

**THE IMPACT OF MICROCOMPUTERS
IN SCHOOL ADMINISTRATION ON
LEADERSHIP ACTIVITIES**

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TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM.....	3
Introduction.....	3
Rationale.....	4
Purpose of the Study.....	5
Hypothesis.....	5
Questions Guiding the Study.....	5
Limitations of the Study.....	5
Assumptions.....	6
Definitions of Terms.....	6
Summary.....	7
II. REVIEW OF THE LITERATURE.....	9
Introduction.....	9
The Role of the Principal.....	11
Reasons to Automate.....	12
Computer Applications.....	14
Factors in Purchasing.....	15
Leadership in Successful Implementation.....	17
Effects of Computer Use.....	20
Summary.....	22
III. RESEARCH DESIGN.....	25
General Method.....	25
Research Population.....	25

Instrumentation.....	26
Pilot Study.....	27
Data Collection.....	27
IV. ANALYSIS OF THE DATA.....	30
V. SUMMARY, RECOMMENDATIONS AND CONCLUSIONS.....	43
Bibliography.....	50
Appendices.....	52
Appendix A: Questionnaire.....	52
Appendix B: Consent Form.....	56
Appendix C: Comments from Interviews.....	57
Appendix D: Questionnaire Comments.....	64

CHAPTER I.

THE PROBLEM

INTRODUCTION

There is increasing use of microcomputers in school administrative offices. In a study by Stronge (1988) it was found that an elementary school administrator spends sixty-two percent of the time on school management tasks. It is not possible to make more hours in a day. It is possible, however, to make some tasks more efficient. Administrators need to find ways to reduce the time spent on management so that more time can be made available for leadership activities. The microcomputer has the potential to help make management tasks more efficient thereby increasing the available time administrators can devote towards collaborative and collegial activities to enhance the effectiveness of the school.

Wayne Reis (1990) conducted a study in British Columbia in 1990 to determine the impact of the administrative use of computers on school based management. He found that more time was spent by elementary school administrators on leadership activities after the school office was computerized. Another finding was that the more the computer was used for management activities, the more time was spent on leadership activities. There was, additionally, a perceived benefit for clerical staff and for teachers in having a computerized office.

In the ongoing quest for more effective schools,

alternatives must be explored to provide a climate to maximize positive educational experiences for children. Reis (1990) determined that "the use of the microcomputer in school-based administration does in fact translate into more time being spent by the principal on the leadership role" (p. 60, 61). In this time of budgetary restraints and fiscal responsibility, there is a greater demand for accountability to taxpayers and to school boards. The goal of this study is to determine if the automation of school offices in southern Alberta will lead to more effective schools.

RATIONALE

Microcomputers are becoming increasingly common as an administrative tool. Studies by Spuck and Atkinson (1983), Barbour (1987), and Bluhm (1987) found that the use of microcomputers increased the efficiency of the administrative office thus allowing for additional time to be spent on other activities. Few studies have examined if this additional time is used by administrators for leadership activities such as the development of interpersonal relations, curriculum development and implementation, the enhancement of the school climate, and instructional leadership. An increase in the amount of time spent in these areas has the potential to increase the effectiveness of the school and provide a better learning environment for students.

THE PURPOSE OF THE STUDY

The purpose of this evaluative study is to determine if the use of computers in administration of schools in southern Alberta has an impact on the amount of time spent on leadership activities as determined by teachers and principals.

HYPOTHESIS

The Null Hypothesis states that there will be no significant relationship between the use of microcomputers in school based administration and the amount of time spent on leadership activities by the principal.

QUESTIONS GUIDING THE STUDY

This study will attempt to determine the impact of the administrative use of computers in schools. The following questions will be addressed in this study:

1. Does the use of microcomputers in school administration reduce the time needed to perform some activities and does this result in an increase in time which is available for principals to do other activities?
2. Are there specific leadership activities on which the administrator spends more time because of microcomputer use?

LIMITATIONS OF STUDY

There are several limitations in this study:

1. Any kind of self report is affected by individual bias.
2. The number of subjects involved was limited to nine administrators and eighteen teachers chosen randomly from

school jurisdictions in Zone Six.

3. There are limitations to survey questionnaires because of participant tendency towards the median.
4. The population sample was a volunteer sample.

ASSUMPTIONS

There are assumptions that underlie this study. It is assumed that the participants will answer the questionnaire with thought and honesty and that their answers reflect the true effect of microcomputers in school based administration.

DEFINITION OF TERMS

1. Administration: the act of managing and collaborating with others to achieve pre-determined goals.
2. Automation: a system or method of using old ways, principles, equipment, and technology to help people manage information.
3. Hardware: the physical components or machines of a computer system.
4. Leadership: the process of guiding, leading or facilitating activities toward goal setting and goal achievement.
5. Management: the act of managing, handling, controlling or directing activities.
6. Microcomputer: an electronic device controlled by commands which, by means of stored instructions and information, performs rapid, often complex calculations or

compiles, correlates, and selects data; used synonymously with computer.

7. Software: stored digital information on magnetic disks or tapes or as electronic information in the computer's memory which determines what a computer does; used synonymously with program.

SUMMARY

While there has been a great deal of research on the use of computers for administration in elementary schools, a need was identified for research specific to the impact of the microcomputer on the time spent on the leadership role of the principal (Tamblyn, 1988, Reis, 1990). Since all schools must keep records of some kind, it follows that a decrease in the amount of time spent keeping these records will lead to more efficiency in the administrative offices. According to Pogrow (1985), "computers have the potential to reduce much of this paperwork - 50 to 90 percent in many applications" (p. 45).

Decision making and management are also integral parts of administration. Computer-assisted decision making can benefit administrators by ensuring that the "right information is available in the right form, at the right time, in the right place, to assist the right people to make the right decision" (Bluhm, 1987, p. 47).

There is an increasing use of computers in educational administration. As budget allocation decisions are being

made in a time of fiscal restraint, a study should be done to determine how the expenditure of money for this new technology will impact on the effectiveness of the school administrator in a leadership role and the resulting effectiveness of the school.

CHAPTER II.

REVIEW OF THE LITERATURE

Introduction

There are an increasing number of microcomputers in school offices. Studies have shown that microcomputers increase the efficiency of some management tasks. There are, however, many concerns with the use of microcomputers in administration. Tamblyn (1988) poses a question that needs to be answered in relation to this new technology:

Does the information computers provide assist the principal in completing essential tasks and enhance productivity, or is the computer a more efficient method of shuffling papers and a potential distraction from the role of instructional leadership? (p. 27).

Another question that needs to be answered is whether or not the use of microcomputers will focus the administrator's time more on the task and less on relationships and personnel management (Tamblyn, 1988, p. 29). There are several problems inherent in the use of microcomputers for administrative tasks. While microcomputers may save time in some management tasks, they do not create a complete vision for improving a school or creating an effective school (Tamblyn, 1988, p. 29). Pogrow (1985) writes that "computers cannot make poor managers better administrators" (p. 52). As well, microcomputers can generate the wrong kinds of information or too much information. This "overload of information can detract from

the effectiveness of the principal" (Tamblyn, 1988, p. 27). Another concern addressed in the literature is the change in administrative focus from relationships and towards tasks (Tamblyn, 1988, p. 27). Time may be spent generating information which could be more effectively used on personnel development. The use of microcomputers has the capability of simplifying the management tasks. However, the use of computers will not solve all administrative and management problems in a school. Administrators should be aware of the concerns and problems associated with the use of microcomputers in administration. If the microcomputer is used to assist principals in making better decisions, in reducing the amount of time spent on routine management tasks, and in increasing the amount of available time the administrator spends on leadership tasks, then the use is more likely to increase the efficiency and the effectiveness of the school.

