "Microcomputer Technology in Public Schools in Southeastern Michigan" (Ph.D. dissertation, Wayne State University, 1983) pp. 50 and 56.

not intimidated by the new technology,"[22] many school administrators are, if not intimidated, at least uninformed and untrained where microcomputer applications are concerned.[23]

The current literature strongly indicates that a match does not exist between present computer technology and computer utilization by school administrators. Several methods are suggested for achieving this match. As previously mentioned, Jones and Dukes think one answer lies in the improvement of school-oriented information management systems for microcomputers.[24] Others insist that both mainframe and microcomputer technology must be utilized in a complementary fashion to provide optimum services for educational administrators.[25] An example of this type of use is the Management Information Services Division of M.E.C.C. (Minnesota Educational Computing Consortium) which provides both microcomputer and mainframe supported administrative services.[26]

Regardless of equipment utilization, it is obvious that educators are being challenged to appropriately

---

[22]Jane Carroll, "Computing Literacy: Springboard to Success," Personal Computing, September 1982, Vol. VI, No. 9, p. 45.

[23]Jones and Dukes, op. cit., p. 39.

[24]Ibid., p. 38.

[25]Interview with Dr. Rex Wood, Deputy Superintendent--Oakland Schools, April 13, 1983.

[26]Kenneth E. Brumbaugh, "MECC: A Statewide Model for Educational Computing," Computers in Curriculum and Instruction, ASCD, 1983, pp. 64-73.

computerize their administrative work. Toward an end of producing the best quality service at the least possible cost they are compelled to apply computer technology to educational problem solving. Authors of one article even offer Ten Commandments for Successful Information Management to increase administrative effectiveness via the computer:[27]

The Ten Commandments for
Successful Information Management

1. Use timely, accurate data: Don't let today's reports use yesterday's data.
2. Employ adequate staffing of your computer center.
3. Learn about computing yourself: Good decisions are made by informed administrators.
4. Inform the community and board of any new informational processes that are being planned.
5. Promote staff development in computer literacy.
6. Use serious statistics for serious decisions.
7. Forge a direct linkage between generated information and administrative planning.
8. Choose reliable hardware and software with good maintenance agreements.
9. Be flexible in both outlook and thinking.
10. Have a vision: A computer is no panacea, but it can help in ways you haven't even dreamed about yet.

---

[27]Dr. George A. Libonate, Jr. and Dr. Jonathan T. Hughes, "The Administratively Effective School District: The Role of the Computer," Educational Computer Magazine, Vol. II, No. 4, July/August 1982, pp. 90-2.

D. G. Marshall describes the educational administrator's present situation with several "Points."

> Point 1: The increased volume of information available to educational decision-makers will result in the need for new skills in information retrieval and demands for rationality in decision-making.
>
> Point 2: The advent of the micro age will lead to decentralization in school decision-making.
>
> Point 3: School administrators have a responsibility to develop the computer literacy skills required to make purchasing and application decisions.
>
> Point 4: An increase in public awareness of computer capabilities will lead to public expectations that school administrators will be freed from the drudgery of school management and will have more time to be educational leaders.[28]

Thought provoking statements such as these add impetus to the study of educational administrative computing. Are predictions accurate that there will be more and better utilization of this technology by educational administrators? Indeed, will computing activity be a means toward the end of increased administrative involvement in educational leadership? Only time ("the future") will tell.

Future

Few authors offer a view into the crystal ball for educational administrative computer use. When the subject

---

[28]D. G. Marshall, "The School Administrator and the Microcomputer," Education Canada, Vol. XXII, No. 2, Summer 1982, pp. 4-11.

of future administrative applications is discussed, it is primarily treated as a function of public attitudes and/or technological advancement. Expectations are that the public's demand for more information and a better decision-making process will lead to increased reliance on computers. This situation and the anticipated advancements in microcomputer technology (continually decreasing price/increasing productivity) result in positive reports regarding growth of computer applications by educational administrators.[29]

Lending credence to the projections for increased use of this technology are recent predictions by Ben Rosen. In an interview with Personal Computing magazine he hypothesizes as follows:[30]

- By the 1990's microcomputers will be the largest part of the computing industry and will "eclipse" mainframes.
- Less skilled people will be increasingly more capable of using microcomputers due to their extra processing power.
- More networking of computers will occur in large corporations allowing users to communicate with each other as well as share data bases and expensive peripherals.
- Integrated software will be developed and improved for microcomputers.

Specific implications of these predictions are unclear where educational administrators are concerned. Does networking

---

[29]See Marshall, op. cit., pp. 7-8; Jones and Dukes, op. cit., p. 39; Libonate and Hughes, op. cit., pp. 10, 12.

[30]"A Personal Computing Interview with Ben Rosen," Personal Computing, Vol. VI, No. 6, June 1982, pp. 28, 29, 98, 101.

large corporate settings imply networking within or even among school districts? Can integrated microcomputer software packages replace mainframe information management systems? What training will be required for systems which are predicted to require less and less "skill?" Answers to these questions are an integral part of the future of computer applications by educational administrators.

In addition to the aforementioned incentives, some authors note encumbrances to growth of administrative computer applications. The two emphasized stumbling blocks are traditional inertia in any change process and lack of trained personnel to facilitate the change. Mainframe-loyal employees are expected to be major contributors to the inertia factor in instances where microcomputer technology is attempting to replace its more costly predecessor.[31] Likewise, employees must be trained to a level of awareness and skill necessary to insure appropriate implementation of advanced technology. Whether this set of workers will exist, especially in the educational community, is a concern. As one group of writers summarized, "The major problem we face is educating ourselves. Educators who prefer the vision of the computer literate school must start educating themselves."[32]

---

[31]Christopher Evans, The Micro Millenium (New York: Washington Square Press, 1979), pp. 65, 111.

[32]Peter Cobwin et. al., Practical Guide to Computers in Education (Reading, Massachusetts: Addison-Wesley, 1982), p. 183.

Summary

In Chapter II the researcher presented a review of literature concerning the history, current state or future of computer applications by and related training for educational administrators. Pioneer administrative computing efforts were noted in addition to documentation of growth during the 1970's. Current mainframe as well as microcomputer use by school managers are described and contrasted. The chapter concludes by targeting factors which will affect future administrative computing needs and equipment utilization.

CHAPTER III

DESIGN OF THE STUDY

This study is an example of descriptive research. It can be classified as a population (census) survey using descriptive techniques to report primary data gathered by a questionnaire. According to definition, descriptive research deals with the real world setting without manipulation by the researcher. This type of study involves questions based in the present status of affairs which have implications beyond the limits of the elements studied. Use of descriptive methodology allows the researcher not only to provide information but also to interpret present conditions. This interpretation takes the form of conclusions drawn through identification or comparison of relationships within the collected data.[1]

The author of this study chose descriptive methodology as the appropriate vehicle to explain current administrative computing practice in public schools of Oakland

---

[1]Charles D. Hopkins, Educational Research: A Structure for Inquiry (Columbus, Ohio: Charles E. Merrill Publishing Co., 1976), pp. 135-171.

County Michigan. This study of existing conditions generates knowledge and establishes a climate for predictions regarding school administrative computing practices. Raw data, generated knowledge and predictions are offered with the intent of contributing to improvement of these computer applications by school administrators.

Source of Data and Sample

Three hundred three building principals were asked to respond to the survey questionnaire. Those contacted were principals of all K-12 public schools in Oakland County, Michigan. This county was selected for study due to the type and level of educational administrative computing activity occurring in the area.

Oakland School's data processing department has a stable history dating to the early 1960's. Oakland's R.A.M.S. administrative software is currently used to some degree by all twenty-eight school districts in the county. These districts serve almost two hundred thousand students (159,030 of whom are on-line with the county facility). Additionally, three school districts within the county support their own mainframe based computer systems while several districts operate with very few computer facilitated services (testing and/or special education only). Oakland County school administrators have employed or coexisted with computer facilitated management as long as administrators in

any geographical region of the nation. Consequently, the researcher elected to study this area as an example of active educational administrative data processing.

