TO ESTABLISH THE NEED FOR A MANAGEMENT INFORMATION SYSTEM TO AID IN THE DECISION-MAKING PROCESS AT THE SUPERINTENDENT'S LEVEL FOR SELECTED SCHOOLS OF THE MIDDLE CITIES EDUCATION ASSOCIATION OF MICHIGAN

By

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ABSTRACT

TO ESTABLISH THE NEED FOR A MANAGEMENT INFORMATION SYSTEM TO AID IN THE DECISION-MAKING PROCESS AT THE SUPERINTENDENT'S LEVEL FOR SELECTED SCHOOLS OF THE MIDDLE CITIES EDUCATION ASSOCIATION OF MICHIGAN

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The Problem

The problem of this study was to establish the need for a Management Information System to aid in the decision-making process at the superintendent's level for selected schools of the Middle Cities Education Association of Michigan.

Method and Procedure

The review of the literature emphasized the need to develop Management Information Systems to aid in the decision-making process in all fields of endeavor. The efforts made by various segments of the business and educational environment to establish a system of information that will function within the parameters of the institution or agency designing the system have been many. The literature also pointed out the various ramifications of developing such a system.

The method of securing the information was to conduct an interview with each of the 13 superintendents of the Middle

Cities Education Association. Each superintendent was asked ten questions. After the interviews were completed, each question was analyzed separately with the response of each superintendent.

Recommendations

The following general recommendations were offered:

1. It is recommended that a data base element relative to financial needs be developed. The immediate needs of the superintendents could be served by enlarging the Comprehensive Study of Teachers' Salaries and Fringe Benefits prepared by the Employee Relations Department of the Lansing School District. This study would be enlarged to include the area of administration and nonprofessional personnel, as well as teachers. This data base might be extended as the need presented itself. It is also recommended that this operation be manually operated rather than a computer-based task. At the present time, the Management Information System does not require the use of a computer, and the cost of personnel to run the operation manually would be far less than the cost and operation of a computer.

2. It is further recommended that a data base element relative to personnel be developed. This unit would be developed on the same dimensions as the financial unit called for in the first recommendation, and it would provide the superintendents with the needed information to operate

the schools. In addition, it would provide a composite list of all personnel employed in the Middle Cities Education Association. This would serve two purposes:

a. To know what qualified personnel are available in specialized areas when assistance is needed, and

b. To be aware of the qualified personnel within the Association when vacancies are available.

3. Encouragement should be given to the superintendents of the Middle Cities to make them aware of the vigorous efforts on the part of the Governor's Office of Michigan to make education more accountable to the people of the state. The Governor's Task Force for the Development of a Management Information System is a viable part of this effort to become accountable. The legislature has funded this program, and a Management Information System is scheduled to be completed by July 1, 1975.

4. Finally, inservice training programs should be conducted within the Middle Cities Education Association to provide the expertise necessary to help local school districts understand the concept of a Management Information System.

IN MEMORIAM

FLORENCE S. PIPER

The kindness in her heart and the love for her family are special memories that will always be treasured.

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To my dad, Waldo, I simply say thank you for your confidence, trust, and steadying influence throughout my life.

To my wife, Fran, and daughters, Jodi, Joni, and Jan, the completion of this degree is yet another tribute to the strength and love of our family.

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CHAPTER I

INTRODUCTION

Educators are confronted with the need to make coherent and meaningful decisions in an atmosphere of changing and leveling financial support. The press for accountability is real. The people are asking for visible evidence of success in education, and their requests are appearing in the form of accountability language.[1]

Because of the demand for accountability and success in education, the decision maker must have available timely, accurate, and relevant information with which to make sound decisions. Decisions demand a comprehensive knowledge of all elements pertinent to the policy concerned or action taken. Based on this information and knowledge, the quality of the decision will depend on the ability of the decision maker to select from the many alternatives the process that will best tailor the programs to meet the divergent backgrounds, interest, and abilities bound by the decision.

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[1]See D. D. Darland, "The Profession's Quest for Responsibility and Accountability," Phi Delta Kappan, LII (September, 1970), 41-44.

Decision making is required of a broad spectrum of educational administrators. Every day school executives are called upon to make major decisions involving staff, programs, services, and facilities. Each decision requires the allocation and commitment of substantial resources. However, many of the decisions are made by people outside the formal structure. For example, state legislators, judges, governor's staff, and the Congress of the United States either make or influence educational decisions. Therefore, it is most important that these people or agencies have the necessary information to make the appropriate decisions from the various alternatives presented.

The desire to be well informed necessitates the development of a Management Information System to perform the tasks desired by the decision maker. This system would collect the data, collate it, process it into meaningful form, and store the information for recall when needed.

The decision maker's responsibility is further complicated by the problems of the urban society. Examples of such problems are:

1. A mobile and shifting population trend as evidenced by the Michigan Fourth Friday count, and
2. The Supreme Court decisions regarding desegregation and busing in the city of Detroit.

Such problems further complicate the process of decision making for the urban school superintendents, and clearly illustrate the need and urgency for the development of a Management Information System to assist in the decision-making process.

Statement of the Problem

Today in the urban cities of Michigan, school districts are facing the dilemma of a constantly shifting population, the rising cost of urban education, the increasing percentages of minority races living in urban centers, as well as other problems created by mass transportation, unemployment, public housing, and poverty, to mention a few. In light of the many problems confronting the urban superintendent of schools, the question arises, "Do these decision makers have the necessary information to select from the various alternatives a course of action that will accommodate the divergent abilities, backgrounds, and interests of the people in their districts?"

The problem, therefore, is to establish the need for a Management Information System to aid in the decision-making process at the superintendent's level for selected schools of the Middle Cities Education Association of Michigan. The problem has two dimensions:

1. It is necessary to conduct an assessment of the need for a Management Information System within the Middle Cities to determine the actual needs of the superintendents.

2. After completing the assessment of superintendents' needs, an evaluation or assessment must be made of the necessity for developing a Management Information System to aid in the decision-making process at the superintendent's level in the Middle Cities Education Association. The decision to establish a Management Information System will be determined by establishing the commonalities of problems existing among districts within the Middle Cities.

The History of the Middle Cities Education Association

The Middle Cities Education Association had its beginning as a concern of Dr. C. Robert Muth, then assistant superintendent of the Grand Rapids Public Schools. His interest was the financing of urban school district programs, as monies for these programs were growing scarce in the mid-1960's. Muth shared these concerns with other urban city superintendents, and under his leadership 14 districts were invited to join the Middle Cities Education Association.

The first meeting was held in January, 1965; at this meeting the group established three general areas of need:

1. The need to adopt a state compensatory education program for environmentally handicapped children.

2. The need to increase state support of education (especially urban education).

3. The need for state support of city transportation.

The group elected Dr. Muth as the permanent chairman, and he served in that capacity until the Middle Cities Education Association became a corporate structure in October of 1972. At that time, he was appointed Executive Director of Middle Cities.

> The forces that brought Middle Cities together were educational and political: educational because of the commonality among the school districts serving the poor, the black and the brown, and the understanding and concern superintendents had for the special needs of these children. The political commonality grew from the educational commonality with the recognition that the funding for educational change required political action and cohesiveness. The Middle Cities made up a composite school district equal in size to Detroit, but the political impact was individual and scattered. Detroit and its needs had high visibility, but the composite needs of the Middle Cities were not legislatively recognized.[1]

The president-elect, Dr. I. Carl Candoli, stated:

> Middle Cities Education Association was conceived as the vehicle for the urban school districts of Michigan to present a united front in pressing for recognition of common goals and concerns. Beyond that, it provides a forum for developing and sharing programs and experiences leading to improvement of service to clients. As the common spokesman for approximately 250,000 students, the Middle Cities Education

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[1]"The History of the Middle Cities Education Association," The Middle Cities Education Association 1973 Annual Report (East Lansing, Michigan: College of Education, Michigan State University, 1973), pp. 25-26.

Association has as its major objective the continued improvement of educational services to students.[1]

In July of 1972 Dr. Keith Goldhammer became Dean of the College of Education at Michigan State University. Through his efforts and those of the Board of Directors of the Middle Cities Education Association, a formal affiliation with the University was effected and the incorporation of the Association was finalized. The purpose of identifying with the University is stated in the following paragraph selected from a proposal submitted to the University:

> The agreement here stated is to formalize a cooperative undertaking between the University and Middle Cities Education Association to initiate and maintain a combined effort in meeting the present and future needs of urban education and to promote better understanding, communication and interaction between the operating school districts and the University. It is the intent that such affiliation will bring the reality of the urban school setting with its problems, needs, and challenges to the University; and to take the training and research potential of the University to the urban school district.[2]

Statement of the Purpose

The purpose of this study is:

1. To conduct an assessment of the needs of superintendents of the Middle Cities Education

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[1]"President's Message," Middle Cities Education Association 1973 Annual Report (East Lansing, Michigan: College of Education, Michigan State University, 1973), p. 1.

[2]"The History of the Middle Cities Education Association," op. cit., p. 27.

Association for a Management Information System to aid in the decision-making process.

2. To determine the commonality of problems existing within the districts of Middle Cities for which a Management Information System could be of assistance.

> The impetus for any management system must begin with the identification of the need by the educational leader and decision-maker. Three reasons for determining educational needs are:
>
> 1. To ascertain which needs have the highest priorities. Since this information helps to focus the attention of the program planners on the salient problems, it can be used to insure more efficient utilization and allocation of personnel time and resources.
> 2. To provide the data to justify focusing attention on some needs and not others. Such justifications must often be made in proposals and in reports to school boards and parents.
> 3. Finally, needs assessment data provides valuable baseline information against which to assess subsequent changes in student performances.[1]

Before any Management Information System can be developed, the needs of the superintendent for such an information system must be identified, and if such a system is to be shared with the other member districts, there must be a commonality of problems among the superintendents. If they can help each other by sharing their knowledge by the storage of such information of mutual interest and concern in a Management Information System, the system would be of significant value as an aid to the decision maker.

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[1]Stephen P. Klein, et al., Procedures for Needs Assessment Evaluation: A Symposium (East Lansing, Michigan: College of Education, Michigan State University, 1971). (Microfilms.)

Limitations of the Study

1. This study is confined to an assessment of the needs of superintendents of the Middle Cities Education Association for a Management Information System to aid in the decision-making process. These districts represent urban schools with student populations ranging from 4,000 to 43,000. The problems confronting these superintendents are those of urban cities; therefore, one could not conclude the problems of the rural or suburban superintendent would necessarily be the same.

2. The computer is only a tool of Management Information Systems and this study deals only with the need of establishing a Management Information System; the computer or data processing will not be included as a part of the study.

3. The definitions of the terms used must be considered a limiting factor of the study. The definitions have varied meanings within the field of Management Information Systems; therefore, the study is limited to situations in which comparable meanings can be identified.

4. It must be stressed that a Management Information System is never an end in itself, only a means to an end. It does not produce decisions. It does, however, provide a means for collecting data and formulating better forms of information for use in decision making within the social and political setting of the school. Given accurate

information, the quality of the decisions that are made becomes the responsibility of the administrator, not of the system that produced the information.[1]

Definition of Terms

To assist the reader in obtaining a better understanding of this dissertaion, the following generally accepted definitions of words, terms, and prhases are provided:

Accountability: The process of expecting each member of an organization to answer to someone for doing specific things according to specific plans and against certain time tables to accomplish tangible performance results.[2]

Data: A general term used to denote unorganized raw facts from which information is developed.

Data processing: The manipulation and reduction of raw data into a form suitable for further use.[3]

Data bank: The complete collection of information in an organization. It is a file of information created

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[1]See "Profile of the Seminar," Focus on Management Information Systems: A Report on the WICHE-ACE Higher Education Management Systems Seminar (Boulder, Colorado: WICHE, 1969), p. 3.