As educational leaders, principals "need to be computer literate if they are to be in the forefront in having computers used effectively for instructional and administrative purposes" (Bluhm, 1987, p. 20). Principals should be aware of the uses of microcomputers for administrative and instructional purposes, the barriers to implementation of computers, factors in purchasing hardware and software, and some of the possible effects of computer use in the schools.

Microcomputers, when used properly, can "assist administrators in saving time ordinarily consumed in routine tasks and thus provide additional time for working directly on other vital leadership functions" (Spuck and Atkinson, 1983, p. 90). There has been little research done on the impact of computer use in school administration on the leadership role or the administrative effectiveness of principals. This literature review will focus on the use of computers in schools for administrative purposes.

The Role of the Principal

Research has shown that effective principals consistently demonstrate competencies in several key areas (Kowalchuk, 1990, p. 29):

1. Human relations or personnel
2. Curriculum
3. School climate or atmosphere
4. Instruction
5. Promotion of personal or professional development
6. Guidance
7. Routine administration
8. Evaluation
9. Finance
10. Management

The specific areas that researchers have found to be identified as the most important are competencies in human relations or with personnel, in the development of school

climate or atmosphere, in instruction, in the promotion of personal or professional development and in evaluation. Since these are the areas which are seen as important, it would appear that as much time as possible should be spent by the principal on these areas.

In a study conducted by Stronge (1988) it was found that an elementary school principal spent 62.2 percent of the time on school management. This was identified as one of the least important areas of the ten top competencies in the research review done by Kowalchuk (1990). It would stand to reason, therefore, that an administrator would be more effective if the amount of time spent on school management could be reduced to allow for more time to be spent on the area of leadership.

The use of the computer in administration has the potential to help reduce the time spent on management to allow for more available time for leadership.

Reasons to Automate

There are many positive aspects to automation of administrative offices. Huntington (1983) writes that "if the work is presently being done on paper, the chances are that it could be done more efficiently and thoroughly on the computer in less time" (p. 96). Carr (1988a) writes that the use of an electronic filing system in a school would "decrease the amount of paperwork and make storage of these records more manageable" (p. 42). Electronic Learning

conducted a survey of school and district administrators on the role of technology in school administration. Fifty-four percent of the respondents said that the "main benefit administrators see in using technology is a reduction of their paperwork" (Barbour, 1987, p. 19). In the same survey, thirty-one percent of the respondents also liked the way in which information could be accessed and the variety of ways it could be arranged (Barbour, 1987, p. 19). This has the potential to lessen the time spent on management and to give administrators more time to spend on leadership activities.

Another benefit in the administrative use of computers is as a management information system. This would assist an administrator in formulating "policies and plans by projecting the likely consequences of decisions" (Bluhm, 1987, p. 24). A budget could be generated on a spreadsheet and, as detailed by Crawford (1985), changes could be made to part of the budget and "an entirely new budget document [could] be generated" (p. 61). This would allow the administrator to look at many scenarios and determine what would be the best approach for the school without spending hours and hours on manual computations. "Decision making is considered the most important function of administration" (Bluhm, 1987, p. 6). Hoy and Miskel (1991) write about the importance of decision making in administration:

Although completely rational decision making is impossible, administrators need a systematic process to

enhance the selection of satisfactory solutions (p. 340).

The computer can assist in generating the data for different scenarios so an administrator can more easily answer "what if" types of questions.

Computers can be used "to carry out many diverse tasks such as: database management, drawing and graphics, word processing, spreadsheet analysis, telecommunications, modelling and analysis, with a high degree of speed and accuracy" (Hollick-Kenyon, 1988, p. 6). Huntington (1983) raises a caution in the use of computers in administration. There is a concern that while computers may help in effectively arranging information and helping in the decision making process, administrators must be aware that it takes a great deal of time to computerize an office and this should be taken into consideration (Huntington, 1983, p. 92).

Computer Applications

There are many computer applications for administrative purposes. Barbour (1987) reports, as a result of the Electronic Learning survey, that the most prevalent use of the computer was in student/personal record-keeping with thirty-nine percent of the respondents using it for that purpose. The next most common tasks performed on the computers were attendance with thirty-three percent use, budgeting with thirty-two percent use, class scheduling with thirty-one percent use and inventory management with twenty-

eight percent use.

In the study conducted by Gatley and Brown (1985), the three main applications were student data files, word-processing, and attendance recording and reporting. Other areas of usage were "medical and school-based team reports, student profiles, address lists, sales records and class lists" (56). Projected future uses were in individual educational programs and report generation from the master pupil data base (Gatley and Brown, 1985, Table 4, p. 60).

Kuralt (1987) and Tambllyn (1988) advocate the use of microcomputers in the area of teacher supervision and evaluation. Crawford (1987) suggests using the microcomputer for staff records such as names, addresses, telephone numbers, class schedules, certification areas, inservice education activities and other areas (p. 13). Another suggested use was for using graphics to improve the appearance of "newsletters, brochures, reports, and other publications (p. 13). The number of computer applications for administrative purposes is very large and as more software is developed, a greater number of applications will be available for administrators.

Factors in Purchasing

There are several factors that should be considered once a decision is made to computerize a school office. Barbour (1987) found that forty-one percent of administrators who responded to the survey said that the

main concern over computerized administrative tasks was "either a lack of funds or the high cost of hardware and software" (p. 23). Factors should, therefore, be considered very carefully when deciding to computerize. Meddaugh (1985) suggests four basic steps that should be followed:

1. Plan using goals and objectives;
2. Plan for software selection;
3. Plan for hardware selection; and
4. Plan to train both administration and staff.

After formulating a plan for a school, Meddaugh (1985) writes that the next step was to select software that would help meet the goals and objectives. Careful consideration should be given to whether the program is appropriate to the level of development of the staff, whether the supplier will allow for previewing the program, whether the system can be upgraded or expanded as the need arises, the cost of the program, and whether the documentation is adequate. Other questions should be whether or not backup disks are available and whether the company is reliable and/or guarantees the products, and if there is a toll-free information number.

An additional question which Coffin (1985) suggests for consideration is how the software will contribute to the "administrative function of the office" (p. 9). There are an increasing number of commercially available software programs. These programs are generally less expensive than

developing the programs individually. The commercial software is often flexible, can be adapted to meet the individual needs of a school, and can be used in a variety of situations (Pogrow, 1985, p. 49).

Meddaugh (1985) recommends that a basic hardware system should include a computer with adequate capacity for projected uses, "a monitor, dual disk drives, a printer, printer card and cable, floppy disks and paper" (p. 11). She also recommends additional items and accessories that could be purchased based on projected needs and budget allocations. Marshall (1982) suggests that school administrators should be aware of which microcomputer is the best value, what maintenance service would be provided, whether the system is expandable, whether the accompanying manuals are easy to understand, if the company is reliable, and what the warranty is like. An additional factor that Coffin (1985) writes which should be considered by the administrator is the life expectancy of the system.

These are some of the factors that should be appraised when purchasing equipment for administrative purposes.

Leadership in Successful Implementation

There are several aspects of implementation that administrators should be aware of as they introduce computers or additional software into the office. Crawford (1985a) identifies some potential problems:

1. Computer phobia, or the fear of problems that the

computer might cause;

2. The initial cost might outweigh the benefits;
3. Computer illiteracy; and
4. The methods needed to ensure security of data (p. 70-71).