Instrumentation

The survey instrument used in this study was prepared by the researcher with assistance and review by the following individuals:

Richard H. Bergman -- Director of Data Processing, Milwaukee Public Schools

Benjamin L. Jones -- Manager Instructional Services, Oregon Total Information System

Gary Kueber -- Director Computer Services, New Orleans Public Schools

Alan T. Olkes -- Executive Director Management Information Services, Dade County (Florida) Public Schools

Stephen M. Raucher -- Director Department of Management Information and Computer Services, Montgomery County (Maryland) Public Schools

Jim Sweet -- Director Data Processing, ESC-Region XX, San Antonio, Texas

Dr. George Grisdale, Assistant Director, Measurements and Guidance, Oakland Schools

Dr. William Veitch -- Assistant Director, Research and Evaluation, Oakland Schools

Selected members, Student Information Management System (S.I.M.S.) Committee, Troy School District

Selected members, Phi Delta Kappa, Oakland County Chapter

The six men whose names begin the list are authorities in the field of educational administrative computing. They were named by at least three resource people and/or documents as recognized leaders whose opinions were well respected in this field. Each authority was contacted by telephone to request input regarding the computer services checklist portion of the survey instrument. A follow-up letter and draft of the checklist were then mailed to each of these individuals (see Appendix A). Written comments were received from all six and the checklist was modified to reflect this input.

Dr. Grisdale and Dr. Veitch repeatedly reviewed the total survey content and format for clarity of questions and precision of information to be collected. Their experience with the survey process proved extremely valuable in finalizing the document used for data collection in this study.

Members of the Troy School District S.I.M.S. Committee and Oakland County Phi Delta Kappa Chapter examined the questionnaire for appropriateness of terminology and reasonableness of response time. Their comments were helpful in abbreviating and streamlining the tool eventually used for data collection.

Preparation of the survey instrument was begun in late September 1982. The review processs described in the preceding paragraphs was completed in mid-January 1983.

Data Collection

Data for this study were collected through use of a survey instrument mailed to 303 public school principals in Oakland County, Michigan. Surveys were mailed February 1, 1983 with a requested return date of no later than February 15, 1983. Follow-up post cards were mailed to all survey participants February 8. Since only fifty-five percent of the principals returned the survey by the requested date, telephone calls were made to ninety-one administrators in an attempt to improve the response rate. These calls were made between March 1 and March 15. An additional survey instrument and cover letter were sent to each principal who needed them. This third set of correspondence included a personal note referring to the telephone contact. By March 31, two hundred thirteen completed surveys had been returned to the researcher. Charted below is the survey distribution and rate of return.

Building Level	Number Mailed	Number Returned	Percentage Returned
Elementary	200	128	64 %
Middle	62	48	77.4%
High	41	37	90.2%
TOTAL	303	213	70 %

In order to have computer facilitated data analysis, answers to survey items were coded for entry into a data file. The coding system enployed was verified by the

Supervisor of Data Processing for Troy School District as well as the Assistant Director of Research and Evaluation for Oakland Schools. During this coding process, the researcher engaged in telephone interviews with forty-four survey respondents to assure proper interpretation of answers given by these individuals. Telephone interviews were completed May 17.

Data Analysis

Two research questions were identified in Chapter I of this study. The research questions and their related survey items are as follows.

Research Question 1

What is the status of building-level administrative computer applications with respect to equipment and functions in Oakland County's K-12 public schools?

Related survey items -- The Administrative Services Checklist (see next page) was used to collect data regarding administrative computing equipment and functions. The purpose of this section was to discriminate between microcomputer and mainframe users as well as to designate the specific administrative services which were computer supported for each respondent.

Treatment of data -- The six columns of the checklist were collapsed into three through the researcher's coding system. Columns 1 and 2 were fused to reflect microcomputer use (whether in-house or out). Responses to columns 3 and 6 were combined to designate any type of mainframe support (whether in-district or through the intermediate school district). Cathode ray tube use of any type was documented through columns 4 and 5. Thus the nineteen possible computing activities each received three codes (yes/no) as to microcomputer, mainframe and CRT support. Frequency distributions were then compiled for each computing activity/equipment combination (57 in total).

ADMINISTRATIVE SERVICES CHECKLIST

Below is a list of administrative services/activities which may occur in schools with or without computer assistance. Please respond in terms of your building and the services/activities with which you are involved.

	1. In-House Micro-Computer Assisted?		2. Assisted by Micro-computer in Another Facility?		3. On Line with I.S.D.?		4. Cathode Ray Tubes (Display Screens) in House?		5. Cathode Ray Tubes in Another Facility?		6. In District Computer System?	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
A. PUPIL PERSONNEL FUNCTIONS												
Attendance	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Schedule Creation/Maintenance	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Testing	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Health/Emergency Information	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Grade Reporting	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Mid-marking Period Progress Reporting	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Transcripts	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Graduation Requirements	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Creating Class Rank, Low Grade, Failure and/or Honor Roll Lists	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
B. ADDITIONAL ADMINISTRATIVE REPORTING												
State Mandated Membership Reports	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Special Education	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Vocational Education	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Transportation	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
School Lunch Program	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Student/Staff Demographic Reports	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Accounting, Billing, Purchasing	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
C. CLERICAL/UTILITY FUNCTIONS												
Word Processing	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Graphics (charts, drawings, etc.)	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Mailing Labels	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
D. PLEASE LIST ANY OTHER COMPUTER ASSISTED ACTIVITY IN WHICH YOU ENGAGE AND RESPOND TO THE SIX QUESTIONS WITH RESPECT TO THAT FUNCTION:												
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

Two other frequency distributions were tabulated using responses to the Administrative Services Checklist. These included a breakdown of responses according to the three categories of computing function (Pupil Personnel, Administrative Reporting, Clerical/Utility). A respondent was counted as active in a category if there was a yes answer to any function in that category (e.g., Scheduling within Pupil Personnel). These caluclations were done to determine whether computing activity was predominant in any particular category.

The third frequency distribution was for the three types of equipment in use by administrative respondents (microcomputer, mainframe, CRT). Any use of a piece of equipment categorized the respondent as a user for purposes of this distribution (e.g., word processing with a microcomputer = microcomputer user). This frequency distribution was prepared to determine the number of users for each type of computing equipment regardless of the degree of use.

Additionally, data were analyzed by crosstabulation to determine if responses differed among the elementary, middle school and high school administrative groups. Tables prepared and reported included crosstabulation of

- each computing function by elementary, middle and high school levels
- three categories of computing functions by elementary, middle and high school levels
- type of computing equipment by elementary, middle and high school levels.

Research Question 2

What tasks do building administrators perform with respect to these computer applications?

Related survey items -- Survey Section I.E was used to collect information regarding type of administrative participation in computing activities.

As the administrator responsible for building data processing services, in which of the following activities do you engage? (Check as many as apply)

( ) Data Collection
( ) Data Entry
( ) Data Retrieval
( ) Programming
( ) Determination of content and format for computer output
( ) Transportation of Raw Data
( ) Other_____
( ) None

Treatment of data -- Each administrative activity was coded separately for a yes/no response. Frequency distributions were then compiled for each type of administrative participation in the computing function. Categories of administrative participation were then defined and frequency distributions were compiled for each category. The four categories of administrative participation were defined as follows:

non-participant -- administrative respondent who indicated no participation in any computing activity in survey section I.E.

transmitter -- administrative respondent who indicated participation in data collection or transportation only

technician -- administrative respondent who indicated participation in data entry or retrieval (without programming or determination of output content/format)

decision-maker -- administrative respondent who indicated participation in programming or determination of content and format of output

Data were then analyzed by crosstabulation to determine if responses differed among the elementary, middle school and high school administrative groups. Tables prepared and reported included crosstabulation of

- each administrative task by elementary, middle and high school levels
- administrative participation category by elementary, middle and high school levels

Summary

This study was designed to provide information regarding building-level administrative computer applications in the K-12 public schools of Oakland County, Michigan. Data regarding computing equipment, functions and administrative participation were collected through the use of a survey mailed February 1, 1983 to 303 principals of Oakland County public schools. Frequency distributions were used for presentation of collected data. Additionally, crosstabulation was employed to discern response differences among the elementary, middle and high school administrative groups.