[2]Felix M. Lopez, "Accountability in Education," Phi Delta Kappan, LII (December, 1970), 231.

[3]Stephen M. Barro, "An Approach to Developing Accountability Measures for the Public Schools," Phi Delta Kappan, LII (December, 1970), 196.

by the designer of the system, and is determined only after the reporting requirements of the subsystem have been decided.

Decision making: A process carried on by a person who analyzes the information available and selects the preferred course of action from possible alternatives. Griffiths described the decision-making process as follows:

a. Recognize, define, and limit problem
b. Analyze and evaluate the problem
c. Establish criteria or standards by which solutions will be evaluated or judged as acceptable and adequate to meet the need
d. Collect the data
e. Formulate and select the preferred solution or solutions. Test them in advance.
f. Put into effect the preferred solution
    1. Program the solution
    2. Control the activities of the program
    3. Evaluate the results and the process.[1]

Exception reporting: A report that provides information on significant variations from a process, program, or historical trend.

Effective: Adequate to accomplish a purpose; producing the intended or expected result.[2]

Efficient: Performing or functioning in the best possible and least wasteful manner.

Information: A collection of facts or other data, especially as derived from the processing of data.[3]

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[1]Daniel Griffiths, Administrative Theory (New York: Appleton-Century-Crofts, Inc., 1959), p. 94.

[2]Jess Stein (ed.), Random House Dictionary of the English Language (New York: Random House, 1969), p. 455.

[3]Barro, loc. cit.

Information flow: The transportation of data or information from one location to another to aid in the decision-making process.

Management: The terms management and administration are synonymous for the purpose of this study.

Management Information Systems: Any formal system of procedures established to provide useful information in the decision-making process of management. The three basic functions of management information systems are: collecting, processing, and distributing data.

Process: The act of moving forward progressively from one point to another on the way toward completion; the act of passing through continuing development from a beginning to a contemplated end.

System: An organized collection of parts united by regulatory interactions.

Subsystem: An operational part within a system, capable of functioning independently or permitting independent design and analysis.

Plan of Presentation

Chapter I was comprised of a statement regarding the present status of education, the limitations of the study, and a list of the definitions of terms used in the study. The statement of the problem identified the parameters of the study, and the statement of the purpose described the intent of the research.

Chapter II is an extensive review of the literature regarding management information systems as related to educational needs and objectives. The computer, which is only a tool of some Management Information Systems, was not considered an essential part of this study. Rather, the concentration was on the system and its relation to educational needs.

A description of the methodology of the study, including the selection of the population, the method of investigation, the evaluation of the interview technique, the schedule of interviews, and the treatment of the data, is found in Chapter III.

Chapter IV contains the analysis of the data, including an overview of the findings, the problems created by the interviews, and various responses.

Chapter V includes a restatement of the problem with a description of procedures used, concluding with the principal findings and conclusions of the study.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Education has always had top priority in the lives of the American people. According to the United States Constitution, the states reserve the right to determine the course or direction of the educational opportunities provided the people of each state.

> Americans have long revered education. To most people the time spent in the classroom is a sound investment in a secure, intellectual, and economic future. It is viewed as a social equalizer, a guarantor of scientific progress and technical innovation, and a means of understanding the growing complexity of a modern society, and perhaps most importantly, as a source of lifetime earnings.[1]

It would be appropriate at this point to review the cost of education and the desire for definite hard data before discussing the need for better Management Information Systems in decision making.

Cost of Education

Billions of dollars are spent each year across the nation by the American people in their commitment to education. Kloster stated, "The cost of operating the

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[1]U.S., Department of Health, Education and Welfare, Panel on Social Indicators, Toward a Social Report (Washington, D.C.: Government Printing Office, 1969), p. 65.

public education system in the state of Michigan currently exceeds two billion ($2,000,000,000) dollars."[1] Because of spiraling inflation and the increased cost of living, along with increasing taxes, at both the state and federal levels, the American people can no longer afford to grace the coffers of public education with an unlimited supply of tax dollars.

> Almost 46 million elementary and secondary students enroll in 17,895 school districts under the direction of over three million teachers and staff. Education at the national level costs 44 billion dollars annually or about 40.5% of all state and local expenditures. While pupil enrollment rose 19% in the last decade, expenditures went up 159%. Educational expenditures, which have advanced at twice the growth rate of the Gross National Product (GNP) in the last ten years, now account for 8% of the Gross National Product and are rising by seven or eight billion dollars per year.[2]

Nystrand stated,

> This nearly blind American faith in the good of education has carried the burden. Most Americans still languish in the sunshine of deep belief in the virtues of education, especially public education. They want their children to reap the benefits of social and occupational mobility which public education has provided over the years. They want terribly to believe and most do believe that schools are doing a good job.[3]

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[1]Alexander J. Kloster, A Proposal to Develop and Implement an Educational Management Information System (East Lansing, Michigan: College of Education, Michigan State University, 1973), p. 1.

[2]Kent J. Chabotar, et al., Implementing Educational Accountability: The Michigan Experience (East Lansing, Mich.: Public Administration Programs, Department of Political Science, Michigan State University, 1973), p. 1.

[3]Raphael O. Nystrand, "Home-School Communication in Big City School Systems," in Governing Schools: New Approaches to Old Issues, ed. by Luvern L. Cunningham, et al. (Columbus, Ohio: C. E. Merrill Publishing Company, 1971), p. 48.

As the cost of education has continued to rise and the American people have developed other socio-economic desires, it has become increasingly difficult to secure the necessary money to fund the schools as the educators requested. As student demonstrations continued to increase, reaching their peak in 1968, and public unrest in public education continued to escalate, more and more communities denied public education the unlimited support it had enjoyed during the first 20 years following World War II. Bond issues were voted down by the people, and higher education was confronted by cutbacks in appropriations and other educational restrictions.

Cunningham stated, "We live in an age, however, when citizens seemingly are hungry for information about institutional effectiveness. It was a rare occasion in the past when people asked for definitive, hard data. This is no longer the case."[1]

As a result, administrators were forced to begin to select certain programs in preference to others because of cutbacks in funding. But how does one make such decisions? Educators face the need to make decisions germane to the individual needs, abilities, and divergent backgrounds of their citizenry. The Michigan legislature, under

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[1]Luvern L. Cunningham, et al. (eds.), Governing Schools: New Approaches to Old Issues (Columbus, Ohio: C. E. Merrill Publishing Company, 1971), p. 48.

the leadership of Governor Milliken, has brought the state closer to imposed accountability requirements.

"At the beginning of the twentieth century the prevailing attitude was that educational problems could be resolved through appeals to five sources: common sense, authority, intuition, revelation, and reason."[1] In this period of technological advancement and third and fourth generation computers, no longer is that method of decision making acceptable. The administrator is inundated with so much information he doesn't know where to begin or what to do with this data explosion--the massive stacks of acquired facts. The need for quantitative analysis becomes very apparent. As Keller stated, "Judgment is enhanced, not depreciated, when good, hard quantitative analysis is applied to those portions of the problem which can be analyzed."[2]

At the top level of management, superintendents are concerned with formulating policy, planning the programs to be offered, and evaluating the success of the system's operation. At times superintendents are forced to make judgments or decisions on inconclusive or subjective data, which often creates an atmosphere of confusion and discord.

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[1]Gilbert Sax, Empirical Foundations of Educational Research (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968), p. 2.

[2]John Keller, "Analysis and Decision Making," Focus on M.I.S.: A Report on the WICHE-ACE Higher Education Systems (Boulder, Colorado: WICHE, 1969), p. 9.

Summary

The American people have a great investment in the education process. Throughout the years the people have had great faith in the system and the administration and the educators should manage and operate their programs as efficiently as those in the business world.

The next step is to determine how the literature defines the term Management Information System.

What Is a Management Information System?

The term Management Information System has become a familiar term to most management people, although there appears to be great discrepancy in the use of the term. Krauss best illustrated this with the following statement:

> At the start of a recent business seminar on Management Information Systems the chairman solicited definitions from the fifteen systems executives and analysts present. Reading the definitions aloud, the chairman quickly showed that communication on the subject of Management Information Systems could hardly be effective with fifteen people using a term in fifteen different ways.[1]

Although the term is relatively new in its application to the educational vocabulary and has not acquired standard usage and acceptance, there is little doubt about its general meaning. A Management Information System is designed for the purpose of collecting timely, accurate facts, converting them into usable information to be used

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[1]Leonard I. Krauss, Computer-Based Management Information Systems (New York: American Management Association, Inc., 1970), p. 1.

in the decision-making process. It is very important to emphasize the system does not make decisions but merely provides the information regarding the alternatives for the decision-making process.

The term Management Information Systems has been defined in several ways. The Michigan Department of Education stated,

> A Management Information System is intended to supply information to an organization's decision-makers. The Management Information System attempts to make information available, not to replace decision-makers. The manager's information needs vary with the task at hand and with his ability to use information. Therefore, it is the task of the Management Information System, not to supply a pre-set package of information, but to supply great versatility in pertinent, timely information.[1]

Krauss' view of the Management Information System was as follows:

> A simply stated Management Information System objective might read: to collect and make available such information as is needed by management to run the business. Another could be: to improve overall operations by providing management with decision information that is accurate, up to date, and rapidly accessible. Yet another might go: to improve profit and customer service by getting the right information to the right people so they can make the right decisions.[2]

Kloster of Michigan State University and co-project director of the Task Force on the development and implementation of a Management Information System for the state of

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[1]"A Position Statement on Management Information Systems in the Michigan Department of Education" (Lansing, Michigan: State Department of Education, 1973), p. 1.

[2]Krauss, op. cit., pp. 3-4.

Michigan, stated: "This Educational Management Information System will provide information to the legislature at the beginning of each legislative session. Timeliness is extremely important since data is useless for decision-making if it is not available when it is needed."[1] He went on to say, "The advantages of this system to the decision-making public officials is that they will have accurate data, presented in an understandable format, delivered in a timely manner."[2]

A general definition presented by Kloster was that a Management Information System is used to collect facts, collate them into a useful form, and deposit the information in a computer bank. The information can be recalled when the user is ready for it, and will be available only on request. At that time the information will aid the decision maker; it will not make the decision for him. Kloster compared Management Information System with a savings bank. The information is deposited in the bank and can be withdrawn upon request, as in the conventional savings account in a monetary system.

Meltzer defined a Management Information System as one in which data are fed in, automatically processed, and

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[1]Kloster, op. cit., p. 2.

[2]Ibid., p. 4.

displayed on request.[1] Modern Management Information Systems are supposed to help the manager make better decisions.[2] Hussain concurred: "Most educational institutions have information systems whose main function is to provide information when needed and in the form in which it is needed."[3]

The foregoing definitions of Management Information Systems were intended to illustrate the fact that there is no one accepted definition according to the leaders in the field. It would be more appropriate to state that the acceptable or proper definition of any Management Information System can only be given by the designer of that system. Each system is designed to meet certain needs or objectives of the group organizing the system. One system may not bear any resemblance whatsoever to another, yet both would meet the definition of a Management Information System. For instance, when devoid of the profit motive the industrial design possesses many of the same components or characteristics as information systems used in education.

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[1]Morton F. Meltzer, The Information Imperative (New York: American Management Association, Inc., 1971), p. 190.

[2]David H. Li, Design and Management of Information Systems (Chicago: Science Research Associates, Inc., 1972), p. 19.

[3]Khateeb M. Hussain, Development of Information Systems for Education (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1973), p. 175.

For purposes of the present study, the definition used is that a Management Information System will devise a subsystem to collect and collate the necessary facts, process them into meaningful form, and store the information for use at a later date or upon recall.

It is of the utmost importance to ask the following question to place the proper significance on Management Information Systems: Why are educators, at this time, interested in developing a model of Management Information Systems?

What Created the Demand for a Management Information System?