Bluhm (1985), Crawford (1985b), Carr (1988b), and Meddaugh (1985) stress the importance of training personnel to run the computers. Bluhm (1987) suggests allowing people time to adjust to the new system rather than forcing them into it. Carr (1988b) writes that because of "computer phobia", there is a real need for administrators to encourage staff to talk about their fears (p. 11). Barbour (1987) found in his study that "seventeen percent of administrators cite fear of computers among their staffs as a major problem" (p. 23). Another finding in the same study was that "twenty-five percent of administrators say they or their staff are not adequately trained to utilize the computer's full potential" (Barbour, p. 23). As Meddaugh (1985) writes, administrators should be prepared for "a financial burden and time commitment necessary to ensure the success of your project" (p. 10). Time and money should be allocated to train personnel to effectively use computers for administrative tasks.

Another suggestion Meddaugh (1985) has for computerizing the school office is to plan goals and objectives. She suggests that, although a long term goal

might be computerization of the whole office, appropriate short term goals might include computerizing enrolment forms first, then bringing in a word processing system, and then beginning computerized attendance. This would be an effective implementation plan for administrators because then it would allow enough time for staff to be familiarized with the program. This could be a strategy to lessen "computer phobia".

The problem of cost should also be addressed. In the study conducted by Barbour (1987) it was found that financial considerations were the main problem identified. Forty-one percent of respondents said that money was the main concern with specific areas being "either a lack of funds or the high cost of hardware and software" (p. 23). Administrators should do a cost/benefit analysis for the tasks they wish to computerize. Then they should computerize only those tasks which can be done more effectively and efficiently using a microcomputer. (Crawford, 1985, p. 17).

Computer illiteracy can be addressed through the training of administrators and staff. Meddaugh (1985) recommends that the school administrator be trained first. Several alternatives exist for the training of personnel. The administrator could train them, there may be other qualified people in the school to do the training, or jurisdiction based computer consultants could be used.

Formal programs could be accessed through, for example, community or business colleges. There are also tutorial programs available for many software programs.

Consideration should be given by the administrator, however, to provide "release time and/or remuneration for their time" (Meddaugh, p. 11) for employees who learn the new skills associated with becoming computer literate. These are some of the ways computer illiteracy can be addressed.

Security is another consideration for administrators. A password system should be implemented to "restrict access to confidential or secured information" (Crawford, 1985a, p. 71). Consideration should also be given to storing data disks in a secure place and to having back up copies in another location. These are some of the aspects of implementation of microcomputers in administrative offices that should be considered in order to more successfully facilitate the computerization of office tasks.

Effects of Microcomputer Use

The use of the microcomputer can have an effect on administrative activities. A laptop computer for supervision can "make information available more quickly" (Kuralt, 1987, p. 72). According to Kuralt (1987) this is beneficial because the savings in time allows for more interaction between the principal and the teacher and gives the teachers more opportunity to discuss and to have an influence on the final report. Kuralt (1987) also writes

that use of the laptop computer has made "data gathering more objective" (p. 72) and has allowed for more time to discuss instructional change in the school. Kuralt (1987) cautions that while there are many positive aspects of evaluation using a computer, the computer does not solve all problems. There is still a need for the development and implementation of skills in interpersonal relationships and there will still be a need for constructive interaction.

In a study conducted in 1987, Barbour found many effects that administrators perceived were the result of computer use. Fifty-four percent of the respondents felt that using a computer to handle administrative tasks was the greatest benefit. These administrators also felt that because of the computer they had to hire fewer people and could spend more time on "meaningful duties" (Barbour, 1987, p. 20). They also liked the way information could be accessed and arranged. Another perceived benefit of computer use was the accuracy of the information.

Mojkowski (1986) identifies several effects of computer use. Use of the computer can save time and allow principals to "spend more of it [time] on human resource concerns and activities" (p. 47). It can also make office management more efficient, requiring fewer workers. The computer has the potential to change "the manager's information handling role from collector and synthesizer to decision maker" (p. 47).

Gatley and Brown (1985) conducted a study of elementary schools in British Columbia to evaluate the use of microcomputer technology in administration. They found that the time saved in management tasks was of particular relevance ranging in degrees from ninety percent to twenty percent. Time saved on scheduling and timetabling was approximately ninety percent. Time which had been spent maintaining class registers was saved through the use of computerized attendance by approximately eighty percent. Time saved on word processing was twenty percent and there was a particular savings in time when it was "necessary to update or revise correspondence, reports and other papers" (p. 55). Gatley and Brown (1985) found that the available information on data base programs "saved time by searching files to obtain data from statistics or special reports" (p. 55) and that data could be more efficiently compiled and was more current. Gatley and Brown (1985) also found that one of the effects of microcomputer use in elementary school administration was in the reduction of clerical staff.

Summary

There are several problems inherent in computerizing a school office. The lack of available funds, fear of computers by administration and staff, the need for security of information and a lack of training for personnel are among the main problems. The computer has the ability to reduce the amount of time spent on many administrative tasks

and can provide more information to assist in decision making. These aspects can make the time spent on learning the computer and the capital investment worthwhile.

Microcomputers perform tasks. They do not solve problems. Tasks can be "performed more effectively and efficiently" (Mojkowski, 1986, p. 46) using the microcomputer but the real advantage occurs with the reconfiguration of "the task because the computer or related technology tool is available, because it opens up new possibilities in the way we organize and analyze information" (Mojkowski, 1986, p. 46). Just having the technology available will not improve the efficiency of the administrative office. Effective use of the tool, a commitment to the improvement of the efficiency of the office, and an emphasis on the development of leadership skills does, however, have the potential to make a difference.

School administrators have found many benefits in the use of microcomputers in office management, in student scheduling and reporting, and as an information tool in decision making (Bluhm, 1987, p. 24). While microcomputers may save time in some management tasks, their value should not be "confused with the effective operation and organization of the school" (Tamblyn, 1988, p. 29). Microcomputers are a tool to be used in creating a more effective school but they are not the primary tool. The

people who create and strive to achieve the vision of a better school are of prime importance. Microcomputers have the potential to improve the efficiency and effectiveness of administrative offices. Administrators may discover that an awareness of the potential uses of the computer, a commitment of finances and time to the successful implementation and use of computers, and a commitment to increased time spent on leadership activities and on developing and striving towards a holistic vision for a better school will enhance and improve the overall effectiveness of the school.

CHAPTER III.

RESEARCH DESIGN

General Method

Questionnaires and interviews will be used in this study to determine:

1. If there is a significant relationship between the use of microcomputers in school based administration and the amount of time spent on leadership activities by the principal; and
2. If there are specific leadership activities which use of the microcomputer better enables the administrator to accomplish.

Research Population

Twenty schools in southern Alberta were randomly chosen from the list of schools in Zone Six. Ten schools met the criteria listed below and agreed to take part in the study. Nine schools completed all of the requirements. In each school, one administrator and two teachers were invited to be interviewed and to fill in the questionnaire. The schools were required to meet the following criteria:

1. That the administrative offices in the selected schools be computerized;
2. That a school based administrator and two teachers volunteer from each of the schools; and
3. That the school based administrator and the two teachers will have worked at the school for a minimum of two

years.

Instrumentation

A questionnaire was developed containing twenty-four questions using a five point Likert scale. The five possible responses were: strongly agree, agree, not sure, disagree, and strongly disagree. There were two additional open-ended questions in a section labelled "Comments". The questionnaire was used to obtain information from teachers and administrators. The administrators filled in an additional page of information containing data specific to the school (See Appendix A).

The questionnaires were hand scored. Frequency responses and percentages were calculated for each item. The Mean and Standard Deviation for each item was also calculated.