CHAPTER IV

ANALYSIS OF THE DATA

Data obtained from responses to the administrative computing survey were analyzed by the researcher. The purpose of the analysis was to answer two research questions identified in Chapter I of this dissertation.

- What is the status of building-level administrative computer applications with respect to equipment and functions in Oakland County's K-12 public schools?
- What tasks do building administrators perform with respect to these computer applications?

Analysis of data was organized according to the research question to which the data pertain. Thus, data relating to computing equipment and function (Question 1) are presented first and are followed by data concerning administrative computing tasks (Question 2). Supportive tables included are as follows:

Research Question 1

Table 1 Frequency Distribution of Computing Function/Equipment Combinations

Tables 2-20	Crosstabulation Summary Tables for Each Computing Function by Elementary, Middle and High School Levels*
Table 21	Frequency Distribution for Categories of Administrative Computing Functions
Tables 22-24	Crosstabulation Summary Tables for Three Categories of Computing Functions by Elementary, Middle and High School Levels*
Table 25	Frequency Distribution for Types of Computing Equipment
Tables 26-28	Crosstabulation Summary Tables for Computing Equipment by Elementary, Middle and High School Levels*

Research Question 2

Table 29	Frequency Distribution of Responses to Administrative Computing Tasks
Tables 30-35	Crosstabulation Summary Tables for Each Administrative Computing Task by Elementary, Middle and High School Levels*
Table 36	Frequency Distribution of Administrative Computing Participation Categories
Table 37	Crosstabulation Summary Table for Four Categories of Administrative Participation by Elementary, Middle and High School Levels*

---

* Chi square was employed to examine relationships between variables reported in the crosstabulation summary tables

RESEARCH QUESTION 1

The Administrative Services Checklist (see page 33) was used to collect data regarding administrative computing equipment and functions. The researcher used these data to discriminate between microcomputer and mainframe users as well as to designate the specific administrative services which were computer supported for each survey respondent. Table 1 displays the frequency distribution of checklist responses according to each computing function and the type of equipment used to support the function.

With respect to computing equipment, the figures clearly indicate the dominance of mainframes over microcomputers for educational administrative services. Microcomputer users varied by application from one (0.5%) to twenty-five (11.7%) while mainframe users ranged from thirteen (6.1%) to one-hundred twenty-one (56.8%). CRT's facilitated mainframe users for each function named. The level of CRT users varied, however, from two (0.9%) to forty-nine (23%) of the respondents.

Review of Table 1 figures also revealed the nature of the computing activity supported by this equipment. Microcomputer use was heaviest in word processing (11.7%), graphics (7.5%), mailing labels (7.0%), student attendance (6.1%), and financial accounting (5.6%). Mainframe users employed their equipment most frequently for mailing labels (56.8%), state reports (45.1%), financial accounting (38%),

FREQUENCY DISTRIBUTION OF COMPUTING FUNCTION/COMPUTING EQUIPMENT COMBINATIONS

(N=213)

	Microcomputer Supported		Mainframe Supported		CRT Supported	
	Yes	No	Yes	No	Yes	No
Pupil/Personnel						
Attendance	13 (6.1%)	200 (93.9%)	73 (34.3%)	140 (65.7%)	32 (15.0%)	181 (85.0%)
Scheduling	10 (4.7%)	203 (95.3%)	77 (36.2%)	136 (63.8%)	49 (23.0%)	164 (77.0%)
Testing	11 (5.2%)	202 (94.8%)	78 (36.6%)	135 (63.4%)	14 (6.6%)	199 (93.4%)
Health	9 (4.2%)	204 (95.8%)	26 (12.2%)	187 (87.8%)	19 (8.9%)	194 (91.7%)
Grading	8 (3.8%)	205 (96.2%)	69 (32.4%)	144 (67.6%)	45 (21.1%)	168 (78.9%)
Progress Reporting	6 (2.8%)	207 (97.2%)	41 (19.2%)	172 (80.8%)	25 (11.7%)	188 (88.3%)
Transcripts	4 (1.9%)	209 (98.1%)	40 (18.8%)	173 (81.2%)	25 (11.7%)	188 (88.3%)
Graduation Requirements	3 (1.4%)	210 (98.6%)	17 (8.0%)	196 (92.0%)	11 (5.2%)	202 (94.8%)
Class Rank/Low Grade	3 (1.4%)	210 (98.6%)	56 (26.3%)	157 (73.7%)	30 (14.1%)	183 (85.9%)
Additional Administrative Reporting						
State Reports	7 (3.3%)	206 (96.7%)	96 (45.1%)	117 (54.9%)	33 (15.5%)	180 (84.5%)
Special Education	9 (4.2%)	204 (95.8%)	67 (31.5%)	146 (68.5%)	20 (9.4%)	193 (90.6%)
Vocational Education	2 (0.9%)	211 (99.1%)	30 (14.1%)	183 (85.9%)	12 (5.6%)	201 (94.4%)
Transportation	5 (2.3%)	208 (97.7%)	50 (23.5%)	163 (76.5%)	9 (4.2%)	204 (95.8%)
Lunch Program	1 (0.5%)	212 (99.5%)	13 (6.1%)	200 (93.9%)	2 (0.9%)	211 (99.1%)
Student/Staff Demographics	3 (1.4%)	210 (98.6%)	59 (27.7%)	154 (72.3%)	21 (9.9%)	192 (90.1%)
Accounting	12 (5.6%)	201 (94.4%)	81 (38.0%)	132 (62.0%)	18 (8.5%)	195 (91.5%)
Clerical/Utility						
Word Processing	25 (11.7%)	188 (88.3%)	31 (14.6%)	182 (85.4%)	16 (7.5%)	197 (92.5%)
Graphics	16 (7.5%)	197 (92.5%)	13 (6.1%)	200 (93.9%)	2 (0.9%)	211 (99.1%)
Mailing Labels	15 (7.0%)	198 (93.0%)	121 (56.8%)	92 (43.2%)	31 (20.3%)	182 (79.7%)

TABLE 1

student testing (36.6%), and scheduling (36.2%). The higher levels of CRT use were for scheduling (23.0%), grading (21.1%), state reports (15.5%), attendance (15.0%), and mailing labels (20.3%).

Of additional interest to the researcher was the difference in answers to a given checklist category by administrators from the same district and building level. Within many districts both survey responses and telephone interviews indicated widely varying levels of computer awareness and/or use among members of the same administrative group. This was especially true of elementary principals and contradicted the researcher's expectation for similarity at given building levels within a district.

Responses to the Administrative Services Checklist were also used to determine whether a relationship existed between the building level an administrator represented and the computer supported services the administrator received. Tables 2-20 show crosstabulation summaries for each computing function by the administrator's building level. The chi square test of independence was employed at the .05 significance level for all crosstabulations.

Fifteen of the nineteen tables indicate a relationship between whether an administrator's building is an elementary, middle or high school and the computer services which the administrator's building receives. In these tables the level of participation increases significantly as the building level changes from elementary to middle to high

school. Data analyses for participation in testing, transportation, lunch program and graphics do not reflect such a relationship.