Basically, three needs propelled Management Information Systems into being: They are as follows:

1. The increased public demand for financial accountability.

2. The technological revolution and the development of the third and fourth generation of computers, making the transmission of data at speeds approaching that of light a reality. This explosion or availability of massive amounts of data may make such a system mandatory. No longer can the administrator cope with such an abundance of information; thus he needs help.

3. The general public's concern regarding the schools' inability to meet the changing needs of the students.

Krauss observed:

> Around the turn of the century the sum total of knowledge was doubling at a rate of perhaps every twenty years. By the middle of the century it was doubling at a rate of perhaps every ten years. And within this decade, according to some sources, knowledge may be doubling at a rate of every five years. This geometric progression is the substance of what has been called the information explosion. Managers and many others are caught up in it. We see its effects in the need for more specialized specialists.[1]

Ackoff listed the following five assumptions of a Management Information System:

1. The critical deficiency under which most managers operate is the lack of relevant information.
2. The manager needs the information he wants.
3. If a manager has the information he needs, his decision-making will improve.
4. Better communication between managers improves organizational performance.
5. A manager does not have to understand how his information service works, only how to use it.[2]

Attributes of Management Information Systems

The next aspect of a Management Information System to be considered is the attributes that it must obtain to be a serviceable system for education. There would be great disagreement if one attempted to cite the various characteristics necessary for a Management Information System, but

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[1]Krauss, op. cit., p. 7.

[2]R. L. Ackoff, "Management Misinformation Systems," Management Science: Application (Series B), XIV (December, 1967), B-147. Ackoff did not necessarily agree with the statements he listed; for a critique of his views one can refer to A. Rappaport's Letter to the Editor, "Management Misinformation Systems--Another Perspective," Management Science: Application (Series B), XV (December, 1968), B-133-36.

there is general consensus that certain elements are necessary in all Management Information Systems. Those characteristics most often identified are: timeliness, accuracy, relevance, and completeness.

In Development of Information Systems for Education, Hussain stressed the necessity of including these four attributes and the justification of each one.[1] The Michigan State Department of Education, in its position paper on Management Information Systems, used the terms "pertinent, timely, relevant, up-to-date information" as descriptors necessary for such a system.[2]

> The cornerstone of Michigan's six-step model of educational accountability is educational decision-making based on accurate, timely, and appropriate information. Each of the six steps of the model requires:
> 1. That the information be available
> 2. That decisions be based on this information.[3]

Throughout the literature these basic considerations appear. The writer agrees that these basic elements are necessary and that they must be included in the development of any Management Information System. The mode of processing this information would be determined by the attributes of

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[1]Hussain, op. cit., pp. 87-93.

[2]"A Position Statement on Management Information Systems in the Michigan Department of Education, op. cit., pp. 1-2.

[3]"The State Board of Education's Introductory Statement of the Development of Management Information Systems for Local School Districts: The Basic Frame of Reference" (Lansing, Michigan: State Department of Education, n.d.), p. 1.

the information required. Because of the size of the membership of the Middle Cities Education Association (approximately 250,000 students), only computerized Management Information Systems will be considered here.

In discussing the possibility of exploring the development of a Management Information System for the Middle Cities, the executive director of the Association believed a needs assessment would be the starting point for such an endeavor. Early in the organization of the Middle Cities, the superintendents selected as one of their top priorities the development of a Management Information System. Since the goals and the objectives of the Management Information System would be developed by the superintendents of the Association, it was felt that a needs assessment would be a necessary starting point.

Needs Assessment

The next logical question is: Why does one conduct a needs assessment? Klein gave three reasons for a needs assessment:

> 1. To ascertain which needs have the highest priority. Since this information helps to focus the attention of the program planners on the salient problems, it can be used to facilitate planning and decisions regarding the modifications and development of educational programs. Needs assessment data can be used to insure more efficient utilization and allocation of personnel time and data.
> 2. The second reason for conducting a needs assessment is that it justifies focusing attention on some needs and not others. Such justifications must often be made in proposals and in reports to school boards and parents.

3. Finally needs assessment data provides valuable baseline information against which to assess subsequent changes in student performance.[1]

The Task Force for the Development and Implementation of a Management Information System, authorized by Governor Milliken and receiving $140,000 appropriated by the legislature, named Michigan State University and the State Department of Education of Michigan to develop such a system. The Task Force then requested Michigan State University to conduct a needs assessment. In the opinion of the Task Force, it was necessary to establish the needs of all the subgroups served by the Management Information System. A sense of direction for the project could then be determined. This merely adds credence to the position taken by the Executive Director--that a needs assessment is the starting point in developing a Management Information System for Middle Cities.

Educational managers face complex, diverse, and constantly changing problems. The major problem has become to provide a base level of quality education to all, in an environment at once expanded by new community and student demands and yet contracted by legislative and public refusal to pay more for inconclusive educational results.[2] The

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[1]Klein, et al., op. cit.

[2]John Farquhar, An Information System for Educational Management: Executive Summary (Santa Monica, California: Rand Corporation, 1972), p. 1.

struggle in Michigan illustrates this difficulty. The Compensatory Education Act is an example of the legislature's attempt to meet the changing needs of the urban cities in Michigan, and the State Assessment Act is an attempt to measure the quality of education throughout Michigan.

Farquhar went on to say that the difficulties associated with increasing pressure and decreasing resources can be remedied in several ways. Some of them include:

1. Allocating and managing scarce resources more efficiently, achieving increased results per dollar.
2. Measuring and evaluating educational strategies more effectively to determine where expenditures have the highest pay-offs.
3. Understanding, monitoring, and explaining the benefits of educational programs more thoroughly, assuaging public doubts and thus loosening purse strings.[1]

Because of the rapidly changing times, the tremendous advancement of technology, and information explosion, it has become necessary to develop some type of system that will be capable of handling this massive amount of data, converting it into reliable, timely information with the power of instant recall or availability. Li stated:

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[1]Ibid., p. 1.

> The most critical question involved in designing a Management Information System is the determination of what information is necessary to enable managers to effectively make decisions. The requirements cannot efficiently be identified by concentrating on the information which is available in the organization since much of it is superfluous and redundant. Much needed information for good decision-making is unavailable.[1]

Education has been characterized as a continuation of administration by crisis and this will continue unless new means are applied to support the decision-making process. It will be necessary to provide the superintendents with an information flow to enable them to make decisions with prior knowledge of the effects of their decisions.[2] Goldhammer stated,

> To a man, they [the superintendents] felt that both their preparatory programs and inservice educational opportunities which they had since entry into administrative posts were far from adequate for preparing them to resolve the daily problems which confront them.[3]

A review of the literature disclosed many efforts to develop a Management Information System within the parameters of business. However, the literature concerning the development of a Management Information System to serve the needs of education is definitely limited. Many neophyte attempts have been made, but with little evidence of actual operational success. Because of the inability of educators to

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[1]Li, op. cit., p. 22.

[2]See William H. Curtis, Educational Resources Management Systems (Chicago: Research Corporation, Association of School Business Officials, 1971), p. 26.

[3]Cited in Cunningham, et al., op. cit., p. 228.

accept a standard definition of the term Management Information Systems, many articles have been published dealing with such systems, but in reality they may relate only to a function of the system rather than the system itself.

After an extensive review of the literature, three Management Information Systems in the field of education were selected that could be identified with the problems confronting the Middle Cities Education Association in developing their own Management Information System. In total, they represent an effort at all levels of education to develop an information system. The agencies are:

1. The Western Interstate Commission for Higher Education
2. The Cincinnati Public Schools
3. The Governor's Task Force for the Development of a Management Information System.

In studying these three agencies, it was possible to review the efforts of higher education, the State Department of Education, and an independent school district in their attempts to develop a Management Information System. Each agency established different criteria for the development of its system; hence a review of the three systems encompasses many levels of developing Management Information systems for education.

Management Information Systems in Higher Education

The Western Interstate Commission for Higher Education

A review of the literature discloses many beginning attempts to develop Management Information Systems for education. One formidable accomplishment in the area of higher education has been achieved by the Western Interstate Commission for Higher Education (WICHE). Its purpose was as follows:

> The Western Interstate Commission for Higher Education Management Information Systems Program was proposed by state coordinating agencies of the colleges and universities in the West to be under the aeges of the Western Interstate Commission for Higher Education. The program proposes, in summary, to design, develop, and encourage the implementation of Management Information Systems and data bases including common data elements in institutions and agencies of higher education that will:
>
> 1. Provide improved information to higher education administration at all levels.
> 2. Facilitate exchange of comparable data among institutions.
> 3. Facilitate reporting of comparable information at the state and national level.[1]

Recognizing the need to provide information to assist in the decision-making process for higher education, WICHE decided to call for a seminar to discuss Management Information Systems. Wilson and Kroepsch best explained the need for a seminar with the following statement: "The wheel, once invented, need not be invented again except by those

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[1] Focus on M.I.S.: A Report on the WICHE-ACE Higher Education Management Information Systems Seminar (Boulder, Colorado: WICHE, 1969), p. 2.

remain ignorant of its existence elsewhere."[1] This best exemplifies the general attitude of the organization in regard to the development of Management Information Systems. Why should each college or university make its own costly errors at great financial cost to the institution, when such errors could be eliminated to some extent by sharing development and expertise?

> The Western Interstate Commission for Higher Education Management Information Systems proposes to encourage the development of Management Information Systems within higher education institutions which will, at the same time, by sufficiently individualized to serve the unique needs of the respective institutions and sufficiently compatible to allow valid inter-institutional data comparisons.[2]

This definitely is one of the concerns for Middle Cities. The Management Information System must serve the needs of each individual school district, but must also be usable for interdistrict data comparison.

Attempting to ensure compatibility of the system among colleges and universities, it was decided that certain characteristics be identified within the system. Lawrence stated,

> We have established the degree of compatibility between any two management systems is determined by the agreement concerning:
> 1. The data elements included in the bases of the two systems.

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[1]Logan Wilson, et al., Focus on M.I.S., op. cit., p. iii.

[2]Ben Lawrence, "Compatible Management Information Systems," Management Information Systems Program (Boulder, Colorado: WICHE, 1969), p. 4.

2. The definitions (must be identical) of those data elements.
3. The standardization of the use of the data elements in deriving information to be compared.[1]

The Western Interstate Commission on Higher Education developed five categories of responsibilities to be used among the colleges and universities in the development of their Management Information Systems. These are: facilities, staff, programs, students, and finance. In addition to these five categories of responsibilities, it would be advisable to add a sixth category to the data bank--the area of community responsibility. As the colleges and universities are not identified by the definition parameters of community, this division is not necessary for those institutions. However, local schools have a great need for information concerning the attitudes and opinions of the people comprising their districts. The school superintendent has a tremendous need for information about community attitudes, priorities, interests, and desires. Lack of knowledge of the community's attitude about starting school during daylight savings time created many problems for school administrations, such as protest marches, boycotts, derogatory editorials, and lawsuits that resulted from accidents suffered by children going to school in the dark. An information system could provide a basis for securing and storing such information

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[1]Ibid., p. 3.

to help the decision makers become aware of community attitudes and concerns.

Attitudes of the community no longer are sampled by keeping in touch with prominent members of the Chamber of Commerce. Today the force or drive behind community activities varies according to the task or questions involved and is spearheaded by different people with varied socio-economic backgrounds. It has become necessary to sample the people of the community to determine their interests, needs, likes, and dislikes in order to carry out the operation of education within these boundaries or limits.