A questionnaire used by Reis (1990) in his study on the impact of administrative uses of computers on school based management in British Columbia was modified to reflect characteristics of effective principals as outlined in the research by Kowalchuk (1990).

Interviews

Interviews were used as an additional means of collecting data for the study. The respondents were invited to ask any questions with regards to the instrument or to make any comments about the effect of microcomputer use in administration in their school. The interviews were

conducted in the individual schools. Some of the respondents were interviewed individually and some of the interviews were conducted with the administrator and the two teachers present. Some of the respondents chose to write down additional comments on the questionnaire rather than to participate in an interview. The interviews were loosely structured and the comments were written down as they were made. Participants were encouraged to more thoroughly expand on their ideas. The researcher tried to make the interviews as relaxed as possible so the respondents would feel free to express their beliefs and opinions on the topic. The interviews lasted from approximately ten minutes to forty-five minutes. They were conducted over a four week period of time.

Pilot Study

To ensure content validity in the survey instrument, the questionnaire was pretested. The questionnaire was administered personally and individually with one principal and two teachers from three different school jurisdictions. Under the heading, Human Relations and Interpersonal Skills, one question was added and one question was modified. "Maintaining communication with school personnel" was added and this category was taken out of another question.

Data Collection

Questions one through six indicated whether there had been any significant change in the amount of time spent on

human relations and interpersonal skills since computerization of the school office.

Questions seven through thirteen indicated whether there had been any significant change in the amount of time spent on curriculum, instructional development and evaluation since computerization of the school office.

Questions fourteen through sixteen indicated whether there had been any significant change in the amount of time spent on improving the school climate or atmosphere since computerization of the school office.

Questions seventeen through twenty-two indicated whether there had been any significant change in the amount of time spent on administration and organization of the school since computerization of the school office.

Questions twenty-three and twenty-four indicated whether there had been any significant change in the amount of time spent on planning for and participating in professional development activities since computerization of the school office.

Questions twenty-five and twenty-six allowed the participants to comment on the benefits of computerized school offices as well as on any additional observations they had.

Additional data was collected through the interviews with the respondents.

There was a consent form for each of the principals and

teachers who volunteered to be in the study to read and to sign (Appendix B). Since human subjects were involved the necessary procedures were taken through the Human Ethics Committee.

CHAPTER IV.

ANALYSIS OF THE DATA

Demographic Summary

There were twenty-seven respondents to the questionnaire. Nine of the respondents were school-based administrators and eighteen were teachers. One school did not return the questionnaires so the school could not be included in the study. The student population in the schools surveyed ranged from eighty-four students to seven hundred seventy-five students. The number of teachers in the schools ranged from eight to forty.

The number of years that the schools had been computerized ranged from one year to ten years. Three of the schools had been computerized for less than three years, three had been computerized between four and six years and three had been computerized for more than seven years.

The primary computer operators were secretaries who were the main users in 66.6% of the schools and co-users in 33.3% of the schools. Administrators were co-users in 22.2% of the schools.

The computer applications most prevalent in the school offices were word processing in 100% of the schools, student reports in 77.7% of the schools, financial accounting in 66.6% of the schools, and student demographics and attendance in 55.5% of the schools. All other applications were used in less than 50% of the responding schools.

Statistical Analysis

In the questionnaire, the respondents were asked whether they felt that since their school office was computerized, more time was being spent by the principal in the areas of leadership and management.

Table 1 shows the frequencies and percentages of response for each category on the Likert scale. There were twenty-seven respondents to the questionnaire.

The categories strongly agree and agree were combined. There were no responses in the category strongly disagree. The areas of agreement (SA and A combined) exceeded the levels of disagreement on each of the survey items except for #11 which had the same number of respondents who agreed and disagreed. Respondents on this item felt that since their school office was computerized, more time was being spent by the principal in:

#11. developing and implementing a process for the supervision of instruction.

	Agree (SA + A)	Disagree
Frequencies	8	8
Percent	29.6%	29.6%

TABLE 1

FREQUENCIES AND PERCENTAGE RESPONSES: ALL RESPONDENTS

ITEM		SA	A	NS	D	SD
1	Frequency	1	8	12	6	0
	Percent	3.7	29.6	44.4	22.2	0
2	Frequency	1	12	8	6	0
	Percent	3.7	44.4	29.6	22.2	0
3	Frequency	3	16	5	3	0
	Percent	11.1	59.2	18.5	11.1	0
4	Frequency	6	11	6	4	0
	Percent	22.2	40.7	22.2	14.8	0
5	Frequency	3	14	9	1	0
	Percent	11.1	51.8	33.3	3.7	0
6	Frequency	0	15	9	3	0
	Percent	0	55.5	33.3	11.1	0
7	Frequency	1	12	6	8	0
	Percent	3.7	44.4	22.2	29.6	0
8	Frequency	4	9	9	5	0
	Percent	14.8	33.3	33.3	18.5	0
9	Frequency	1	9	11	6	0
	Percent	3.7	33.3	40.7	22.2	0
10	Frequency	2	8	13	4	0
	Percent	7.4	29.6	48.1	14.8	0
11	Frequency	3	5	11	8	0
	Percent	11.1	18.5	40.7	29.6	0
12	Frequency	2	8	11	6	0
	Percent	7.4	29.6	40.7	22.2	0

TABLE 1 (continued)

ITEM		SA	A	NS	D	SD
13	Frequency	2	7	11	7	0
	Percent	7.4	25.9	40.7	25.9	0
14	Frequency	3	13	5	6	0
	Percent	11.1	48.1	18.5	22.2	0
15	Frequency	2	9	9	7	0
	Percent	7.4	33.3	33.3	25.9	0
16	Frequency	6	12	5	4	0
	Percent	22.2	44.4	18.5	14.8	0
17	Frequency	3	7	13	4	0
	Percent	11.1	25.9	48.1	14.8	0
18	Frequency	3	9	13	2	0
	Percent	11.1	33.3	48.1	7.4	0
19	Frequency	5	14	5	3	0
	Percent	18.5	51.8	18.5	11.1	0
20	Frequency	2	15	8	2	0
	Percent	7.4	55.5	29.6	7.4	0
21	Frequency	3	13	3	8	0
	Percent	11.1	48.1	11.1	29.6	0
22	Frequency	3	5	12	7	0
	Percent	11.1	18.5	44.4	25.9	0
23	Frequency	1	6	14	6	0
	Percent	3.7	22.2	51.8	22.2	0
24	Frequency	1	7	13	6	0
	Percent	3.7	25.9	48.1	22.2	0

Over fifty percent of respondents were in agreement (SA and A) with the survey items 3, 4, 5, 6, 14, 16, 19, 20, and 21. Therefore, the majority of respondents felt that since their school office was computerized, more time was being spent by the principal in:

#3. maintaining communication with school personnel.

	Agree (SA + A)	Disagree
Frequencies	19	3
Percent	70.3%	11.1%

#4. maintaining communication with the community (ex. parents, community organizations, the general public, colleagues, district personnel, other schools, colleges and universities).

	Agree (SA + A)	Disagree
Frequencies	17	4
Percent	62.9%	14.8%

#5. striving to establish, promote and maintain positive attitudes among community members toward the schools educational programs.

	Agree (SA + A)	Disagree
Frequencies	17	1
Percent	62.9%	3.7%

#6. encouraging parents and other community members to become partners in the education of their children.

	Agree (SA + A)	Disagree
Frequencies	15	3
Percent	55.5%	11.1%

14. creating a positive climate for teacher growth.