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY COMPUTER SUPPORTED ATTENDANCE SERVICES

(N=213)

	Yes	No	Row Total
Elementary	30 (23.4%)	98 (76.6%)	128 (60.1%)
Middle School	29 (60.4%)	19 (39.6%)	48 (22.5%)
High School	24 (64.9%)	13 (35.1%)	37 (17.4%)
Column Total	83 (39.0%)	130 (61.0%)	213 (100.0%)

Chi-Square = 32.69984 D.F. = 2 Significance = 0.0000*

TABLE 2

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY COMPUTER SUPPORTED SCHEDULING

(N=213)

	Yes	No	Row Total
Elementary	16 (12.5%)	112 (87.5%)	128 (60.1%)
Middle School	38 (79.2%)	10 (20.8%)	48 (22.5%)
High School	35 (94.6%)	2 (5.4%)	37 (17.4%)
Column Total	89 (41.8%)	124 (58.2%)	213 (100.0%)

Chi-Square = 115.12290 D.F. = 2 Significance = 0.0000*

TABLE 3

---

* Levels of significance were calculated only to the fourth decimal place

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED TESTING

(N=213)

	Yes	No	Row Total
Elementary	49 (38.3%)	79 (61.7%)	128 (60.1%)
Middle School	23 (47.9%)	25 (52.1%)	48 (22.5%)
High School	13 (35.1%)	24 (64.9%)	37 (17.4%)
Column Total	85 (39.9%)	128 (60.1%)	213 (100.0%)

Chi-Square = 1.77650 D.F. = 2 Significance = 0.4114

TABLE 4

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOL
BY COMPUTER SUPPORTED HEALTH INFORMATION

(N=213)

	Yes	No	Row Total
Elementary	13 (10.2%)	115 (89.8%)	128 (60.1%)
Middle School	11 (22.9%)	37 (77.1%)	48 (22.5%)
High School	14 (37.8%)	23 (62.2%)	37 (17.4%)
Column Total	38 (17.8%)	175 (82.2%)	213 (100.0%)

Chi-Square = 16.09473 D.F. = 2 Significance = 0.0003

TABLE 5

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED GRADE REPORTING

(N=213)

	Yes	No	Row Total
Elementary	10 (7.8%)	118 (92.2%)	128 (60.1%)
Middle School	34 (70.8%)	14 (29.2%)	48 (22.5%)
High School	33 (89.2%)	4 (10.8%)	37 (17.4%)
Column Total	77 (36.2%)	136 (63.8%)	213 (100.0%)

Chi-Square = 114.64128 D.F. = 2 Significance = 0.0000

TABLE 6

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPORTED PROGRESS REPORTING

(N=213)

	Yes	No	Row Total
Elementary	7 (5.5%)	121 (94.5%)	128 (60.1%)
Middle School	21 (43.8%)	27 (56.3%)	48 (22.5%)
High School	22 (59.5%)	15 (40.5%)	37 (17.4%)
Column Total	50 (23.5%)	163 (76.5%)	213 (100.0%)

Chi-Square = 60.75714 D.F. = 2 Significance = 0.0000

TABLE 7

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED TRANSCRIPT MAINTENANCE

(N=213)

	Yes	No	Row Total
Elementary	4 (3.1%)	124 (96.9%)	128 (60.1%)
Middle School	17 (35.4%)	31 (64.6%)	48 (22.5%)
High School	23 (62.2%)	14 (37.8%)	37 (17.4%)
Column Total	44 (20.7%)	169 (79.3%)	213 (100.0%)

Chi-Square = 69.27327 D.F. = 2 Significance = 0.0000

TABLE 8

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPORTED GRADUATION REQUIREMENT MONITORING

(N=213)

	Yes	No	Row Total
Elementary	4 (3.1%)	124 (96.9%)	128 (60.1%)
Middle School	6 (12.5%)	42 (87.5%)	48 (22.5%)
High School	12 (32.4%)	25 (67.6%)	37 (17.4%)
Column Total	22 (10.3%)	191 (89.7%)	213 (100.0%)

Chi-Square = 26.93409 D.F. = 2 Significance = 0.0000

TABLE 9

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED CLASS RANK DEVELOPMENT

(N=213)

	Yes		No		Row Total	
Elementary	8	(6.3%)	120	(93.8%)	128	(60.1%)
Middle School	25	(52.1%)	23	(47.9%)	48	(22.5%)
High School	28	(75.7%)	9	(24.3%)	37	(17.4%)
Column Total	61	(28.6%)	152	(71.4%)	213	(100.0%)

Chi-Square = 84.35995 D.F. = 2 Significance = 0.0000

TABLE 10

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED STATE MANDATED REPORTING

(N=213)

	Yes		No		Row Total	
Elementary	41	(32.0%)	87	(68.0%)	128	(60.1%)
Middle School	31	(64.6%)	17	(35.4%)	48	(22.5%)
High School	30	(81.1%)	7	(18.9%)	37	(17.4%)
Column Total	102	(47.9%)	111	(52.1%)	213	(100.0%)

Chi-Square = 34.59335 D.F. = 2 Significance = 0.0000

TABLE 11

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED SPECIAL EDUCATION REPORTING

(N=213)

	Yes	No	Row Total
Elementary	34 (26.6%)	94 (73.4%)	128 (60.1%)
Middle School	22 (45.8%)	26 (54.2%)	48 (22.5%)
High School	17 (45.9%)	20 (54.1%)	37 (17.4%)
Column Total	73 (34.3%)	140 (65.7%)	213 (100.0%)

Chi-Square = 8.46390 D.F. = 2 Significance = 0.0145

TABLE 12

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED VOCATIONAL EDUCATION REPORTING

(N=213)

	Yes	No	Row Total
Elementary	7 (5.5%)	121 (94.5%)	128 (60.1%)
Middle School	9 (18.8%)	39 (81.3%)	48 (22.5%)
High School	15 (40.5%)	22 (59.5%)	37 (17.4%)
Column Total	31 (14.6%)	182 (85.4%)	213 (100.0%)

Chi-Square = 29.26755 D.F. = 2 Significance = 0.0000

TABLE 13

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED TRANSPORTATION PLAN

(N=213)

	Yes	No	Row Total
Elementary	29 (22.7%)	99 (77.3%)	128 (60.1%)
Middle School	13 (27.1%)	35 (72.9%)	48 (22.5%)
High School	13 (35.1%)	24 (64.9%)	37 (17.4%)
Column Total	55 (25.8%)	158 (74.2%)	213 (100.0%)

Chi-Square = 2.38506 D.F. = 2 Significance = 0.3035

TABLE 14

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED LUNCH PROGRAM REPORTING

(N=213)

	Yes	No	Row Total
Elementary	6 (4.7%)	122 (95.3%)	128 (60.1%)
Middle School	3 (6.3%)	45 (93.8%)	48 (22.5%)
High School	5 (13.5%)	32 (86.5%)	37 (17.4%)
Column Total	14 (6.6%)	199 (93.4%)	213 (100.0%)

Chi-Square = 3.65163 D.F. = 2 Significance = 0.1611

TABLE 15

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED STUDENT/STAFF DEMOGRAPHIC REPORTING

(N=213)

	Yes	No	Row Total
Elementary	28 (21.9%)	100 (78.1%)	128 (60.1%)
Middle School	15 (31.3%)	33 (68.8%)	48 (22.5%)
High School	18 (48.6%)	19 (51.4%)	37 (17.4%)
Column Total	61 (28.6%)	152 (71.4%)	213 (100.0%)

Chi-Square = 10.27443 D.F. = 2 Significance = 0.0059

TABLE 16

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED ACCOUNTING PROCEDURES

(N=213)

	Yes	No	Row Total
Elementary	44 (34.4%)	84 (65.6%)	128 (60.1%)
Middle School	24 (50.0%)	24 (50.0%)	48 (22.5%)
High School	20 (54.1%)	17 (45.9%)	37 (17.4%)
Column Total	88 (41.3%)	125 (58.7%)	213 (100.0%)

Chi-Square = 6.51252 D.F. = 2 Significance = 0.0385

TABLE 17

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED WORD PROCESSING

(N=213)

	Yes	No	Row Total
Elementary	18 (14.1%)	110 (85.9%)	128 (60.1%)
Middle School	8 (16.7%)	40 (83.3%)	48 (22.5%)
High School	24 (64.9%)	13 (35.1%)	37 (17.4%)
Column Total	50 (23.5%)	163 (76.5%)	213 (100.0%)

Chi-Square = 42.83645 D.F. = 2 Significance = 0.0000

TABLE 18

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS
BY COMPUTER SUPPORTED GRAPHICS USE

(N=213)

	Yes	No	Row Total
Elementary	14 (10.9%)	114 (89.1%)	128 (60.1%)
Middle School	5 (10.4%)	43 (89.6%)	48 (22.5%)
High School	7 (18.9%)	30 (81.1%)	37 (17.4%)
Column Total	26 (12.2%)	187 (87.8%)	213 (100.0%)

Chi-Square = 1.89145 D.F. = 2 Significance = 0.3884

TABLE 19

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY COMPUTER SUPPORTED MAILING LABEL PREPARATION

(N=213)

	Yes	No	Row Total
Elementary	64 (50.0%)	64 (50.0%)	128 (60.1%)
Middle School	34 (70.8%)	14 (29.2%)	48 (22.5%)
High School	35 (94.6%)	2 (5.4%)	37 (17.4%)
Column Total	133 (62.4%)	80 (37.6%)	213 (100.0%)

Chi-Square = 26.20017 D.F. = 2 Significance = 0.0000

TABLE 20

Using responses to the Administrative Service Checklist a frequency distribution was also prepared for the three categories of administrative computing functions. Pupil Personnel, Additional Administrative Reporting and Clerical/Utility services were tabulated as three groups and Table 21 shows this frequency distribution. With survey responses grouped in this manner the activity level in each computing category is similar and ranks as follows: Pupil Personnel (66.2%), Clerical/Utility (65.3%), Administrative Reporting (62.0%).