> The core concepts which provide the bases for Management Information System research, development, and implementation are:
>
> 1. Identification of the problem is the essential starting point. The impetus for any management information system must come from the identification of problems by educational leaders and decision makers.
> 2. Models are tailored to specific problems. Models are the key mechanisms of management information systems.
> 3. Operation of models requires a data base. Models are mechanisms for deriving new information from data already available, and it follows that the operation of models requires a data base.
> 4. A data base is composed of discrete data elements. A data base is a collection of discrete items of information referred to as data elements.
> 5. Models may be unique or standardized. Two or more different models may be used with identical data elements to derive two or more different kinds of information.
> 6. Management Information System may serve both current operational and long-range planning needs of institutions.[1]

In conclusion, the divisions of categorical responsibilities of the Western Interstate Commission for Higher

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[1]Focus on M.I.S., op. cit., p. 2.

Education would be of value in establishing the necessary data base for educational information.

The idea of sharing the cost and expertise of developing a Management Information System is also applicable to the Middle Cities Education Association. By pooling their resources and manpower such an undertaking is not beyond the realm of possibility, and with the talent and capabilities of the Middle Cities Consortium the development of a Management Information System could be a reality.

The core concepts expressed by Lawrence give direction to the development of a Management Information System for Middle Cities. They reinforce the attitude that the development of an assessment of superintendents' needs for a Management Information System to aid in the decision-making process is the logical starting point of this study.

The Cincinnati Public Schools Information System

In the area of public school Management Information System programs that are now operative, the Cincinnati program possesses many attributes desirable for adoption by the Middle Cities Education Association.

In its development of categorical responsibilities, the Cincinnati program deleted the area of finance because its program manager, Bernard Barbadora, believes finance should be a separate entity in itself, under the control of the business manager. Therefore, the area of finance is

not included in the School Information System (S.I.S.). He stated,

> The primary focus of this system is to deal with and serve as an information foundation to the educational program dimension and not to support the maintenance (e.g. budget, salary, scheduling, etc.) dimensions connected with the educational setting. At the present, we do not see ourselves serving as a data crib to operationalize a Planning Program Budgeting System (PPBA), a performance contracting system, or a cost/effectiveness system.[1]

A dichotomy exists between the Cincinnati Management Information System and that proposed by Michigan State University and the State Department of Michigan, which will be reviewed in a later unit. The agencies believe the financial category is the hub of the entire system, with everything else of secondary concern, whereas the Cincinnati system totally ignores the financial category. Nevertheless, its operation is apparently successful.

The goals of the Cincinnati system were reviewed to evaluate or identify similar needs of Middle Cities. The goals are as follows:

1. To develop a school evaluation and management model using systems concepts.
2. To gather data on school unit variables "most likely" influencing the effective operation of the Cincinnati Public Schools.
3. To construct a longitudinal school unit data bank and information system.

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[1]Bernard M. Barbadora, "A Brief Description of the School Information Systems of the Cincinnati Public Schools" (paper presented at the 11th Annual Conference for the Association for Educational Data Systems, Cincinnati, Ohio, 1973), p. 2.

4. To analyze data for parsimony, descriptiveness, and prediction of school output.
5. To report data and information meaningful to decision-makers so they can more effectively carry out the decision-making process.
6. To develop, administer, analyze, and report the student, teacher, parent, and administrator surveys.
7. To provide in-service training sessions for decision-makers so they can understand and utilize this information service.[1]

Many of these goals and objectives express the collective attitudes of the superintendents of the Middle Cities Education Association expressed during the interviews conducted for the present research.

In the review of the literature regarding the Management Information System used by the Cincinnati Public Schools, the method of reporting proved to be of great interest and could possibly by adopted for use by Middle Cities.

One of the chief problems in developing a Management Information System is the forms used to standardize reporting. The Cincinnati System has two reports that appear to have great potential: The Exceptional Characteristic Report and the School Variable Printout.

The Exceptional Characteristic Report is used to identify the variable on which the individual school being assessed is significantly different from other schools within the study. The concept of this report is to point out the exceptional strengths or weaknesses of the specific school.

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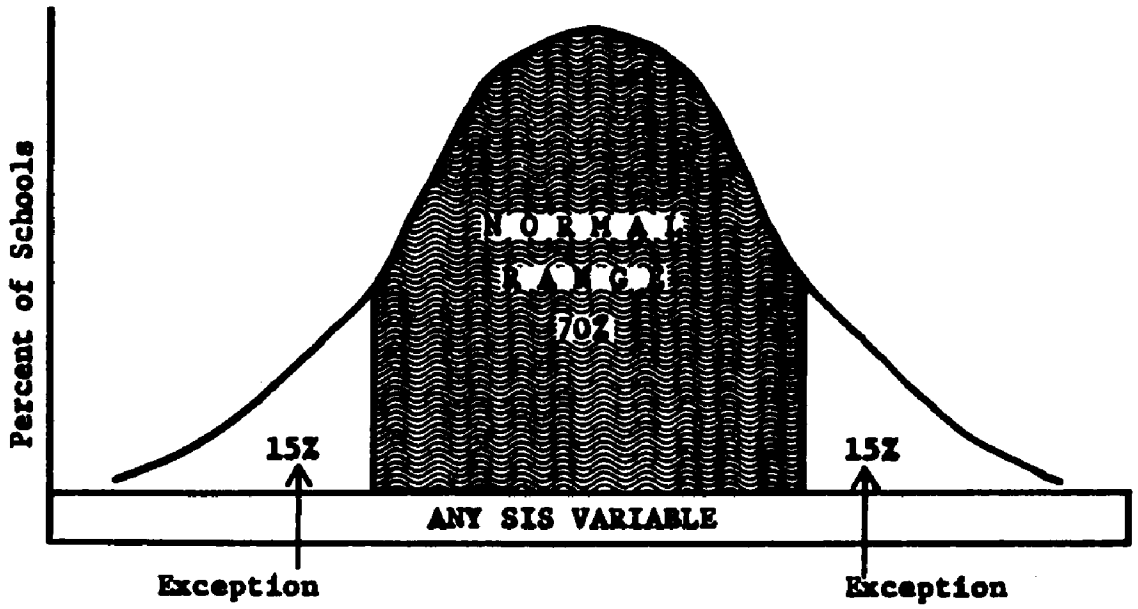
[1] Ibid., p. 1.

The manager stated, "We define an exception as a variable whose measurement is either significantly higher or lower than the district norm."[1]

"The figure below shows that a measurement that is in the highest or lowest 15% of similar schools, i.e., elementary, junior high or senior high, is defined as an exceptional variable."[2]



The exceptions report is categorized on three levels. The first lists good or desirable exceptions; the second lists exceptional variables that are difficult to judge as

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[1]Bernard Barbadora, "Using Information for Decision Making," School Information Systems (S.I.S.) Reports and Interpretive Memorandums (Cincinnati, Ohio: Cincinnati Public Schools, 1973), p. 4.

[2]Ibid., p. 4.

either good or bad; the third variable represents an undesirable state of affairs. (Refer to Appendix A for further clarification.)

The second report of interest is the School Variable Printout. This report lists approximately 383 variables in the Cincinnati School Information System considered important by the program's decision makers. The idea behind this method of reporting is to select a variable of significance and make a comparison of your school at each grade level with a similar school in your system. This report compares your school with a composite of all other like schools in your system and then reports the critical area. "What the values mean that appear under this general heading is the area in which 70% of all schools fell. For example, if a particular variable has a critical area of say 3% to 7%, you can interpret this to mean that 70% of the schools fell in this area."[1] (For further explanation refer to Appendix B.)

The significance of this type of reporting in Middle Cities would permit each district to compare the schools with its district and then to make comparisons among districts. This would aid in self-evaluations for improvement and could point out districts that excel in certain areas of educational achievement. These districts could then help other member schools improve in the areas of concern.

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[1] Ibid., p. 10.

Both of these report forms would allow for comparison across districts to illustrate the commonality of problems existing in urban city school systems.

The Governor's Task Force for the Development of a Management Information System

The third agency reviewed was the Governor's Task Force for the Development of a Management Information System. The demand for the formation of such a task force stems from Michigan's six-step model of educational accoutability.

> Each of the six steps of the model requires (1) that information be available, and (2) that decisions be based on this information. When these two requirements are met, the rationality of the management of the educational system, whether Local, Intermediate, or State, will increase.[1]

Today the necessary information is not available to the State Department of Education; thus, Governor Milliken called for a Task Force to determine the direction of the development of a Management Information System.

Represented on the Task Force are the following agencies:

1. Michigan Education Association
2. State Chamber of Commerce
3. House Fiscal Agency

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[1]"The State Board of Education Introductory Statement of the Development of Management Information Systems for Local School Districts: The Basic Frame of Reference" (Lansing, Michigan: State Department of Education, n.d.), p. 1.

4. Michigan Senate Consultant
5. Senate Fiscal Agency
6. Michigan Department of Education
7. Bureau of the Budget
8. Governor's Office
9. Michigan Association of School Administrators
10. Michigan Association of School Boards
11. Michigan School Business Officials

In 1973 the Michigan legislature passed a bill that recognized the Michigan State Department of Education and Michigan State University as the two joint contractors for the development of a Management Information System for the state of Michigan. At that time the legislature appropriated $140,000 to fund the project.

The Task Force then delegated to the representatives from Michigan State University the responsibility of conducting a needs assessment among the membership intended to be served by the Management Information System. Kloster stated,

> All members of the Task Force were contacted and arrangements were made to conduct an in-depth interview. The interviews focused on the identification of information needs of each of the agencies represented on the Task Force and how an Educational Management Information System could serve each agency with need information.[1]

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[1]"Results of Educational Management Information Systems Interviews" (East Lansing, Michigan: College of Education, Michigan State University, 1974).

After having conducted interviews with all members of the Task Force, the members of the interview team gathered and collated all the data and reported back to a joint meeting of the Task Force membership. The joint needs of the group were presented and discussed by all members present.

It was decided that both the State Department of Education and the Michigan State University team would set a time at a later date to determine the direction of work on the development of the Management Information System. Each group would prepare a plan of action and a time schedule; then, together, they would work out the final accepted work schedule and assignments.

At the time of this writing this is the point of development the two contractors have reached. A future meeting has been scheduled to hammer out the agreement between the two contracting agents about the tasks assigned to each agency and the time schedule. Kloster stated,

> The entire project is predicated on the need to improve the flow and use of educational information by decision-makers--those individuals, organizations, and agencies internal to operational components of Michigan's public education system, and those individuals, organizations, and agencies which impinge and condition the operational components.[1]

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[1]"Develop Specifications for a Comprehensive Reporting System" (East Lansing, Michigan: College of Education, Michigan State University, 1973), p. 1.

Summary

In the review of the literature, the Educational Resources Information Center facilities in the Michigan State University Library were used to search ERIC documents for articles discussing Management Information Systems or Needs Assessments related to Management Information Systems. This search revealed 139 citations within the parameters mentioned above. Many of these articles were reviewed and several have been used as reference materials.

Another search was made through the Xerox Corporation exclusively in the area of dissertations. This search is called a Datrix search (Direct Access to Reference Information: a Xerox service). Using the term "Management Information Systems," the search found five dissertations. Another search using the parameter of "Needs Assessment" was made and the response was negative or there were no dissertations within that parameter on record.

The review of the literature revealed a very important factor in the discussion of any Management Information System. Any user may define his system as a Management Information System, whether it is a single function performing within a module or a system with a complex structure, performing many functions for several modules. Since the term "Management Information System" is ambiguous, an agreement must be reached about the meaning of the term before a discussion of Management Information Systems can take place.

The Cincinnati study has significance from two viewpoints. The first is the ability to compare one school of their system to another or to other like schools in their system. This permits many bases for evaluation and appears to be valid for Middle Cities. Second is the method of reporting the findings to their membership. This form of reporting should be given consideration in any further development of a Management Information System.

The review of Western Interstate Commission for Higher Education is helpful for anyone considering the development of a Management Information System. Their development of categorical responsibilities within the data bank has genuine acceptance throughout higher education and is of value to anyone considering the development of such a system. Second, the unity of these colleges and universities in combining their efforts and monies to develop a system is an excellent example for K-12 districts to follow and provides much insight about Management Information Systems.