	Agree (SA + A)	Disagree
Frequencies	16	6
Percent	59.2%	22.2%

16. collaboratively working with staff on developing and implementing a school improvement plan (ex. philosophy, goals and objectives).

	Agree (SA + A)	Disagree
Frequencies	18	4
Percent	66.6%	14.8%

19. developing and managing the budget.

	Agree (SA + A)	Disagree
Frequencies	19	3
Percent	70.3%	11.1%

20. overseeing school operations and routines.

	Agree (SA + A)	Disagree
Frequencies	17	2
Percent	62.9%	7.4%

21. providing support to teachers by relieving them of routine clerical and record-keeping tasks.

	Agree (SA + A)	Disagree
Frequencies	16	8
Percent	59.2%	29.6%

Table 2 provides a summary of mean scores and standard deviations. The responses were assigned the following values: Strongly Agree - 5, Agree - 4, Not Sure - 3, Disagree - 2, Strongly Disagree - 1. The mean scores were all above 3.0 which would seem to indicate a positive relationship between the use of microcomputers and increased leadership activities by the principal. The area of developing and managing the budget received the highest overall rating ($M = 3.77$; $sd = .89$). The area of collaboratively working with staff on developing and implementing a school improvement plan received the second highest rating ($M = 3.74$; $sd = .98$). The area of making provision for the professional development of staff received

the lowest overall rating ($M = 3.07$; $sd = .78$).

Table 2

MEANS AND STANDARD DEVIATIONS

	Mean	Standard Deviation
1.	3.14	.81
2.	3.29	.86
3.	3.70	.82
4.	3.70	.99
5.	3.70	.72
6.	3.44	.69
7.	3.22	.93
8.	3.44	.97
9.	3.18	.83
10.	3.29	.82
11.	3.11	.97
12.	3.22	.89
13.	3.14	.90
14.	3.48	.97
15.	3.22	.933
16.	3.74	.98
17.	3.33	.87
18.	3.48	.80
19.	3.77	.89
20.	3.62	.74
21.	3.40	1.04
22.	3.14	.94
23.	3.07	.78
24.	3.11	.80

Many of the responses on the first open ended question were similar. The question was, "In my opinion, the greatest benefit to having the school office computerized is:". The increased efficiency and time savings for staff and administration was one of the main perceived benefits. Another benefit was in the easy and quick access in the retrieval of information (Appendix D).

The interviews and the responses from the second open ended question which asked for additional comments were analyzed to identify and classify common characteristics. Themes and patterns were identified from the analysis. The themes which emerged from the data could be categorized as follows:

1. Benefits of the microcomputer;
2. Concerns over the use of the microcomputer;
3. Impact of the microcomputer on the leadership role of the principal; and
4. Perceived potential benefits of the microcomputer.

A common theme identified as a result of the interview comments was the benefits of the computer. "The computer has been excellent for retrieving information". "I want results and the computer helps me to get them. Attendance now takes approximately ten percent of the time it used to [before attendance was computerized]." "The major time saving is in the data that the secretary doesn't have to totally put in again." "This has improved our communication

with the home and also makes it more efficient to get current information". "We have noticed a real benefit in the fall. We used to spend hours doing class lists because of all the revisions. Now it is a simple task to make revisions and we know exactly where the school is with regards to enrolment". A common response was that "most of the time savings is for the clerical staff". "Records are much more accessible". "The true advantage in the computer is with the storage of data and with computerized attendance. It has also made retrieval of data much more efficient". "If I need an up to date attendance record for a student it is very quickly and easily retrieved. Marks and credits completed are also much easier to access without having to dig through files or call a teacher out of class." "Our vice principal has the accounting system for the school on the computer. It gives an up-to-date summary of all the accounts. It also writes the cheques out and debits the right account. This has saved time because it now takes twenty percent of the time that it used to take for that task". "We have our Disaster Plan on computer. This has been effective and has been a time saver". "Because it [the microcomputer] saves my secretary time, it saves me time because then she can do more to help me".

The second common theme identified was a concern over the use of the microcomputer. "Our school is too small to benefit from using the computer for timetabling. We found

that it is easier and more effective to just use a large board as we had in the past". Several respondents commented on the time it takes to initially set up the microcomputer system. "It takes a great deal of time to set the system up for the first few years." "It takes me a lot of time to train teachers and clerical staff in how to use the programs". "As an administrator, I am involved with more things because they are on the computer that I was never involved with before. This takes away available time that I have". "I have to spend a great deal of time inservicing staff. Some don't have the background to use computers effectively so it is the administrator who ends up doing a lot of work on the computers". "The computer does cost me some time when I have to learn how to use new programs".

The third common theme was the impact of the microcomputer on the leadership role of the principal. Many of the respondents felt that changes could not necessarily be attributed to the use of the microcomputer in administration. "As an administrator, it has not affected me to a great extent. It has affected the clerical staff much more". "It is difficult to say that the changes are due to the computer. There are so many factors and I don't think changes can be attributed to any one area". "Computers do not seem to be the critical element". "In many of the questions above [in the questionnaire], administrators do not have more time for these functions

than they did before computers but this may be because of other demands put upon them. It is likely, I believe, that computers have allowed them to come close to keeping their heads above water rather than creating any new time". "I teach seven out of eight periods each day. I have little available time for any leadership activities. The computer cannot change that one key factor". "It's difficult for me [as a teacher] to judge how the computers have impacted on the role of the principal". "The computer is only a tool. It is the person who is the most important part of all the factors". "There are so many factors. It is difficult to say if the computer has made the difference." "A reduction in time for administration has had a greater effect on leadership activities than the computer has". "I think it depends on who the principal is and how they use the computer. The people factor is far more relevant than is the computer". "There are so many other circumstances and situations which affect the time an administrator has. I don't think it can be attributed to computer use or to any other single factor". "Many of the items on the questionnaire were already in place, not necessarily because of implementation of computerization". "Our administrator does all of these things anyway. I think it has much more to do with his personality than it does with the microcomputer".

The fourth theme was the perceived potential benefits

of the microcomputer. "I believe we will see even more benefits from this technology as we develop more capabilities with it. At this time, we are not taking full advantage of what the computer is capable of doing." " As technology becomes available, I believe there will be a greater use by both the individual and the administrator". "In the long run, I believe computers will give administrators more time". Several administrators commented on the amount of time they expected to save in the future. "We are just beginning to see the benefits of the computer. It takes a great deal of time to start up with a computer and to enter all of the data in. I can see how time will be saved eventually but right now it is very time consuming". "We expect to see a time savings in the future but we haven't seen one to this point".

Null hypotheses is restated: There is no significant relationship between the use of microcomputers in school based administration and the amount of time spent on leadership activities by the principal. The Null hypothesis can be rejected because respondents as a whole indicated that since their school office was computerized the principal was spending more time in nine of the areas related to leadership in educational administration.

CHAPTER V.

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

Summary

The purpose of this project was to determine if the administrative use of computers in schools in southern Alberta had an impact on the amount of time spent on leadership activities.

In this study, ten schools were randomly chosen from Zone Six to participate. Nine schools completed all the requirements and were included in the study. One school did not return the questionnaires so they could not be included. In each of the nine schools, one administrator and two teachers completed questionnaires and were invited to be interviewed.

The questionnaire was developed based on a questionnaire which had been used by Reis (1990) for a study done in British Columbia and on effective schools research (Kowalchuk, 1990). The questionnaire consisted of twenty-four questions on a five point Likert scale ranging from strongly agree to strongly disagree. Frequency and percentage responses were calculated on each question. The mean and the standard deviation were calculated for each question based on the following values: Strongly agree - 5, Agree - 4, Not sure - 3, Disagree - 2, and Strongly disagree - 1.