FREQUENCY DISTRIBUTION FOR CATEGORIES OF ADMINISTRATIVE COMPUTING FUNCTIONS

(N=213)

	Yes	No
Pupil Personnel	141 (66.2%)	72 (33.8%)
Administrative Reporting	132 (62.0%)	81 (38.0%)
Clerical/Utility	139 (65.3%)	74 (34.7%)

TABLE 21

In order to determine if the similarity of computing activity by category was consistent for different building levels, crosstabulation summaries were prepared for each category by building level (elementary, middle, high). Tables 22-24 show results of each crosstabulation.

Rather than remaining constant across building levels, the level of participation in each category of computing activity varies significantly. In pupil personnel, administrative reporting and clerical/utility functions, participation increases as the building level increases.

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY COMPUTER SUPPORTED PUPIL PERSONNEL SERVICES

(N=213)

	Yes	No
Elementary	63 (49.2%)	65 (50.8%)
Middle School	41 (85.4%)	7 (14.6%)
High School	37 (100.0%)	0 (0.0%)

Chi-Square=43.30710 D.F.=2 Significance=0.0000

TABLE 22

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY COMPUTER SUPPORTED ADDITIONAL ADMINISTRATIVE REPORTING

(N=213)

	Yes	No
Elementary	64 (50.0%)	64 (50.0%)
Middle School	36 (75.0%)	12 (25.0%)
High School	32 (86.5%)	5 (13.5%)

Chi-Square=20.67683 D.F.=2 Significance=0.0000

TABLE 23

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY COMPUTER SUPPORTED CLERICAL/UTILITY

(N=213)

	Yes		No	
Elementary	69	(53.9%)	59	(46.1%)
Middle School	34	(70.8%)	14	(29.2%)
High School	36	(97.3%)	1	(2.7%)

Chi-Square=24.68589 D.F.=2 Significance=0.0000

TABLE 24

The third frequency distribution related to Research Question 1 is for types of computing equipment in use by survey respondents. Table 25 shows the number of microcomputer, mainframe and CRT users. Microcomputers are used by only 15.0% of the administrators while 68.5% receive services supported by mainframes. Fifty-two of the one hundred forty six mainframe users receive additional support through CRT's.

FREQUENCY DISTRIBUTION FOR TYPES OF COMPUTING EQUIPMENT IN USE

(N=213)

	Yes		No	
Microcomputer	32	(15.0%)	181	(85.0%)
Mainframe	146	(68.5%)	67	(31.5%)
CRT	52	(24.4%)	161	(75.6%)

TABLE 25

Types of computing equipment were also considered according to whether the administrator's building was an elementary, middle or high school. To determine whether there was a relationship between the type of equipment in use and the building level, crosstabulation was performed for these two variables. Tables 26-28 present these crosstabulation summaries.

Although microcomputer use was not related to whether the administrator managed an elementary, middle or high school, a statistically significant relationship was indicated between mainframe use and building level as well as CRT use and building level. In both cases the number of equipment users increased as the building level increased.

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY MICROCOMPUTER USE

(N=213)

	Yes	No
Elementary	16 (12.5%)	112 (87.5%)
Middle School	8 (16.7%)	40 (83.3%)
High School	8 (21.6%)	29 (78.4%)

Chi-Square=2.00174 D.F.=2 Significance=0.3676

TABLE 26

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY MAINFRAME USE

(N=213)

	Yes	No
Elementary	71 (55.5%)	57 (44.5%)
Middle School	39 (81.3%)	9 (18.8%)
High School	36 (97.3%)	1 (2.7%)

Chi-Square=27.93112 D.F.=2 Significance=0.0000

TABLE 27

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY CRT USE

(N=213)

	Yes	No
Elementary	2 (1.6%)	126 (98.4%)
Middle School	17 (35.4%)	31 (64.6%)
High School	33 (89.2%)	4 (10.8%)

Chi-Square=123.50030 D.F.=2 Significance=0.0000

TABLE 28

RESEARCH QUESTION 2

The researcher used section I.E. of the survey to collect information regarding type of administrative participation in computing activities. Table 29 presents the frequency distribution of responses to each of the six specific administrative activities as well as those who responded to "other" or indicated no participation. Ninety seven (45.8%) of the two hundred twelve respondents to this section indicated data collection as one of their computing tasks. Additionally, administrators indicated less frequently their participation in transportation of raw data (33.0%), determination of content and format for output (26.9%), data retrieval (21.7%), data entry (21.2%) and programming (9.0%). The five administrators answering "other" specified activity in the areas of staff assistance and/or in-service.

ADMINISTRATIVE COMPUTING TASKS
Frequency Distribution--Survey Section I.E

(N=212)

	Yes		No	
Data Collection	97	(45.8%)	115	(54.2%)
Data Entry	45	(21.2%)	167	(78.8%)
Data Retrieval	46	(21.7%)	166	(78.3%)
Programming	19	(9.0%)	193	(91.0%)
Determining Content/Format	46	(26.9%)	155	(73.1%)
Data Transportation	70	(33.0%)	142	(67.0%)
Other	5	(2.4%)	207	(97.6%)
None	85	(40.1%)	127	(52.9%)

TABLE 29

Tables 30-35 show crosstabulation summaries for each of the six computing tasks by elementary, middle and high school administrative categories. In all cases the researcher used the chi-square test of independence to determine whether a relationship existed between the computing activity in which an administrator engaged and that administrator being elementary, middle or high school level.

For each of the six tasks a statistically significant relationship existed between whether the administrator participated in the task and the administrator's building

level. In each case the number of task participants increased as the building level increased.

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY ADMINISTRATIVE DATA COLLECTION

(N=212)

	Yes	No
Elementary	39 (30.7%)	88 (69.3%)
Middle School	26 (54.2%)	22 (45.8%)
High School	32 (86.5%)	5 (13.5%)

Chi-Square=37.68491 D.F.=2 Significance=0.0000

TABLE 30

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY ADMINISTRATIVE DATA ENTRY

(N=212)

	Yes	No
Elementary	9 (7.1%)	118 (92.9%)
Middle School	13 (27.1%)	35 (72.9%)
High School	23 (62.2%)	14 (37.8%)

Chi-Square=53.25123 D.F.=2 Significance=0.0000

TABLE 31

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY ADMINISTRATIVE DATA RETRIEVAL

(N=212)

	Yes	No
Elementary	9 (7.1%)	118 (92.9%)
Middle School	13 (27.1%)	35 (72.9%)
High School	24 (64.9%)	13 (35.1%)

Chi-Square=57.35752 D.F.=2 Significance=0.0000

TABLE 32

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY ADMINISTRATIVE PROGRAMMING

(N=212)

	Yes	No
Elementary	3 (2.4%)	124 (97.6%)
Middle School	10 (20.8%)	38 (79.2%)
High School	6 (16.2%)	31 (83.8%)

Chi-Square=17.45722 D.F.=2 Significance=0.0002

TABLE 33

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY ADMINISTRATIVE DETERMINATION OF CONTENT AND FORMAT OF OUTPUT

(N=212)

	Yes	No
Elementary	14 (11.0%)	113 (89.0%)
Middle School	24 (50.0%)	24 (50.0%)
High School	19 (51.4%)	18 (48.6%)

Chi-Square=40.56707 D.F.=2 Significance=0.0000

TABLE 34

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY ADMINISTRATIVE DATA TRANSPORTATION

(N=212)

	Yes	No
Elementary	28 (22.0%)	99 (78.0%)
Middle School	19 (39.6%)	29 (60.4%)
High School	23 (62.2%)	14 (37.8%)

Chi-Square=22.05669 D.F.=2 Significance=0.0000

TABLE 35

To further analyze the type of administrative computing activity indicated by survey responses the researcher defined four categories of administrative participation.