The study of the Governor's Task Force for the Development of a Management Information System was very rewarding. First, interviews with the intended users of their system were witnessed. In addition, the tapes of the interviews were made available to analyze the techniques of the interview, note the reaction of the interviewee to the questions, and consider what reaction might be obtained

from the superintendents through the in-depth structure of the interview method. Second, the problems confronted by the Task Force in developing the needs assessment can easily be identified with similar situations within the Middle Cities in the development of a Management Information System. The members of the Task Force were very cooperative in discussing the development of their needs assessment interview and the possible problems one could confront in conducting such a probe.

In conclusion, the review of the literature has emphasized the need to develop Management Information Systems to aid in the decision-making process in all fields of endeavor. The discussion pointed out the efforts made by various segments of the business and educational environment to establish a system of information management that will function within the parameters of the institution or agency designing the system. The various ramifications of developing such a system were also pointed out.

Chapter III contains a discussion of the methodology of the study. Included are a description of the interview procedure, the problems created by the interviews, and a discussion of the instrument used in the study.

CHAPTER III

PROCEDURES USED IN THE STUDY

The development of a Management Information System was the first priority of the superintendents of the Middle Cities Education Association in 1973. The main purpose of the present study was to investigate the needs of the superintendents of the Middle Cities relative to a Management Information System and to establish what needs have a commonality among districts. If such a commonality could be determined, this would be the area the Management Information System would develop to best serve the interests of the Association.

Assumptions

The realization or use of a Management Information System would largely depend on the following assumptions:

1. The general acceptance of the Management Information System by the Central Administrative Staff of each of the 13 districts. It will be necessary to depend on the cooperation of the Central Administrative Staff to implement the system successfully.

2. The implementation of the system within the 13 districts and a staff of sufficient numbers to establish the system.

3. The inservice training and expertise necessary to continue implementation of the system and continually update the design to keep the programs current.

The Scope of the Study

The Middle Cities Education Association is composed of 13 school districts in the state of Michigan. The districts and the number of students in 1973-1974 are listed below:

1.	Ann Arbor	19,438
2.	Battle Creek	9,659
3.	Bay City	17,445
4.	Benton Harbor	10,863
5.	Flint	43,009
6.	Grand Rapids	34,316
7.	Jackson	13,031
8.	Kalamazoo	16,032
9.	Lansing	32,217
10.	Muskegon	9,543
11.	Muskegon Heights	3,694
12.	Pontiac	22,110
13.	Saginaw	20,767
	Total number of students	252,124[1]

The geographical area of the Middle Cities Education Association ranges from Bay City as the farthest northern point to U.S. 94 as the southern boundary line. Pontiac

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[1]These figures were taken from Ranking of Michigan Public High School Districts by Selected Financial Data (Lansing, Michigan: State Department of Education, 1973-74.

is the eastern point, with Benton Harbor and the coastline of Lake Michigan the western boundary. Geographically, the Association is confined to the lower third of the state of Michigan; approximately nine million people reside within this area.

The headquarters of the Association is located in the city of East Lansing, Michigan; the offices are at 420 Erickson Hall, Michigan State University. This places the Association offices in the center of the region, geographically, and also provides a convenient meeting place for gatherings of the Association.

The Association represents 13 of the largest school districts in the state of Michigan, excluding the metropolitan city district of Detroit. The smallest district, Muskegon Heights, consists of 3,694 students; Flint, the largest district, has 43,009 students. The total number of students within the jurisdiction of the Association, according to 1973-74 data, was 252,124 students or one-sixth of all the students in the state of Michigan.

The 13 urban schools of the Middle Cities were selected as the sample of this study for the following reasons:

1. The combined student population of the Middle Cities Education Association is in excess of 250,000 students, which represents one-sixth of the total student population in the state of Michigan.

2. The superintendents of Middle Cities in 1973 declared the need for a Management Information System as one of their top priorities for the coming year, which would guarantee a basic interest of the superintendents in such a study.

3. The urban cities are confronted with similar problems such as busing, shifting population, segregation, to mention a few. The commonality of the problems shared by these districts appeared to be an ideal atmosphere for the development of a Management Information System.

4. The Middle Cities Education Association has been instrumental in developing programs and legislation aimed at improving educational opportunities for urban center children. A good example of their efforts is the Compensatory Education Act.

> The original bill identified children by social and economic measures. Symptomatically the educational problems of the environment handicapped child were related to the educational problems of the genetically handicapped child. The presentation point was made that the state provided double and quadruple funds for handicapped children with limited potential, while giving no recognition to the needs of the child with unlimited potential. Section 3 of the State Aid Bill (Middle Cities Act) was passed with an appropriation of $3 million in 1966. The appropriation was gradually increased to a recent level of $23 million in 1971.[1]

By uniting their efforts under the leadership of Dr. C. Robert Muth, Middle Cities has been successful in recognizing the many problems facing the children of the

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[1]"The History of the Middle Cities Education Association," op. cit.

cities. This Association appeared ready to explore the possibility of developing a Management Information System to provide an information base to be used in better decision making at the superintendent's level.

Interview Schedule

An appointment was made with the executive secretary to explore the possibility of developing an assessment of the need for a Management Information System with the superintendents of Middle Cities. It was discussed and decided to proceed with the needs assessment as the starting point. The executive secretary contacted each superintendent, requesting him to set aside one hour for an in-depth interview. The following superintendents were contacted:

Jan. 14, 1974	Jack Taylor, Saginaw
Jan. 14, 1974	Al Zacherich, Bay City
Jan. 18, 1974	I. Carl Candoli, Lansing
Jan. 23, 1974	Richard Helser, Genton Harbor
Jan. 23, 1974	John E. Syndor, Muskegon Heights
Jan. 23, 1974	Phillip E. Runkel, Grand Rapids
Jan. 30, 1974	William Austin, Muskegon
Jan. 31, 1974	Dana Whitner, Pontiac
Feb. 4, 1974	David Trose, Jackson
Feb. 5, 1974	Jack Mawdsley, Battle Creek
Feb. 5, 1974	William Coats, Kalamazoo
Feb. 6, 1974	Harry Howard, Ann Arbor
Feb. 6, 1974	Peter L. Clancy, Flint

The method of securing the data was the interview. It was to be only partially structured, so as not to lead the interviewee or to predetermine the direction of the interview. The questions were to be used only as a guide or to initiate direction in case the superintendent did not have a response or the interview was lagging. The needs

assessment was conducted to determine the following points of information:

1. What are the actual needs or concerns of a superintendent regarding the development of a Management Information System?
2. How does the superintendent perceive the Management Information System?
3. Would the superintendent support the development and implementation of a Management Information System?

The Instrument

The interview was allowed to follow any course determined by the superintendent. The general questions were:

Question 1

Do you view a Management Information System as a top priority for the Middle Cities Education Association?

Question 2

What do you perceive as the purpose of a Management Information System? If unable to respond, they were asked: What is your definition of a Management Information System?

Question 3

What are your information needs?

Question 4

At the present time do you have a Management Information System? If so, how does it meet your present needs?

Question 5

Do you have the staff at the present time to help implement a Management Information System? If your response was "yes," would you be willing to share "time" with other member schools to implement the system?

Question 6

What type of information do you want and how specific should it be? Also, in what form should it be reported?

Question 7

Do you have access to a computer either in your school or with the intermediate school district? Where would you like to have this information stored?

Question 8

What do you perceive as the immediate goals of the Management Information System? What do you perceive as the long-range goals of the system?

Question 9

In your present system do you have an evaluation or research staff that provides you with the needed information for the operation of your district?

Question 10

At the present time do you have any system or technique to measure community feelings, opinions, or attitudes relative to the operation of the school?

Review of the Instrument

The longest interview lasted one hour and 15 minutes, while the shortest interview lasted 15 minutes. The average interview was 45 to 50 minutes long, and usually was conducted in the superintendent's office or in the board room. The superintendents were usually very cordial and cooperative.

The interview method of collecting data was hampered by the busy schedules of the superintendents. They might have planned very carefully to set aside one hour for the discussion of Management Information Systems, but because of unforeseen circumstances were unable to devote themselves to the discussion for that period of time. An example of such an unforeseen circumstance was the superintendent who was being picketed by 50 to 100 housewives, who were protesting the change of time schedule because of daylight savings time, decreed by the President of the United States. An effort was made to reschedule interviews when such conflicts resulted. Even so, in one case it was very difficult, if not impossible, to carry on an interview with the superintendent because of interruptions or his previous

commitments. In most cases the superintendent was unable to prevent interference with the interview.

Another dimension of the interview must be mentioned at this point. Because of the commitment of the superintendent to the many facets of operating a school, the amount of time a superintendent has to consider the more sophisticated methods as a Management Information System depends somewhat on his central staff and the assistance he gets in the total operation of the school. Because of the many hats he has to wear or the roles he must play, this will determine how much time he will have to consider the more sophisticated methods of decision making and operating a school.

In the interviews with the superintendents it was apparent that some of these gentlemen had little or no time to consider the Management Information System because they were busy with another aspect of a school superintendent's involvement. In no way does this discredit anyone, but it merely points out that the involvement of the superintendent depends upon the amount of assistance he has available in operating the school system. It was apparent that most of these superintendents are involved many, many hours each day with school business, and lack of time is always a problem.

It was necessary to contact other members of the Central Administration Staff within these districts to

clarify what types of information systems were in operation and how successful they were perceived to be. In every case these people were very cooperative and provided much information and literature regarding their systems. Again, the sophistication of the school system and the development of the superintendent's staff determined the extent to which the district was involved in Management Information Systems.

The intent of this method of obtaining information from the superintendent was not to confine the parameters of the interview by structured questions, but rather to allow a greater freedom of response. As the interviews progressed, it became apparent that two distinct categories of needs were emerging. These were:

1. The need for additional information for the decision-making process.
2. Questions regarding the implementation of the system, concerning cost, increased duplication of form reporting, and implementation or in-service training.

In evaluating the responses, the two areas of concern and commonality among superintendents were established. Each question of the interview was then analyzed separately with the response of each superintendent. The inferences made by the superintendents or the conditions imposed upon the question by their responses are presented in the discussion that follows in Chapter IV.

In summary, the plan was to interview each superintendent of the Middle Cities Education Association about his needs for a Management Information System to provide information to aid him in the decision-making process.

The interview was to be semi-structured, allowing the superintendent freedom of response. The interview was intended to determine the parameters for the development of any Management Information System that might be developed within the Middle Cities Education Association. The interview was conducted at the convenience of the superintendent; he chose the time and place of the meeting. The length of the interview was for the most part determined by the superintendent's interest (or lack of interest), his busy schedule, or the time he had allotted for the interview.

After the interview was completed, a brief was prepared from the notes taken on the main response to each question of the interview. A summary was made, and a report of the interview results was submitted to Dr. Muth, Executive Director. A file was established for each interview, for reference at a later date.

The interview method of research proved to be very rewarding and informative, but the shortcomings of that method became apparent. The greatest difficulty was to find a time when the superintendent could devote himself exclusively to discussing Management Information Systems.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

In reporting the interviews of the various superintendents, each individual idea or concept is reported. In some cases the responses of two or more superintendents were so similar that only one response was reported. Therefore, the number of responses to each of the questions will vary.

The responses are grouped according to each individual question, and the superintendents are not identified by which response they made to a particular question. It was felt this permitted a more honest and direct method of reporting and evaluating the results of the interview.

Question 1

> Do you view a Management Information System as a top priority for the Middle Cities Education Association?

Twelve of the 13 superintendents responded affirmatively to this question, but added reservations or restrictions to their commitment. Their comments were as follows:

We believe a Management Information System is a top priority for the Middle Cities:

1. Because education needs the technology and expertise to handle the information explosion and excessive amount of data now available to the local school district.