There were two open ended questions on the

questionnaire. One of the questions asked the respondents to give their opinion on the greatest benefit to having the school office computerized. The second open ended question invited the respondents to make any additional comments. The respondents were also invited to ask any questions of the researcher or to make any additional comments during the interview. The comments on the questionnaire and those made during the interviews were analyzed to determine common themes.

Based on the analysis of the frequencies and percentages of responses on the questionnaires it was determined that there is a positive relationship between the use of microcomputers in school-based administration in schools in southern Alberta and an increase in leadership activities in the following areas:

1. Maintaining communication with school personnel;
2. Maintaining communication with the community (ex. parents, community organizations, the general public, colleagues, district personnel, other schools, colleges and universities);
3. Striving to establish, promote and maintain positive attitudes among community members toward the educational programs in the school;
4. Encouraging parents and other community members to become partners in the education of their children;
5. Creating a positive climate for teacher growth;

6. Collaboratively working with staff on developing and implementing a school improvement plan (e.g. philosophy, goals and objectives);
7. Developing and managing the budget;
8. Overseeing school operations and routines; and
9. Providing support to teachers by relieving them of routine clerical and record keeping tasks.

An analysis of the interviews and of the open ended questions on the questionnaire revealed four main themes. Administrators and teachers felt that there were many benefits in the use of microcomputers in educational administration such as increased efficiency, easier access to data, and more effective communication to staff and parents. The second common theme was concern over the use of the microcomputer. Some respondents felt that the use of the microcomputer reduced the amount of time that the administrator could spend on leadership activities. These respondents commented that their tasks have been changed so that the administrator is now responsible for areas such as training of clerical staff in microcomputer use and in student timetabling. These were areas that administrators were not previously responsible for and so these respondents felt there was a decrease in available time for leadership activities. The third common theme was that some of the respondents felt it was difficult to attribute an increase in leadership activities to any one factor such as the use

of the microcomputers. The fourth common theme was the perceived potential benefits of the microcomputer. Many of the respondents felt that even more could be done with this technology to make schools more effective and more efficient.

Recommendations for Further Study

Reis (1990) conducted a similar study for schools in British Columbia. He concluded that "it has been determined that the use of the microcomputer in school-based administration does in fact translate into more time being spent by the principal on the leadership role" (pp. 60-61). This was based on his findings as follows: Of a 27 item questionnaire, four items indicated higher levels of agreement than disagreement with regards to the impact of the microcomputer on leadership activities. Using the same criteria, the results of this study showed higher levels of agreement than disagreement on all of the questions. The results of this study are, therefore, much stronger in support of the conclusion. However, it is my opinion that a replicate study with a larger sample would be pointless. There are too many other factors which affect leadership behaviour such as available time for the administrator, the collaborative nature of the school, and differences in administrative styles.

Further research should be done comparing the amount of time an administrator spends on leadership activities before a school was computerized and after the same school had been computerized for three to five years. In the study, as many factors as possible should be controlled such as changes in administration, differences in administrative style, and differences in amount of time available for administration.

Recommendations for Practice

1. If, as this study indicates, the use of microcomputers in school administration makes management tasks more efficient so there is an increase in the available time administrators can devote toward some leadership activities, then School Boards should continue to ensure that funds are in place for the purchase of microcomputer hardware and software in administrative offices.
2. Professional and clerical staff should receive inservice training on the use of microcomputer hardware and software in the administrative offices to reduce the amount of time the school based administrator spends in training staff and to increase the efficiency and effectiveness of administrative tasks.
3. Administrators should be aware of the potential risk of the microcomputer focusing the administrator's time more on the task and less on relationships and personnel management with the possible result being less time for leadership activities.

Conclusion

The microcomputer has the potential to help make management tasks more efficient so there is an increase in the available time administrators can devote towards leadership activities to enhance the effectiveness of the school. However, the value of microcomputers should be recognized as a single component in the creation of a more effective school. It was increasingly affirmed during the interviews that it is primarily the commitment of individuals that creates an effective school. Collaboration and collegiality within the school community are of prime importance. As microcomputers become more and more available to the schools, my belief is that the area that will require the most attention is the collaboration of people within the school community in creating relations, in creating an environment where both students and staff can work to achieve their highest potential, and in cooperatively developing and striving towards a holistic vision for a more effective school.

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APPENDIX A
COPY A: PRINCIPAL

THE IMPACT OF ADMINISTRATIVE USE OF COMPUTERS ON SCHOOL
BASED MANAGEMENT

SCHOOL DATA

Size of School

Number of students _____
Teachers (F.T.E.) _____

How long has your school
office been computerized? _____

Primary Computer Operator(s)
Principal _____
Vice-principal _____
Secretary _____
Other _____

Your years of experience with
computers in Administration _____

Type of Hardware (Check the
one that is primarily used)
Apple or compatible _____
IBM or compatible _____
MacIntosh _____
Other _____

Software (Which two programs are
primarily used?)

Applications (Check all those
in use)

Word Processing _____
Student Demographics _____
Attendance _____
Student Reports _____
Scheduling _____
Personnel Records _____
Accounting _____
Inventories _____
Purchasing _____
Electronic Communication _____

COPY B: TEACHERS AND ADMINISTRATORS

Please respond by circling the appropriate response after each statement:

- SA - strongly agree
- A - agree
- NS - not sure
- D - disagree
- SD - strongly disagree

HUMAN RELATIONS AND INTERPERSONAL SKILLS

Since your school office was computerized, more time is spent by the principal in:

1. ensuring that roles, duties, responsibilities and lines of communication for all school personnel are defined and understood.

SA A NS D SD

2. establishing and monitoring practices which motivate staff and students.

SA A NS D SD

3. maintaining communication with school personnel

SA A NS D SD

4. maintaining communication with the community (ex. parents, community organizations, the general public, colleagues, district personnel, other schools, colleges and universities).

SA A NS D SD

5. striving to establish, promote and maintain positive attitudes among community members toward the schools educational programs.

SA A NS D SD

6. encouraging parents and other community members to become partners in the education of their children.

SA A NS D SD

CURRICULUM AND INSTRUCTIONAL DEVELOPMENT AND EVALUATION

Since your school office was computerized, more time is being spent by the principal in:

7. pursuing and acquiring knowledge applicable to curriculum developments or alternate methods of implementation.

SA A NS D SD

8. planning for curriculum implementation with reference to school, district, and provincial goals and objectives.

SA A NS D SD

9. working with the various personnel in the process of curriculum implementation (ex. teachers, district specialists).

SA A NS D SD

10. assisting in the identification, selection and purchasing of appropriate curriculum materials and resources.

SA A NS D SD

11. developing and implementing a process for the supervision of instruction.

SA A NS D SD

12. monitoring the instructional effectiveness of the school.

SA A NS D SD

13. encouraging and assisting in the local development of courses designed to meet, if necessary, the special needs of pupils.

SA A NS D SD

SCHOOL CLIMATE OR ATMOSPHERE

Since your school office was computerized, more time is being spent by the principal in:

14. creating a positive climate for teacher growth.

SA A NS D SD

15. encouraging the development of co-curricular and extra-curricular programs that foster positive interpersonal peer/pupil relationships.

SA A NS D SD

16. collaboratively working with staff on developing and implementing a school improvement plan (ex. philosophy, goals and objectives).

SA A NS D SD

ADMINISTRATION AND ORGANIZATION

Since your school office was computerized, more time is being spent by the principal in:

17. ensuring effective management and maintenance of the school building and grounds.