The researcher also ordered the categories to reflect increasingly more sophisticated participation in the computing process. The categories were as follows: non-participant (inactive in computing), transmitter (active only in collecting and/or transporting raw data), technician (active in data entry and/or retrieval), decision-maker (active in programming and/or determining format/content of computer output). Table 36 shows the number of survey respondents in each category. One hundred twenty seven (59.9%) of the respondents were computing-active to some degree. Eighty five (40.1%) of the administrators perceived themselves as inactive in the computing process while sixty three (29.7%) were operating at the decision-maker level.

ADMINISTRATIVE LEVEL OF PARTICIPATION

Category	Number	Percentage
Non-participant	85	40.1%
Transmitter	40	18.9%
Technician	24	11.3%
Decision-Maker	63	29.7%

TABLE 36

Crosstabulation was done to determine if there was a relationship between an administrator's level of participation and whether the administrator was managing an

elementary, middle or high school. Table 37 shows the summary of this process.

For each level of participation the number of participants varied significantly from elementary to middle to high school. At the non-participant and transmitter levels the number of participants decreased as building level increased. For the more computing-active categories of technician and decision-maker the number of participants increased as building level increased.

CROSSTABULATION OF ELEMENTARY, MIDDLE AND HIGH SCHOOLS BY LEVEL OF ADMINISTRATIVE PARTICIPATION

(N=212)

	Non-Participant	Transmitter	Technician	Decision-Maker
Elementary	72 (56.3%)	34 (26.6%)	8 (6.3%)	14 (10.9%)
Middle School	13 (27.7%)	3 (6.4%)	5 (10.6%)	26 (55.3%)
High School	0 (0.0%)	3 (8.1%)	11 (29.7%)	23 (62.2%)

Chi-Square = 87.81650 D.F. = 6 Significance = 0.0000

TABLE 37

It is important to note that money was mentioned by thirty-three of the survey respondents as a factor in beginning or improving computer supported services. These administrators (representing at least eleven different school districts) stated that services were being initiated, revised or terminated due to financial factors.

Summary

Chapter IV presented the data accumulated from responses to the researcher's survey. Data were organized by the research question to which they related. Frequency distributions and crosstabulation summaries were presented to provide support for conclusions which are presented in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

In this dissertation the researcher has explored administrative applications of computer technology at the school building level in Oakland County, Michigan. Specifically, two research questions were addressed in the study:

> Question 1: What is the status of building-level administrative computer applications with respect to equipment and functions in Oakland County's K-12 public schools?
>
> Question 2: What tasks do building administrators perform with respect to these computer applications?

To assist with consideration of these questions relevant literature was reviewed. This review included the history, current state and future of school administrative computer applications. Facts gathered and ideas obtained from the literature assisted the researcher in interpreting research findings, drawing conclusions and making recommendations.

Descriptive methodology was used to complete this study. Two hundred thirteen of three hundred three Oakland

County principals responded to a survey regarding administrative computing activity for their buildings and their participation in the computing process. Frequency distributions were prepared to present collected data regarding administrative computing equipment, functions and activities. Additionally, crosstabulation summaries were prepared to discern response differences among the elementary, middle and high school administrative groups.

Abbreviated major findings from the survey process were as follows:

Computing Equipment

1. The mainframe was the primary administrative computing tool for Oakland County school principals. Mainframes were used by 68.5% of the survey respondents with heaviest reported use in the areas of mailing labels, state reports, accounting, testing and pupil attendance.

2. Oakland County's fifteen percent participation rate in educational administrative microcomputer applications is consistent with the underutilization documented as present practice in other areas. Numerous comments were made by respondents indicating current instructional use of microcomputers and a desire to pursue administrative applications in the near future.

3. Of particular interest to the researcher were survey results regarding the building level at which different types of computing equipment were used for administrative purposes. Although the figures varied from 55.5% (elementary) to 81.3% (middle) and 97.3% (high school) for mainframe users, the figures varied less for microcomputer administrative use. The user counts (12.5%--elementary, 16.7%--middle, 21.6%--high school) indicate that the microcomputer's price, portability and productivity have made it almost as interesting and useful to other building levels as it is to high school administrators.

4. Money was mentioned by thirty-three of the survey respondents as a factor in beginning or improving computer supported services.

Computing Function/Services

1. Statistical analysis indicated that specific computer supported administrative services were directly related to the level of the building. Fifteen of nineteen computing functions increased significantly in number of users as the administrative group changed from elementary to middle to high school.

2. Overall, no pupil personnel computer supported service was as frequently used as the most common clerical/ utility function (mailing labels--62.4%) or administrative reporting function (state reporting--47.9%). By building level the three most frequently used services were as follows: elementary--mailing labels (50%), testing (38.3%), accounting (34.4%); middle school--scheduling (79.2%), mailing labels and grade reporting (70.8% each); high school--mailing labels and scheduling (94.6% each), grading (89.2%).

3. Elementary administrators receive fewer computer supported services than their middle or high school colleagues. This was particularly evident as the number of administrators reporting no computer services was examined. Of fifty-three who reported no computer assisted administrative services, forty-six were elementary level administrators.

4. Within many districts both survey responses and telephone interviews indicated widely varying levels of computer awareness and/or use among members of the same administrative group.

Computing Activity

1. Administrative involvement with the computing process varied from no participation to a high level of participation. The most frequent computing activity for Oakland County administrators was data collection (45.8%) while eighty-five respondents (40.1%) reported no involvement with administrative computing.

2. Degree of participation in the computing process was found to be related to the administrator's

building level. As the level of the respondent group changed from elementary to middle to high school, the level of participation increased significantly.

3. The building level breakdown for those who perceived themselves as non-participants in the administrative computing process is also noteworthy. Of eighty-five respondents (40.1%) who indicated no computing involvement, seventy-two were elementary, thirteen middle and none were high school administrators.

4. Several factors indicate a desire by Oakland County administrators to use computer support appropriately for building management. These indicators include the current level of computer use by these administrators as well as the number of survey responses describing specific interests and/or plans to form computer study groups.

5. Of those administrators who perceived themselves as active in the computing process, almost half (63/127) were categorized as high level ("decision maker") participants. It was noteworthy that middle school administrators indicated this activity level at a rate closely approaching their high school colleagues.

Conclusions

In addition to the major findings listed on pages 66-68, conclusions can be drawn from the survey process and the data presented in Chapter IV. They are noted below with the research question and finding(s) to which they relate:

Question 1: What is the status of building-level administrative computer applications with respect to equipment and functions in Oakland County's K-12 public schools?

1. Given the underutilization of microcomputer equipment as well as the limited computing services many administrators are receiving, it is appropriate to conclude that many administrative training programs are not

adequately preparing school managers to effectively use the wide range of hardware/ software available (see findings #1 and #2--Computing Equipment; findings #2 and #3--Computing Functions/Services).

2. As instructional uses cause students, parents, teachers and administrators to become knowledgeable of and comfortable with microcomputers, it is reasonable to assume that administrative microcomputer software may receive greater attention and use (see finding #2--Computing Equipment).

3. Given the variety of survey responses from administrators within almost every school district, it is reasonable to conclude that computer-related communication among building administrators is limited or non-existent within many Oakland County school districts.

Question 2: What tasks do building administrators perform with respect to these computer applications?

1. Given the number of elementary administrators who perceived themselves as non-participants in the computing process as well as those who did not receive any computer services, it is reasonable to conclude that computer services are perceived by many administrators as appropriate for secondary schools only (see findings #3--Computing Functions/Services and #3--Computing Activity).

2. Although computing equipment is available to them, some administrators are either unable or unwilling to assume roles as data processing leaders in their buildings (see findings #1--Computing Equipment and #1--Computing Activity).

Recommendations

With the previously stated conclusions in mind the following recommendations are made by the researcher.