2. If it does not duplicate or require any more forms to fill out on the part of the school district, as we already are inundated with multitudinous report writing required by the state and federal agencies.

3. Because we need all the help we can get to keep informed of public opinion and community involvement with respect to problems and programs involving our school districts.

4. If it will make decision making more effective and efficient. Most cities do not have large enough research and evaluation centers to do this type of job on their own, and they do need help, although to get such interdistrict cooperation is very difficult.

5. If it will eliminate the redundancy of the system within which we presently operate.

6. But if it requires any additional form reporting of our school district we would definitely not be interested.

7. If it can give our school district the information needed to operate the schools more efficiently and to serve better the needs of the community.

8. If such a system can provide the information necessary to meet the needs of the individual child by

providing him with an education that permits him to take his proper place in society.

9. As I see it, the main purpose is to provide timely, accurate information to all users, but we must be careful to emphasize the need for honest information at the disposal of the group, not half truths. This is the old concept of "garbage in-garbage out."

10. But we must recognize that each school district is different and has different needs, thus making the task of the system much more difficult.

The only negative response to the statement that a Management Information System is a top priority of the Middle Cities Education Association was as follows: "I do not believe such a sophisticated method of reporting such information is necessary for Middle Cities. Most school districts lack the staff to carry out or execute the system; thus there would be great administrative problems."

Question 2

> What do you perceive as the purpose of a Management Information System? If unable to respond, they were asked: What is your definition of a Management Information Service?

The responses were as follows: I believe the purpose of a Management Information System to be:

1. To develop a system to gather information, collate and store it for use at a later date.

2. To provide information for day-to-day operation and management.

3. To provide information for short-range and long-range planning.

4. To gather information concerning teachers, students, finances, programs, and facilities for the purpose of better planning and management.

5. To assist the evaluation and research department in identifying the needs of the school district regarding the types of information needed for the operation of the schools.

6. To make available timely, accurate information to all users. Research for the sake of research is useless and the information remains on the shelf unread and worthless. It must serve the school district and fulfill a purpose.

7. To provide the information necessary for the operation of all dimensions of the educational programs.

8. Although I have heard of the concept, I personally do not understand the technical aspects of the Management Information System.

9. Would you please explain to me what you mean by Management Information Systems?

10. It would serve the needs of the school districts for information by gathering the information, putting it into useful form, and providing it for use in the district

upon request. One superintendent was very adamant that the information should be immediately available on request. He further stipulated he did not want to have to wait for the survey to be made after he submitted his request.

11. To gather information within the school district necessary for the operation of the schools. Because of the limited funds or staff available, the school was unable to gather this information. It was also added that such information would permit cross-district comparisons, which would be helpful in the evaluation of one's own school district.

All superintendents agreed it would be desirable to have such information, but emphasized the requirement of timeliness, accuracy, and relevance.

Question 3

What are your information needs?

When asked the above question, every superintendent responded that his basic needs could be included in five categories: finance, pupil personnel, academic personnel, curriculum, and facilities.

In each case the superintendents indicated their present information system provided the knowledge for their operation. The types of information the schools presently possess are listed by categorical responsibilities as follows:

I. Financial

- a. Tax information
  - 1. Millage
  - 2. Student equalized valuation
  - 3. Special tax programs
  - 4. Bonding
  - 5. Federal funding
- b. Fourth Friday count
- c. Budget reporting
- d. Program costs
- e. Special program costs
  - 1. Compensatory education
  - 2. Vocational education
  - 3. Special education
- f. Transportation costs
- g. Salaries (professional and nonprofessional)

II. Pupil personnel

- a. General information such as address, parents, phone number, sex, etc.
- b. Test scores (I.Q.--Iowa Basic Skills)
- c. Attendance
- d. Grades
- e. Evaluation reports
- f. Historical

III. Academic personnel

a. Accreditation

b. Permanent records

c. Salaries

d. Unemployment and retirement information

e. Health and accident insurance, etc.

IV. Curriculum

a. Costs

b. Class size

c. Pupil-teacher ratio; pupil-administrator ratio

d. Courses offered

e. Supportive services

V. Facilities

a. General cost of facility

b. Per pupil cost

c. Tax base

d. Debt retirement

e. Replacement value

Each one of the school district superintendents declared he had a general knowledge of the above divisions of categorical responsibility, but the sophistication of this information of each school district was dependent upon the capability of the central administrative staff. It was apparent that although each school district had all of these divisions of responsibilities with its information systems, some school districts had a much greater in-depth study of

information needs than other school districts within Middle Cities.

Information needs cited by the superintendents were as follows:

1. Need for information on teachers' salaries for comparison across districts.

2. Need for information on administrative salaries for comparison across districts.

3. Need for information regarding the various personnel within a district.

   a. Positions within a district (organization).

   b. Personnel for possible advancement.

   c. Possibility of creating a human relations bank for possible trade-offs between districts for desired or needed expertise.

   d. Availability of personnel and their technical knowledge within the districts for possible advancement in other Middle Cities Association districts.

4. Need for information concerning community attitudes, opinions, or feelings concerning operation of the schools.

5. Need for information concerning types of federal funds available.

6. Need for information for salary negotiations.

7. Need to find out what is going on in the federal programs.

8. Need for information on testing and evaluation in curriculum.

9. Need for demographic information.

10. Need for information to meet the crisis situations.

11. Need for information on how to pass bond issues and millage requests.

12. Need for information to increase the skills of teachers to deal with urban cities students.

13. Information needed to evaluate the strengths of other districts. In this particular case the superintendent did not elaborate on the intent of the statement.

14. Need for information on why the education for urban city children differs from that of the suburban or rural educational system.

Question 4

> At the present time do you have a Management Information System? If so, how does it meet your present needs?

When asked the above question, 5 of the 13 school district superintendents responded in the affirmative. The remaining superintendents said they did not have a Management Information System or they perhaps had only a few elements of a system. Some superintendents cited the following categories as elements of a system that they had available:

financial data, pupil records, staff records, and personnel information. They also cited the services provided by other agencies as qualifying in part as Management Information Services. The agencies mentioned were:

1. Metropolitan Detroit Bureau of School Studies, Inc.
2. Research Council of America--Cleveland, Ohio

Three districts of the Middle Cities Education Association are members of Metropolitan Detroit Bureau of School Studies, and another school district subscribes to the services offered by the Research Council of America.

The five school districts that indicated they, at the present time, had a Management Information System were asked, "How does it meet your present needs?" They responded as follows:

1. Very adequately. We can see no need for additional help.
2. We are very pleased with the system and satisfied with the progress.
3. We have the necessary expertise to develop the system to meet the needs of our school district.
4. We have the computer facilities and expertise to develop a system to meet the needs of our school district.
5. The intermediate district has been a great help in developing a system to meet our needs.

Question 5

Do you have the staff at the present time to help implement a Management Information System? If your response was "yes," would you be willing to share "time" with other member schools to implement the system?

The response to this question was divided into two categories:

1. Yes, we have the people to implement the system if given the direction.
2. No, we do not have the people.

Six school districts felt they had adequate manpower to implement the Management Information System. At the present time they have either research or evaluation people already geared to solving some of the problems of Management Information Systems, and the transition or commitment to such a program could be done with little difficulty.

In regard to sharing time with the other member schools, all responded affirmatively, but with some reservations. Two such statements were: "We would be willing to help but on a limited basis," or "We would be glad to free some of our personnel on certain occasions to help the other districts." The idea of trading expertise was mentioned.

Seven school district superintendents stated they did not have the manpower to implement the Management Information System. Their concern was the fact that their central administrative staff was so limited in size and already

burdened with work, that to take on what appears to be a Herculean task would be impossible.

Question 6

What type of information do you want and how specific should it be? Also, in what form should it be reported?

The responses to this question had a very wide range, and in some cases it was apparent that the superintendents had not previously given this question much time or consideration. The responses were:

1. What do you have to offer?
2. What prior research has been done in this area?
3. The report should be presented upon request (need situation).
4. No preference for any specific form of reporting. Should be adapted to each situation.
5. I haven't had time to give time or consideration to this concern.
6. Any form of reporting that would assist this office would be acceptable.
7. No preference.
8. There are many types of reporting forms that could be considered such as annual, historical, recurring, and exceptional. Any of these would be acceptable.
9. Our research department already has completed work in this area and could be of help.

Many of the superintendents said their research and evaluation people could be of help if this question were to be pursued further. Several of the Middle Cities Education Association members have quite extensive research and evaluation departments; they were very cooperative and helpful when points of clarification were sought.

One school district hired the consultant, Barbadora, to review the basic principles of the Cincinnati Public Schools Systems Information Service (S.I.S.). This school district has given considerable thought to management systems and reporting forms.

Superintendents wanted information that is: timely, relevant, accurate, easy to interpret, understandable, reliable, and honest. One superintendent stated he wanted the information that would permit his school district to evaluate each child in each grade by comparing the child with his classmates, with students in other schools within the district, and then with students in statewide comparisons.

Question 7

> Do you have access to a computer either in your school or with the intermediate school district? Where would you like to have this information stored?

The responses to the above question indicated the districts had access to a computer, either owned by the school district or belonging to the intermediate school district. With one exception, all school superintendents

who were dependent on the intermediate district computer stated that their relations were amicable, and that time and services provided by the computer were satisfactory. One superintendent did state the intermediate district was not providing sufficient computer time to his district.

One of the superintendents indicated his district has its own computer and would be interested in providing computer time for a Management Information System if Middle Cities would stand the cost. This could be given consideration if it were desirable and if the Management Information System became a reality.

Where the information was stored was not considered a problem by the superintendents; they indicated the location of the system was immaterial. However, there was consensus that probably the most desirable place was Michigan State University at East Lansing, as it is geographically located in the center of the Middle Cities Education Association.

Question 8

> What do you perceive as the immediate goals of a Management Information System? What are the long-range goals of the System?

The answers to the first part of the question relative to immediate goals were:

1. To provide timely, accurate information.
2. To provide input on important issues.
3. To provide feedback on gut issues.

4. To be realistic and serve individual district needs.

5. To provide information on crisis issues.

6. To provide for grass-roots programs.

7. To provide for mutual concerns of Middle Cities.

8. To provide the thrust to improve schools.

Responses to the second part of the question concerning the long-term goals were as follows:

1. The long-range objective of a Management Information System is to provide for a planning prediction model for the individual school district. It would also provide a tool for cost effectiveness. (The superintendent did not elaborate on this.)

2. To improve the total educational process for the child within the district.

3. To improve the education processes within the urban center school district.

4. To provide for continuous feedback.

5. To understand problems of urban center education.

6. To consider the different types of students and overcome their individual disadvantages.

7. To aid in the educational development of the individual by providing programs suited to meet the needs and interests of the various student populations.

In each case, the main concern or goal was to improve the operation of the school district to benefit the individual student by providing better programs, facilities, and education in general.

Question 9

> In your present system do you have an evaluation or research department that provides you with the needed information for the operation of the district?

Here the Middle Cities Education Association was sharply divided into two distinct groups. Six districts have no research or evaluation department at all, and the other seven districts have staffs ranging from one member to several members employed in research and evaluation.

Again the superintendents who have such assistance are normally quite satisfied with the contributions of their departments; only one superintendent made reference to upgrading his research department.

Question 10

> At the present time do you have any system or technique to measure community feelings, opinions, or attitudes relative to the operation of your district?

The response to the above question was made in three categories:

1. Five members of Middle Cities have no system or technique for sampling public opinion or interests.

2. Two school districts hire a professional firm to sample community feelings. These schools are satisfied with the services provided by these firms.
3. The remaining districts administered their own system for the collection of community attitudes or opinions.

The most common practice was to develop a system involving the principal, teacher, and student in the process of collecting information. The superintendent would inform the principals of the information need, the principals requested the aid of the teachers, and the pupils ran the errand of carrying the information questionnaire to the home. The students returned the questionnaire to the teacher upon request, the principal tallied the results, the central office collated the results, and the process was complete.