SA A NS D SD

18. providing for the acquisition of equipment and supplies.

SA A NS D SD

19. developing and managing the budget.

SA A NS D SD

20. overseeing school operations and routines.

SA A NS D SD

21. providing support to teachers by relieving them of routine clerical and record-keeping tasks.

SA A NS D SD

22. keeping staff informed on policy developments or changes imposed by external agencies (ex. Central Office, Social Services, public health).

SA A NS D SD

PROFESSIONAL DEVELOPMENT

Since your school office was computerized, more time is being spent by the principal in:

23. making provision for the professional development of staff.

SA A NS D SD

24. participating in a continuous program of professional development.

SA A NS D SD

COMMENTS

25. In my opinion, the greatest benefit to having the school office computerized is:

26. Additional comments:

APPENDIX B
CONSENT FORM

May 11, 1992

Dear Colleague,

I am conducting a study on the impact of microcomputers in school administration on leadership activities. Your school has been randomly selected from schools in Zone Six to participate in this study. I anticipate that you and others will benefit from participation in this study by providing information as to whether the time saved by microcomputer use is being used by principals to focus on the leadership role and to contribute to more effective schools. If microcomputers are being used for this purpose, then this could be a consideration when budget allocation decisions are being made.

As part of this research, I will be conducting an interview using a questionnaire. Please note that all information will be handled in a confidential and professional manner. When responses are released, they will be reported in summary form only. Further, all names, locations and any other identifying information will not be included in any discussions of the results. You have the right to withdraw from this study without prejudice at any time.

If you choose to do so, please indicate your willingness to participate by signing this letter in the space provided below.

I very much appreciate your assistance in this study. If you have any questions please feel free to contact me at 362-3893 or 329-2101. Also feel free to contact the supervisor of my study, Dr. Eugene Falkenberg, at 329-2451 or any member of the Faculty of Education Human Subject Research Committee if you wish additional information. The chairperson of the committee is Dr. Jane O'Dea.

Yours truly,

Susan Chomistek
University of Lethbridge

THE IMPACT OF MICROCOMPUTERS IN SCHOOL ADMINISTRATION
ON LEADERSHIP ACTIVITIES

I understand the purpose and the conditions of this research and agree to participate in it.

Name

Signature

Date

APPENDIX C
INTERVIEW COMMENTS

- I want results and the computer helps me to get them. I like to look at the efficiency of my time and of my secretarial staff's time. When I want to have some information on attendance, my secretaries can give it to me immediately. It [the computer] has made it more efficient for me and for them. Attendance now takes approximately ten percent of the time it used to.
- The computer has been excellent for retrieving information. The time it took to input data into the computer was a factor but retrieval is now much more efficient.
- I believe we will see even more benefits from this technology as we develop more capabilities with it. At this time, we are not taking full advantage of what the computer is capable of doing.
- In the future, I would like to see networking to each of the classrooms. This way, if I have parents in my office, I can retrieve the information on the student immediately. Once the teachers become more familiar with the programs, I can also see that benefits will result.
- Education should be leading the way as far as this technology goes but right now we are lagging behind, in part because of lack of financial resources to set up a complete system. Although the networking idea could prove to save a great deal of time and be very beneficial, it is also very expensive and this is restrictive to small schools. The inconvenience of having to learn about the machines as each component can be bought distracts from the use.
- Our school is too small to benefit from using the computer for timetabling. We use the program "Columbia" but it doesn't help for timetabling. We found that it is easier and more effective to just use a large board as we had in the past.
- We use the computer for attendance. This combined with an automatic dialling system to parents has saved a great deal of time. Now the teachers send attendance forms to the office. The forms are scanned and the data is entered into the computer. Parents are electronically called that evening and told that their child was not in school. They are also told that they can call the schools if they have any questions. This has saved a tremendous amount of time.

- As technology becomes available, I believe there will be a greater use by both the individual and the administrator.
- We have another program in the office that has helped save the teachers time. For our Junior High students we have a Homework Hotline. The teachers give their assignments to the secretary and these are put on a program. If students want to know what assignments they have, they just call a specified number and they get the information. This has been both effective and efficient.
- Our vice principal has the accounting system for the school on the computer. It gives an up-to-date summary of all the accounts. It also writes the cheques out and debits the right account. This has saved time because it now takes twenty percent of the time that it used to take for this task.
- It takes a great deal of time to set the system up but once it is set up it saves me time and I can do other activities.
- As an administrator, it has not affected me to a great extent. It has affected the clerical staff much more.
- It is difficult to say that the changes are due to the computer. There are so many factors and I don't think changes can be attributed to any one area.
- Our timetabling is still done by hand and I feel this is the way to go because there is much more personal interaction especially in an elementary school.
- The storage and retrieval of information is so much faster and this has been beneficial.
- I think computers make a difference. I am all for them but you must remember they are only a tool.
- The major time saving is in the data that the secretary doesn't have to totally put in again. The information is readily available with regards to credits, letter writing, and how many children are in each grade. This information is very valuable and is easy to get to.
- It takes a great deal of time to set the system up for the first few years. Then some time savings can occur.
- I teach seven out of eight periods each day. I have little available time for any leadership activities. The computer cannot change that one key factor.

- It makes it much easier to write and edit material. I am frequently looking for ways to integrate the computer into office tasks to make my job easier.
- The computer saves time over the long term, but certainly not initially.
- It takes me a lot of time to train teachers and clerical staff in how to use the programs.
- It has saved time with the high schools students. I now have a form letter which I send home with the students that has what the students are enrolled in and the number of credits that they have left. This has saved me time and it also saves the secretary time.
- The computer is only a tool. It is the person who is the most important part of all the factors.
- In the long run, I believe computers will give administrators more time. My goal is to have eighty minutes per day that I can spend out of the office. If the computer keeps me in the office more, I'll just get rid of it. The people aspect of this job is the crucial factor.
- I like the ease with which information can be accessed. Instead of having to flip through student records, the information can be quickly called up. This saves me time.
- We expect to see a time saving by the end of next year. Right now it takes a great deal of time learning how to use the computer and the programs.
- We use the computer a great deal for class lists and for sending letters home. This has improved our communication with the home and also makes it more efficient to get current information. It also saves time for everyone.
- Our county is going to further develop computers in administration. We are just beginning.
- We have noticed a real benefit in the fall. We used to spend hours doing class lists because of all the revisions. Now it is a simple task to make revisions and we know exactly where the school is with regards to enrolment.
- Most of the savings is for the clerical staff. It affects me some but it does affect the amount of work that they [clerical staff] can do far more. I like being able to retrieve the information immediately.

- There are so many factors. It is difficult to say if the computer has made the difference. I know that the secretaries wouldn't want to be without them because it does save them time.
- We have a monitor that details all the events in the school. The parents often come into the school to find out what is going on and they look at the monitor to get the information. This has saved time because they used to phone for this information.
- Word Perfect 5.1 generates really nice newsletters.
- A reduction in time for administration has had a greater effect on leadership activities than the computer has. Our administrators now have to do support staff evaluations. That takes away time they could be spending with other staff and this also has had a greater impact than did the computers.
- It took us some time to set up the system but we are seeing the benefits now.
- I think it depends on who the principal is and how they use the computer. The people factor is far more relevant than is the computer.
- We have our Disaster Plan on computer. In the event of a snowstorm, for example, the plan can be recalled so information can readily be circulated to the parents. This has been effective and has been a time saver.
- I like the computer for the solutions that can be generated. We use the data base and the word processor a great deal.
- In some cases, the use of computers has taken away from the time the administrator can spend in the school. For example, since timetabling is now handled centrally, many more hours are being spent by the principal with this task. Previously, timetables were developed and the staff and students would fit into the places which fit into their schedules. Now all of this is handled in the office. It now takes hours of my time to do this one activity.
- There are so many other circumstances and situations which affect the time an administrator has. I don't think it can be attributed to computer use or to any other single factor.