Recommendations for School Administrators and Universities

1. More school administrators should use instructional computing equipment for administrative purposes during non-instructional hours.

2. More school administrators should consider using administrative computing applications for student learning situations. Examples of activities for consideration include word processing, graphics and preparation of demographic reports in business-oriented computer classes. This could offer students "real life" applications of skills asuming teachers and administrators would guard against possible abuse of instructional time.

3. Central office administrators should provide for information exchange between building administrators and the data processing staff. This could be accomplished through an administrative computing leadership committee. Included in the duties of such a committee would be encouraging use of computing equipment and keeping abreast of hardware/software developments.

4. Central office and building administrators should plan regular, effective in-service programs regarding administrative computing. Appropriate topics for these sessions would include updates on currently used applications, microcomputer software evaluations, visits to successful administrative computing programs and "What can computers do for us?" brainstorming sessions.

5. Central office and building administrators should review and modify equipment replacement plans with a goal of acquiring "computerized" replacements where appropriate and possible. An example of this process would be the replacement of typewriters with word processors.

6. Central office and building administrators should fully utilize computer equipment and personnel resources at area universities and intermediate school districts. This can provide ideas,

in-service assistance and emergency people/hardware support.

7. Universities providing educational administrative training programs should include in their curriculum the opportunity for experience with computer applications for school management.

Recommendations for Further Study

1. Efficiency standards for manual versus computer assisted educational administrative services should be developed. Cost-effectiveness needs to be determined as it relates to size of student population and per pupil expenditures.

2. There is a need to determine the type of computing equipment necessary to provide a particular level of administrative service (i.e., micro, mini, mainframe or combination necessary for given number of students at specific level of operation).

3. Successful computing public relations programs need to be developed and documented. Plans should include school staff, boards of educations and community members.

4. This dissertation should be replicated in other geographical areas to determine whether Oakland County's educational administrative computing has characteristics in common with other areas, represents a trend or is unique.

5. Administrative computing activity at the middle school level should be further examined to determine if the Oakland County situation is unique, represents a secondary trend or a general trend which will eventually include elementary schools.

6. This dissertation should be replicated in a geographical area which does and one which does not have as lengthy a computing history as does Oakland County. A major objective of such a study would be to determine whether mainframe use dominates the educational computing activity in either or both areas as it does in Oakland County.

APPENDICES

APPENDIX A

Sample Letter to Data Processing Authority

October 5, 1982

Richard H. Bergman
Director Data Processing
Milwaukee Public Schools
P. O. Drawer 10K
Milwaukee, Wisconsin 53201

Dear Mr. Bergman:

As we discussed in our telephone conversation today, I am sending you a list of computer assisted administrative functions with which school principals and/or assistant principals might be involved. It is my intention to use this list in a survey that is part of my doctoral dissertation. Hopefully, I will be able to determine from survey results the computer assisted job activities in which Oakland County building administrators engage as well as any related training they received.

Thank you for agreeing to review the building level administrative computer applications and for verifying their accuracy/completeness. Your assistance is greatly appreciated.

Sincerely,

Lennie L. Wells

llw:ar

Please check (✓) each computer application that should be included in a survey of principals and assistant principals (K-12) to determine their involvement with administrative computer applications.

BUILDING-LEVEL ADMINISTRATIVE COMPUTER APPLICATIONS

Pupil Personnel Functions

___ attendance
___ schedule creation & maintenance
___ testing
___ health/emergency information
___ grade reporting
___ mid-marking period progress reporting
___ transcripts
___ monitoring of graduation requirements
___ class rank, low grade/ failure list, honor roll

Other:

Please use this space to comment on the thoroughness and clarity of this section:

Additional Administrative Reporting

___ state mandated membership reports (e.g. avg. daily attendance)
___ special education
___ vocational education
___ transportation
___ school lunch program
___ student/staff demographic reports
___ accounting, billing, purchasing

Other:

Please use this space to comment on the thoroughness and clarity of this section:

Clerical Functions

___ word processing
___ graphics
___ mailing labels

Other:

Please use this space to comment on the thoroughness and clarity of this section:

APPENDIX B

Letter of Transmittal

Survey Instrument

Follow-Up Postcard

January 31, 1983

Dear Principal:

As assistant principal at Athens High School in Troy, one of my primary responsibilities involves administrative data processing functions for our building. Additionally, I am a doctoral student in Michigan State University's educational administration program.

Because of my interest and computer related work experience, my doctoral dissertation will focus on administrative computer applications at the building level. Of particular concern to me is the type of administrative computing activity occurring in K-12 public schools of Oakland County.

I am writing to request your assistance in the collection of this information. Would you (or the building administrator most directly involved with administrative computing) please complete the attached survey and return it to me at your earliest convenience. The survey was designed with your busy schedule in mind. Hopefully, it can be completed very quickly.

Thank you for your help in this project. If you are interested in receiving a report of my research findings, please let me know. I will enjoy sharing the results.

Sincerely,

Lennie L. Wells

P.S. I would greatly appreciate receipt of your response no later than February 15.

Enclosure

SURVEY

Job Title _____

Name (optional) _____

I. SCHOOL BUILDING/ADMINISTRATOR INFORMATION

A. Grade levels in your building: [] K-5 [] 6-8 [] 9-12 [] Other _____

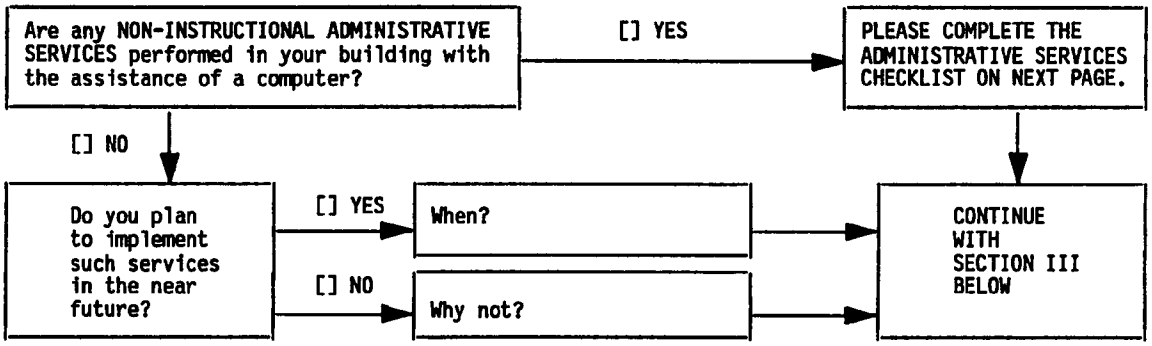
B. Size of student population (fourth Friday 1982) _____

C. Administrative structure: [] Principal only [] Principal and one Assistant
[] Other _____

D. Is a specific administrative services computer program package used by your building?
[] Yes. Name (e.g., R.A.M.S.II) or description of software in use: _____
[] No.

E. As the administrator responsible for building data processing services, in which of the following activities do you engage? (Check as many as apply)
[] Data Collection [] Determination of Content and Format for Computer Output
[] Data Entry [] Transportation of Raw Data to "Computer Center"
[] Data Retrieval [] Other _____
[] Programming [] None

II. COMPUTER ASSISTED ADMINISTRATIVE SERVICES



III. COMPUTER RELATED TRAINING (Check as many as apply for each question in part A and B)

A. Pre-Service (university training in preparation for administrative assignment)

1. I had PRE-SERVICE training in:
[] Pupil Personnel Functions
[] Administrative Reporting
[] Clerical/Utility Functions
[] Other _____
[] None of the above

2. PRE-SERVICE training is desirable in:
[] Pupil Personnel Functions
[] Administrative Reporting
[] Clerical/Utility Functions
[] Other _____
[] None of the above

B. In-Service (workshop, seminar, coursework, etc., following assignment of administrative duties)

1. I have had IN-SERVICE training in:
[] Pupil Personnel Functions
[] Administrative Reporting
[] Clerical/Utility Functions
[] Other _____
[] None of the above

2. IN-SERVICE training is desirable in:
[] Pupil Personnel Functions
[] Administrative Reporting
[] Clerical/Utility Functions
[] Other _____
[] None of the above

ADMINISTRATIVE SERVICES CHECKLIST

Below is a list of administrative services/activities which may occur in schools with or without computer assistance. Please respond in terms of your building and the services/activities with which you are involved.