Another school district established a telephone committee to determine public opinion concerning a specific question. The district identified 200 names that were concerned with a specific issue. The 200 names differed according to the issue as people vote differently on "gut" issues or ones with which they are closely associated. The superintendent was asked how effective he felt the telephone poll was; his reply was, "Very effective." He also stated, "The days of going down to the Chamber of Commerce to find out how people feel about an issue are gone--or at least in the

urban center." The voting public are the ones centered in the heart of the controversy, not in the Chamber of Commerce.

One of the superintendents also mentioned his district is a member of the Neighborhood Association. He stated that this Association keeps them pretty well informed about public opinion. This group covers approximately 75 percent of the people in the community, and is a sociological sounding board.

Summary

The superintendents were very cooperative in responding to the interview questions. In each case the superintendents expressed concern about improving the educational opportunities for the students. If the implementation of a Management Information System would, in the end, improve the quality of education the superintendents would give their complete support.

It must be mentioned that if a question was asked of a superintendent that he felt another member of his staff could better answer, the interviewer was referred to that staff member. These people were also very cooperative, as well as informative.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

This study was made because of a concern expressed by the Middle Cities Education Association to determine the need for a Management Information System to aid in the decision-making process. In 1973 the Middle Cities Education Association declared a Management Information System as a top priority, and it was the concern of the executive director to assess the actual needs of the superintendents who comprised the association for such a system.

The most vital concern centered around the question of whether or not the superintendent had accurate, reliable information available to make decisions that would permit the allocation of funds for a specific program. The allocation of funds for one program is also a decision not to fund alternative programs, because of the shortage of capital with which to operate the school district. Therefore, the information needed to make sound decisions is very essential to the educational process.

Krauss (1970) and Dwyer (1961) repeatedly pointed out the difficulty of defining the term Management Information

Systems in business as well as in the field of education. The problem of accepting a common definition of Management Information Systems is amplified a hundred fold when one undertakes the discussion and comparison of management systems with users of other systems, because of the lack of understanding of related technology concerning the different system. The literature illustrated that, even in the field of business, when two Management Information System users were asked to define their systems, it was possible that one user would speak to the system itself while the other made reference to a function of the system. Hendrick (1961) pointed out that half the cost of running our economy is the cost of information and that no other field offers such concentrated room for improvement as information analysis.

Lawrence (1969) and Keller (1969) described many different and diversified efforts toward developing a Management Information System in the field of higher education. They discussed the combined efforts of the colleges and universities under the auspices of the National Center for Higher Educational Management Systems at Boulder, Colorado, to develop such a system.

Much work has been done in the state of Michigan by many individuals, school districts, or interested groups but at this time a Management Information System as defined by this study does not exist. Many systems perform some of the tasks, but there is no Management Information System that

gathers and collates the data, processes it into usable form, and then stores it for use at a later time. Much work has been done and will continue to be done before such a system is operational within the field of education. The State Department of Education has indicated that much work has been accomplished through individual efforts, but the time has come to review the results, coordinate efforts, and make a combined, unified attempt to develop a Management Information System that could be implemented at the state level and become operative. Many of the people interviewed in Michigan believe it will be five to seven years before a complete Management Information System will be 100 percent operational.

The needs assessment conducted with the superintendents of the Middle Cities provided much insight about their needs for information to aid in the process of decision making. The superintendents were very sincere in their concern for timely, relevant information to aid in the decision-making responsibilities of their office.

The study was confined to the superintendents of the Middle Cities Education Association, which collectively represented over 250,000 students or one-sixth of the K-12 enrollment in the state of Michigan. The interviews were scheduled by the executive secretary at times chosen by the superintendents and in settings of their choice, to

allow the best environment possible to assist in obtaining a successful interview.

On subsequent pages the conclusions and recommendations are presented, in addition to the implications observed in the study or inferred by the superintendents in the interviews. The final recommendations are completely subjective, and are based upon repeated responses of the superintendents regarding the operation of a Management Information System.

The reader should keep in mind that the conclusions, implications, and recommendations refer to the Middle Cities Education Association and only to the participants and schools within the Association. There is no intent to apply the findings of this study to any school district or person not mentioned in the investigation.

Simplified Listing of Major Findings

The following is a simplified listing of the major findings:

1. Ninety-two percent of the superintendents viewed a Management Information System as a top priority for the Middle Cities Education Association.

2. The general definition of Management Information Systems accepted by the superintendents of the Middle Cities Education Association must include the following points: collection of data, processing of information into usable form, storage, and availability upon recall.

3. The basic needs of the superintendents for information fell into five categories of responsibility: financial, pupil personnel, academic personnel, curriculum, and facilities.

4. Thirty-one percent of the Middle Cities Education Association superintendents indicated their districts had a Management Information System in operation at the present time.

5. Fifty-four percent of the school districts within the parameters of this study stated they did not have the manpower to implement the Management Information System; the remaining 46 percent felt quite comfortable with their personnel and felt their staff would be capable of implementing a Management Information System.

6. The qualifications or characteristics of information desired by the superintendents were as follows: timely, relevant, accurate, easy to interpret, reliable, and honest.

7. All school districts have access to a computer; only one superintendent indicated any dissatisfaction with the services provided by the computer within his district.

8. The immediate goal of a Management Information System, as stated by the Middle Cities superintendents, is to provide timely, reliable, and relevant information.

9. The long-range goal is to develop a system that can provide information that will give the school superintendent

a planning, prediction, and evaluation model that will improve the educational opportunities and programs for the children of each school district.

10. Forty-six percent of the Middle Cities school districts do not have a research or evaluation department; the other 54 percent have departments ranging in size from a single member to several members.

11. Sixty-one percent of the Middle Cities school districts have some type of organized system to sample community attitudes, opinions, or feelings regarding the operation of the local school district and/or policy.

Conclusions

This study has led to many conclusions, and at this time innumerable implications are suggested. After a careful analysis, the following conclusions were reached:

1. The superintendents of the Middle Cities Education Association are aware of the need for reliable, timely, and accurate information to aid in the process of decision making, and will lend their support and cooperation in developing the concept of a Management Information System within Middle Cities.

2. The superintendents in school districts with departments of evaluation and research appear to have a better knowledge and understanding of the concept of Management Information Systems than those superintendents whose districts

do not have such a system. It became apparent from the interviews that a few of the superintendents are not knowledgeable about Management Information Systems. Because of the many responsibilities required of the superintendents in the less sophisticated districts or districts with fewer personnel to assist in the operation of the school, some superintendents have not had the opportunity to research this subject. This does not mean, however, it is less important to those superintendents. To the contrary, the opposite could be true.

3. The superintendents need a better information system than is now available to provide information in the areas of: finance, pupil personnel, academic personnel, curriculum, facilities, and community interests, attitudes, and opinions. In each of the interviews, the superintendents mentioned their concern about information needed to make decisions. Each superintendent emphasized the need for immediate information in the areas of personnel and financial data.

4. The Middle Cities superintendents strongly believe that the reporting systems now used in the school districts are repetitious and unnecessary. The superintendents believe the effort required far exceeds the value of any feedback resulting from the completion of the reports.

5. The majority of the school districts in this study do not have personnel available to implement a

Management Information System. Unless additional help for these districts can be provided, it would be undesirable to attempt to undertake such a task. However, such help could be recruited from the following areas:

a. The more sophisticated school districts of Middle Cities

b. The governing body of the Middle Cities Education Association

c. Educational institutions, such as Michigan State University, the University of Michigan, and other colleges and universities

d. The Michigan Department of Education

6. Some superintendents are not knowledgeable about Management Information Systems. It will be necessary to conduct inservice training programs to implement the system.

7. The superintendents with research personnel have indicated a willingness to share this expertise on a limited basis. Therefore, it would be a distinct possibility to develop a Human Resource Bank from which a member in the district could request expertise not available in his own district.

Implications

This study has led to the following implications:

1. In the review of the literature, reference was made to the Governor's Task Force for the Development of a

Management Information System. This system is to provide information to aid decision making at three levels: the individual school district, the State Department of Education, and the State legislature. In discussions with members of the State Department of Education, they indicated the financial module of the Management Information System, which at the present time is being revised and updated, will be ready for field testing in the next 60 days. After a period of trial and error and reassessment, the final revision will be made and this financial module will become the basis for state finance and funding in the state of Michigan.

The State Department of Education has implied that there should be a school representing the Middle Cities Education Association in this pilot program to implement the financial module, which is only one part of the Management Information System being developed by the Governor's Task Force.

With such a dependency on state aid, Middle Cities should make every effort to stay abreast of the progress of the State Department of Education in their attempt to develop such a module; if it is implemented at a later time the transition would be easier than if implemented on a crash program. The Middle Cities should have some input on the development of the financial module with respect to its

implementation; thus, participation in the pilot project is a necessity.

2. The superintendents implied something must be done to reorganize the reporting system now being used by the State Department of Education. They expressed great displeasure with the number of forms required, as well as the unnecessary duplication. The superintendents also indicated it was difficult to get feedback from the numerous reports submitted to the state.

A Management Information System, if properly implemented, would eliminate some of the duplication and reduce the number of reports required by the State Department. Many school districts collect the same information repeatedly in different departments or divisions within the local school district. Many times the department is oblivious of the other department's requirement. The advantage of the Management Information System is that the data could be collected once, and from that point on would be available on request.

3. If the State Department of Education in Michigan is successful in its implementation of a Management Information System, this will create a need for a new level of management in education--an analyst who would report directly to the superintendent. The analyst would meet periodically with the superintendent and explain the significance of the information as it relates to the district. This second

level of information management has been successfully in operation in the field of industry since the mid-1950's.

Recommendations

Upon completion of the investigation and review of the findings, conclusions, and implications, the following general recommendations are offered:

1. It is recommended that a data base element relative to financial needs be developed. The immediate needs of the superintendents could be served by enlarging the Comprehensive Study of Teachers' Salaries and Fringe Benefits prepared by the Employee Relations Department of the Lansing School District. This study would be enlarged to include the area of administration and nonprofessional personnel, as well as teachers. This data base might be extended as the need presented itself. It is also recommended that this operation be manually operated rather than a computer-based task. At the present time, the Management Information System does not require the use of a computer, and the cost of personnel to run the operation manually would be far less than the cost and operation of a computer.

2. It is further recommended that a data base element relative to personnel be developed. This unit would be developed on the same dimensions as the financial unit called for in the first recommendation, and it would provide the superintendents with the needed information to operate the schools. In addition, it would provide a composite list

of all personnel employed in the Middle Cities Education Association. This would serve two purposes:

a. To know what qualified personnel are available in specialized areas when assistance is needed, and

b. To be aware of the qualified personnel within the Association when vacancies are available.

3. Encouragement should be given to the superintendents of the Middle Cities to make them aware of the vigorous efforts on the part of the Governor's Office of Michigan to make education more accountable to the people of the state. The Governor's Task Force for the Development of a Management Information System is a viable part of this effort to become accountable. The legislature has funded this program, and a Management Information System is scheduled to be completed by July 1, 1975.

4. Finally, inservice training programs should be conducted within the Middle Cities Education Association to provide the expertise necessary to help local school districts understand the concept of a Management Information System.

Further Studies

The following recommendations for further study are offered:

1. A study should be conducted to determine if any member district has the capacity to provide computer

and programming services for the development of a Management Information System within the Middle Cities Education Association.

2. A survey should be conducted within the membership of the Middle Cities Education Association to determine the qualifications of the personnel of the school districts to conduct Management Information Systems inservice workshops. Because superintendents are willing to share the expertise of some of their personnel, this may be the avenue through which the State Department of Education can conduct the inservice workshops necessary to implement the actual operation of a Management Information System within the state of Michigan. Because of limited knowledge and lack of expertise within certain districts of the Middle Cities, it will be necessary to provide inservice training to enable them to implement a Management Information System within their districts. This leadership will be provided either by the State Department of Education, the local school district, or an agency that will contract with the State Department of Education the task of conducting the inservice training aspect necessary to implement the system.