- The inservice for computers is not what it might have been to maximize benefits. Clerical staff changes also makes a difference. I have to spend a great deal of time inservicing staff. I think it also depends on the interests and expertise of clerical staff. Some don't have the background to use computers effectively so it is the administrator who ends up doing a lot of work on the computers.

- We are doing things better than we did them before because of the computer. Records are much more accessible.

- As an administrator, I am involved with more things because they are on the computer that I was never involved with before. This takes away available time that I have. Previously, each staff member had approximately twenty students they were responsible for. The students and staff worked together to develop a schedule that was good for the students. Now this is the responsibility of the office. Staff also used to be more responsible for report cards. They would put the marks and the comments on the report cards. Since this was computerized, the information is now sent to the office to be done. For each reporting period now, it takes one clerical staff an entire week to generate the information.

- Because administrative tasks are computerized, it takes far more of one person's time. The tasks used to be more evenly distributed. I believe that there is less available time for administrators now.

- Many of the items on the questionnaire were already in place, not necessarily because of implementation of computerization

- We are just beginning to see the benefits of the computer. It takes a great deal of time to start up with a computer and to enter all of the data in. I can see how time will be saved eventually but right now it is very time consuming.

- Our system is just putting computers into our offices. We use the word processors mainly.

- Next year we will be able to do even more because we are getting another program. We expect to see a time savings in the future but we haven't seen one to this point.

- The Vice-principal uses the computer for a number of things like scheduling and for student programs.

- The computer saves the secretary time. She uses it for attendance, demographics, for Alberta Education documents and for a variety of other things.
- It has saved time with regards to daily attendances. A slip is brought at noon to the office from each of the classes. The secretary then enters the data into the computer. This saves time for the staff. They don't have to fill in the registers.
- The size of the school makes a difference. Computers help make a larger school more efficient.
- There is a great deal of time spent in the initial set up of the computer.
- All our letters are on file. This saves the secretary time because she has quick access to them when changes need to be made. Because it saves my secretary time, it saves me time because then she can do more to help me.
- The computer saved us in an audit. Because the information was in the computer, the difference was easy to find. It would have taken hours and hours of time otherwise to find where the discrepancy was.
- The computer does cost me some time when I have to learn how to use new programs.
- We use the computer for school based budgeting. The program we have writes the cheques and deducts from the appropriate place in the budget. We always know exactly where we are in terms of budget.
- We backed away from report cards because we want to get away from a marks based program to one more in keeping with Program Continuity. Computer based report cards don't lend themselves well to this philosophy so we have not noticed a time savings there.
- We can keep better records on each student using the computer. Our Vice-principal has developed a set up where each student has a profile. There is a portfolio and a checklist for each student so we can keep accurate records as the children move through the levels. This doesn't necessarily save time but we wanted more program continuity.
- The computer has made my life as a teacher easier but I'm not sure how it has affected [my principal's] life. I know that newsletters get out much faster and the parents seem to like that.

- Our administrator does all of these things anyway. I think it has much more to do with his personality than it does with the microcomputer.
- The true advantage in the computer is with the storage of data and with computerized attendance. It has also made retrieval of data much more efficient.
- There seems to be an increase in paperwork in our school but that cannot be solely attributed to the computer. I think it is more because of technology in general. For instance, the Fax machine generates a lot of work and paper.
- I'm not sure that the computer has made any difference to me as an administrator. It doesn't really impact me but it certainly has benefitted my clerical staff. There has been an unquestionable time savings for them in just two years of computer use.
- If I need an up to date attendance record for a student it is very quickly and easily retrieved. Marks and credits completed are also much easier to access without having to dig through files or call a teacher out of class.

APPENDIX D
QUESTIONNAIRE COMMENTS

Question # 25: In my opinion, the greatest benefit to having the school office computerized is:

- time saving and efficiency for staff and administration
- being able to keep up with the ever changing technical aspects of our society and hopefully to help the school as a whole run more smoothly
- in our school the greatest benefit so far has been the increased productivity of our secretary. The computer lets her be much more efficient
- saves the secretary a great deal of time, easier access to important data, attendance checks are much more accurate
- improved record keeping in areas such as marks and attendance
- The office does many clerical tasks that give me, as a teacher, more time to work on class preparation etc.
- storage of data and computerized attendance have been the greatest areas of benefit
- provides for speedy access to information
- speedy gathering of data and putting in a report form
- In the long run it will free the administration more. Things won't have to be done twice. Everything is on disk. Saves paper work. Makes my job as a teacher easier. I keep all my marks and work on computer. I can say that it has given me more time this year to do other things.
- Saves time in long run
- Less tedious work (eg. class lists, memos)
- Better track of marks, attendance, student profiles
- It makes most of the time consuming jobs less tedious
- the ease of immediate print out of current/past memos
the ease of student information access
the ease of minor changes in listings
- easy access to information

- increased information kept (eg. attendance)
- continuously updated and accessible student records
- marks easily accessible, students can be pulled up at any time, attendance records easily accessible
- simplicity and rapid recall of data
- I can "write" faster and legibly
- Easier for school secretary to compile report cards
- Keep an update of library
- Easy to retrieve memorandums, newsletters
- Increased time for professional staff - less time spent on record keeping etc.
- Secretaries job much easier
- Student demographics- relieves teachers and secretaries of menial clerical duties
- Retrieval of information, compact form of information
- I feel the principal uses the computer for clerical type tasks as opposed to professional development or improvement of teaching. Within his own teaching he may use it more but I don't see it's use having effect on the staff
- There is always a mountain of information for the principal to read and review. I believe computers have freed up their time to do this task.
- ease and quickness with regard to how the secretarial staff completes their tasks. Much more time efficient
- how quickly things can be printed out, cutting time down in preparing lists for many reasons
- Much more efficient. Better storage of information and faster retrieval of information.

Question # 26: Additional Comments:

- It's difficult for me [as a teacher] to judge how the computers have impacted on the role of the principal
- We still have many more steps to go in the computer world
- Computers do not seem to be the critical element. None of the above items relate to my principal and the computer. He does not use the computer. Although he does many of the positive things mentioned I cannot trace their occurrence to the use of computers.
- In our school, the computer has its greatest benefit in the classroom. The areas in your survey are trends in education but they are not occurring in our school solely because of the computer.
- Time saving is relative to the software that can be afforded and the training of personnel.
- Bookkeeping details- as done by the computer have allowed the teacher more time to concentrate in other areas.
- In many of the questions above, administrators do not have more time for these functions than they did before computers but this may be because of other demands put upon them. It is likely, I believe, that computers have allowed them to come close to keeping their heads above water rather than creating any new time.
- The addition of computers has enhanced certain record keeping functions and expanded word processing and document making, but has increased the time administration has spent in these areas, thus decreasing time for other functions.
- Computer is a tool only. Person is far more important.
- Generated an increase in the amount of paperwork, rather than a decrease. More information from a greater variety of parties over a larger area.
- Has had little impact on my role as an administrator except that information retrieval is more simple and more accurate.
- In many areas where I circled disagreement, our principal is doing a good job. I indicated "D" because the computer hasn't allowed him to spend more time in these areas.
- It would be interesting to have this same survey done in about 3 - 5 years. We have only had our office computerized for one year.