	1. In-House Micro-Computer Assisted?		2. Assisted by Micro-computer in Another Facility?		3. On Line with I.S.D.?		4. Cathode Ray Tubes (Display Screens) in House?		5. Cathode Ray Tubes in Another Facility?		6. In District Computer System?	
A. PUPIL PERSONNEL FUNCTIONS	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Attendance	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Schedule Creation/Maintenance	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Testing	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Health/Emergency Information	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Grade Reporting	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Mid-marking Period Progress Reporting	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Transcripts	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Graduation Requirements	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Creating Class Rank, Low Grade, Failure and/or Honor Roll Lists	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
B. ADDITIONAL ADMINISTRATIVE REPORTING												
State Mandated Membership Reports	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Special Education	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Vocational Education	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Transportation	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
School Lunch Program	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Student/Staff Demographic Reports	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Accounting, Billing, Purchasing	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
C. CLERICAL/UTILITY FUNCTIONS												
Word Processing	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Graphics (charts, drawings, etc.)	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
Mailing Labels	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
D. PLEASE LIST ANY OTHER COMPUTER ASSISTED ACTIVITY IN WHICH YOU ENGAGE AND RESPOND TO THE SIX QUESTIONS WITH RESPECT TO THAT FUNCTION:												
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
_____	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

FOLLOW-UP POSTCARD

Dear Principal:

A few days ago you received a letter and survey concerning my dissertation topic "Building-level Administrative Computer Applications." If you have already returned the survey, thanks so much for your prompt response. If you have been delayed in completing the survey or forwarding it to the appropriate administrator, please respond at your earliest convenience.

I do APPRECIATE your timely assistance.

Sincerely,

BIBLIOGRAPHY

SELECTED BIBLIOGRAPHY

Books

Cobwin, Peter et al. Practical Guide to Computers in Education. Reading, Massachusetts: Addison-Wesley, 1982.

The Computer and Education. Educational Technology Review Series. New Jersey: Educational Technology Publications, 1974.

Computers and Education. Edited by Ralph W. Gerard. New York: McGraw Hill, 1967.

Computers in Curriculum and Instruction. Edited by M. Tim Grady and Jane D. Gawronski. Alexandria, Virginia: Association for Supervision and Curriculum Development, 1983.

Darby, Charles A. Jr., Korotkin, Arthur L. and Romashko, Tania. The Computer in Secondary Schools. New York: Praeger Publishers, 1972.

Evans, Christopher. The Micro Millenium. New York: Washington Square Press, 1979.

Goodlad, John I., O'Toole, John F. Jr. and Tyler, Louise L. Computers and Information Systems in Education. New York: Harcourt, Brace and World, 1966.

Hopkins, Charles D. Educational Research: A Structure for Inquiry. Columbus, Ohio: Charles E. Merrill Publishing Co., 1976.

Microcomputers in the Schools. Edited by James L. Thomas. Phoenix, Arizona: Oryx Pres, 1981.

Sowell, Evelyn J. and Casey, Rita J. Research Methods in Education. Belmont, California: Wadsworth Publishing Co., 1982.

Articles

Bukosi, William J. and Karotkin, Arthur L. "Computing Activities in Secondary Education." Educational Technology, Vol. XVI, No. 1, January 1976, pp. 9-23.

Carroll, Jane. "Computing Literacy: Springboard to Success." Personal Computing, Vol. VI, No. 9, September, 1982, pp. 45-48.

"The Coming Shakeout in Personal Computers." Business Week, No. 2766, November 22, 1982, pp. 72-79.

Coudal, Edgar. "Managers Computerize to Organize with DBM." Personal Computing, Vol. VI, No. 8, August, 1982, pp. 112-119; 137-138.

Dennis, J. Richard et al. "Computer Activities in Secondary Illinois Schools." The Illinois Series on Educational Applications of Computers, June, 1977.

Hatch, Orrin G. "Education in a Postindustrial Society." American Education, Vol. XVIII, No. 5, June, 1982, pp. 4-7.

Jones, Kenneth and Dukes, Thomas. "Microcomputers in School Administrative Management." Educational Technology, Vol. XXIII, No. 3, March, 1983, pp. 38-39.

Libonate, George A. Jr. and Hughes, Jonathan T. "The Administratively Effective School District: The Role of the Computer." Educational Computer Magazine, Vol. II, No. 4, July/August, 1982, pp. 10-12.

Lu, Cary. "Microcomputers: The Second Wave." High Technology, Vol. II, No. 5, September/October, 1982, pp. 36-52.

Marshall, D. G. "The School Administrator and the Microcomputer." Education Canada, Vol. XXII, No. 2, Summer 1982, pp. 4-11.

Moran, Mary E. "Improving Schools Through Private Sector Partnerships." American Education, Vol. XIX, No. 1, January/February, 1983, pp. 5-8.

Oliveri, Peter. "Computer Usage Trends." SIGCUE Bulletin, Vol. X, No. 2, April, 1976, pp. 14-17.

"Personal Computing Interview with Ben Rosen." Personal Computing, Vol. VI, No. 6, June, 1982, pp. 28-30; 98-101.

Pogrow, Stanley. "Microcomputerizing Your Paperwork." Electronic Learning, Vol. II, No. 2, October, 1982, pp. 20-27.

Rothfeder, Jeffrey. "Get Ready for Prime-Time Playing." Personal Computing, Vol. VI, No. 4, April, 1982, pp. 26-27.

Reports

American Association of School Administrators. EDP and the School Administrator. A report prepared by the AASA Committee on Electronic Data Processing. Washington, D.C., 1967.

Foley, Walter J. Educational Information Project--Final Report. Iowa University, Iowa City, March, 1968.

Gaydos, Irvin A. Survey of New Jersey Public School Districts Using Computers and Data Entry Equipment. A report to the New Jersey State Board of Education, January, 1976.

System Description and Status Report: California Educational Information System. California State Department of Education, Sacramento, November, 1971.

Other Sources

"Integrated Education Information Systems." Pamphlet describing interview between Dr. Rex Wood and potential IEIS users, Spring, 1967.

Keill, James. "Project ADMIRE (Assistance for Decision Making through Information Retrieval in Education), Principal's Manual for Pupil Scheduling by Computer." Lincoln Public Schools, Nebraska, 1967.

Unpublished Material

Burke, Antoinette M. "Microcomputer Technology in Public Schools in Southeastern Michigan." Unpublished Ph.D. dissertation, Wayne State University, 1983.

Cayen, William Frederick. "Data Processing of Student Services and the Administrative Coordination in Selected High Schools of Michigan." Unpublished Ph.D. dissertation, University of Michigan, 1976.

Loveless, John E. "Supplementing the Programs and Services of Rural School Systems by New Type Regional Service Agencies." Speech presented at National Outlook Conference on Rural Youth, October, 1967.

Masemore, G. L. and Seebold, J. E. "A Data Base Approach to Pupil Information Systems." Paper presented at the Association for Educational Data Systems Annual Convention, Phoenix, Arizona, May, 1976.

Miller, J. J. and Skees, W. D. "Pupil Master Record System: History and Outlook." Paper presented at the Association for Educational Data Systems Annual Convention, New Orleans, Louisiana, April, 1973.

"Oakland Schools Instructional Computing Long Range Planning Opinion Survey." September, 1981.

Otterson, Carol. "Student Administration K-12: Need v. Ability." Paper presented at the American Association for Educational Data Systems Annual Convention, April, 1973.

Penny, Edward B. "An Indispensable Tool for Research and Evaluation: A Functional Pupil Data System." Paper presented at the annual meeting of the American Educational Research Association, March, 1975.

Raucher, S. M. "Information--The Synthesis of Data." Paper presented at the Association for Educational Data Systems Annual Convention, Phoenix, Arizona, May, 1976.

Wood, Rex. "Remotely Accessible Management System (RAMS)." Paper presented at the Association for Educational Data Systems Annual Convention, New Orleans, Louisiana, April, 1973.