3. A study should be made to determine if the superintendents want the Association to be a crisis-oriented operation or an agency to assist in the planning, prediction, and evaluation of the educational system in the state of Michigan.

It is hoped that this study will contribute to a better understanding of the Management Information System concept and the contribution it could make to the Middle Cities Education Association. It is offered as encouragement to superintendents to help them understand better the contributions a Management Information System could make by providing accurate, timely, relevant information to assist them in decision making.

APPENDICES

APPENDIX A

EXCEPTIONAL CHARACTERISTIC REPORT

ESEA TITLE III

CINCINNATI PUBLIC SCHOOL INFORMATION SYSTEM

DIVISION OF PROGRAM RESEARCH & DESIGN

(125) EVANSTON ELEMENTARY

EXCEPTIONAL CHARACTERISTICS OF YOUR SCHOOL
1971-72 SCHOOL YEAR

POSITIVE CHARACTERISTICS (BASED ON SCHOOL ACHIEVEMENT)	NEGATIVE CHARACTERISTICS (BASED ON SCHOOL ACHIEVEMENT)	CAN NOT DETERMINE IF POSITIVE OR NEGATIVE CHARACTERISTICS (BASED ON SCHOOL ACHIEVEMENT)
LOW AVERAGE DAILY ABSENCE - GRADE K	HIGH % TRANSFERS-IN - GRADE K	LOW AVERAGE DAILY MEMBERSHIP - TOTAL
HIGH AVERAGE DAILY ATTENDANCE - GRADE K	HIGH % TRANSFERS-OUT - GRADE K	LOW GROSS MEMBERSHIP - TOTAL
LOW AVERAGE DAILY ABSENCE - GRADE 5	HIGH % LEAVING SCHOOL - GRADE K	LOW AVERAGE DAILY MEMBERSHIP - GRADE 1
HIGH AVERAGE DAILY ATTENDANCE - GRADE 5	HIGH % LEAVING SCHOOL - GRADE 1	LOW GROSS MEMBERSHIP - GRADE 1
LOW % NEW ENROLLMENTS - TOTAL	HIGH % TRANSFERS-OUT - GRADE 2	LOW AVERAGE DAILY MEMBERSHIP - GRADE 2
LOW % EXTERNAL TRANSFERS - TOTAL	LOW % BOYS PROMOTED - GRADE 2	LOW GROSS MEMBERSHIP - GRADE 2
LOW % LEAVING SCHOOL - TOTAL	LOW % TOTAL PROMOTED - GRADE 3	LOW GROSS MEMBERSHIP - GRADE 3
LOW % EXTERNAL TRANSFERS - GRADE K	LOW % BOYS PROMOTED - GRADE 3	LOW AVERAGE DAILY MEMBERSHIP - GRADE
LOW % NEW ENROLLMENTS - GRADE 1	LOW GR. 3 READING(75%)	LOW GROSS MEMBERSHIP - GRADE 4
LOW % EXTERNAL TRANSFERS - GRADE 1	LOW GR. 3 READING(90%)	LOW AVERAGE DAILY MEMBERSHIP - GRADE
LOW % NEW ENROLLMENTS - GRADE 2	LOW GR. 3 WORD KNOWLEDGE(75%)	LOW GROSS MEMBERSHIP - GRADE 5
LOW % LEAVING SCHOOL - GRADE 2	LOW GR. 3 WORD ANALYSIS(75%)	LOW AVERAGE DAILY MEMBERSHIP - GRADE
LOW % NEW ENROLLMENTS - GRADE 3	LOW GR. 3 WORD ANALYSIS(90%)	LOW GROSS MEMBERSHIP - GRADE 6
LOW % LEAVING SCHOOL - GRADE 3	LOW GR. 3 SPELLING(75%)	HIGH % BLACK MEMBERSHIP
LOW % LEAVING SCHOOL - GRADE 4	LOW GR. 3 SPELLING(90%)	LOW GR. 3 READING VARIABILITY
LOW % EXTERNAL TRANSFERS - GRADE 5	LOW GR. 3 ARITH. COMPUTATION(10%)	LOW GR. 3 WORD KNOWLEDGE VARIABIL
LOW % LEAVING SCHOOL - GRADE 5	LOW GR. 3 ARITH. COMPUTATION(75%)	LOW GR. 3 WORD ANALYSIS VARIABILI
LOW % LEAVING SCHOOL - GRADE 6	LOW GR. 3 ARITH. COMPUTATION(90%)	LOW GR. 3 SPELLING VARIABILITY
HIGH % GIRLS PROMOTED - TOTAL	LOW GR. 3 ARITH. CONCEPTS(25%)	LOW GR. 3 ARITH. COMPUTATION VARI ILI
HIGH % TOTAL PROMOTED - GRADE K	LOW GR. 3 ARITH. CONCEPTS(75%)	LOW GR. 3 ARITH. PROB. SOLV. VARIA ILI
HIGH % BOYS PROMOTED - GRADE K	LOW GR. 3 ARITH. CONCEPTS(90%)	LOW GR. 6 READING VARIABILITY
HIGH % GIRLS PROMOTED - GRADE K	LOW GR. 3 ARITH. PROB. SOLV.(90%)	LOW GR. 6 WORD KNOWLEDGE VARIABILI
HIGH % GIRLS PROMOTED - GRADE 1	LOW GR. 6 READING(90%)	LOW GR. 6 LANGUAGE VARIABILITY
HIGH % GIRLS PROMOTED - GRADE 2	LOW GR. 6 WORD KNOWLEDGE(90%)	LOW GR. 6 ARITH. COMPUTATION VARIA
HIGH % GIRLS PROMOTED - GRADE 3	LOW GR. 6 LANGUAGE(90%)	LOW GR. 6 ARITH. CONCEPTS VARIABILI
HIGH % TOTAL PROMOTED - GRADE 4	LOW GR. 6 ARITH. CONCEPTS(90%)	LOW GR. 6 ARITH. PROB. SOLV. VARIA ILI
HIGH % BOYS PROMOTED - GRADE 4	LOW GR. 6 ARITH. PROB. SOLV.(90%)	LOW GR. 3 IQ VARIABILITY
HIGH % GIRLS PROMOTED - GRADE 4	LOW GR. 3 IQ (10%)	LOW GR. 6 IQ VARIABILITY
HIGH % TOTAL PROMOTED - GRADE 5	LOW GR. 3 IQ (75%)	LOW % ON STAFF
HIGH % BOYS PROMOTED - GRADE 5	LOW GR. 3 IQ (90%)	LOW PUPIL/TEACHER RATIO - GRADE 1
HIGH % GIRLS PROMOTED - GRADE 5	LOW GR. 6 IQ (90%)	LOW PUPIL/TEACHER RATIO - GRADE 2
HIGH % TOTAL PROMOTED - GRADE 6	LOW PARTICIPATION DASH-BOYS I	LOW PUPIL/TEACHER RATIO - GRADE 4
HIGH % BOYS PROMOTED - GRADE 6	LOW PARTICIPATION THROW-BOYS I	HIGH AVERAGE DAILY ABSENCE - SPECI
HIGH % GIRLS PROMOTED - GRADE 6	LOW PARTICIPATION POLE CLIMB-BOYS I	LOW % NEW ENROLLMENTS - SPECIAL
LOW 50 YD. DASH SCORE-BOYS II	LOW PARTICIPATION BROAD JUMP-BOYS I	HIGH % TRANSFERS-OUT - SPECIAL
HIGH STUNTS/GAME SKILLS SCORE-BOYS II	LOW PARTICIPATION STUNTS-BOYS I	LOW % EXTERNAL TRANSFERS - SPECIAL
HIGH BALL THROW SCORE-BOYS III	LOW PARTICIPATION DASH-GIRLS I	LOW % LEAVING SCHOOL - SPECIAL
HIGH BALL THROW SCORE-GIRLS III	LOW BROAD JUMP SCORE-GIRLS I	HIGH % TOTAL PROMOTED - SPECIAL
HIGH STUNTS/GAME SKILLS SCORE-GIRLS III	LOW PARTICIPATION STUNTS-GIRLS I	HIGH % BOYS PROMOTED - SPECIAL
HIGH STUNTS/GAME SKILLS SCORE-BOYS IV	LOW PARTICIPATION DASH-BOYS II	HIGH % GIRLS PROMOTED - SPECIAL
HIGH BALL THROW SCORE-BOYS V	LOW PARTICIPATION THROW-BOYS II	
HIGH STUNTS/GAME SKILLS SCORE-BOYS V	LOW PARTICIPATION POLE CLIMB-BOYS II	
HIGH STUNTS/GAME SKILLS SCORE-GIRLS V	HIGH POLE CLIMB SCORE-BOYS II	
HIGH OVERALL PARTICIPATION-BOYS	LOW PARTICIPATION BROAD JUMP-BOYS II	
HIGH SCHOOL ATMOSPHERE FACTOR	LOW BROAD JUMP SCORE-BOYS II	

APPENDIX B

SCHOOL VARIABLE PRINTOUT

ESEA TITLE III
CINCINNATI PUBLIC SCHOOL INFORMATION SYSTEM
DIVISION OF PROGRAM RESEARCH & DESIGN

(1251) EVANSTON ELEMENTARY — SCHOOL VARIABLE PRINTOUT — 1971-72 SCHOOL YEAR

YOUR SCHOOL UNIT NUMBER VALUE	VARIABLE	DIRECTION OF VARIABLE	YOUR SCHOOL UNIT VALUE	ALL ELEM. SCHOOL UNITS	CRITICAL AREA
	1. PUPILS				
	ABSENCE AND ATTENDANCE				
	TOTAL SCHOOL				
25.00	AVERAGE DAILY ABSENCE	(-)	6.96%	8.55%	5.98% TO 11.12%
330.00	AVERAGE DAILY ATTENDANCE	(+)	93.33%	91.52%	88.84% TO 94.20%
	GRADE K				
3.00	* AVERAGE DAILY ABSENCE	(-)	6.98%	13.10%	8.72% TO 17.48%
46.00	* AVERAGE DAILY ATTENDANCE	(+)	93.02%	86.90%	82.51% TO 91.29%
	GRADE 1				
4.00	AVERAGE DAILY ABSENCE	(-)	8.33%	8.83%	6.22% TO 11.44%
44.00	AVERAGE DAILY ATTENDANCE	(+)	91.67%	91.17%	88.56% TO 93.81%
	GRADE 2				
3.00	AVERAGE DAILY ABSENCE	(-)	6.38%	7.47%	5.04% TO 9.90%
44.00	AVERAGE DAILY ATTENDANCE	(+)	93.62%	92.52%	90.09% TO 94.96%
	GRADE 3				
4.00	AVERAGE DAILY ABSENCE	(-)	7.41%	7.22%	4.46% TO 9.98%
50.00	AVERAGE DAILY ATTENDANCE	(+)	92.59%	92.78%	89.99% TO 95.57%
	GRADE 4				
3.00	AVERAGE DAILY ABSENCE	(-)	6.00%	7.63%	4.81% TO 10.45%
47.00	AVERAGE DAILY ATTENDANCE	(+)	94.00%	92.37%	89.53% TO 95.19%
	GRADE 5				
2.00	* AVERAGE DAILY ABSENCE	(-)	3.77%	7.52%	4.16% TO 10.88%
51.00	* AVERAGE DAILY ATTENDANCE	(+)	96.23%	92.48%	89.10% TO 95.84%
	GRADE 6				
3.00	AVERAGE DAILY ABSENCE	(-)	6.25%	7.75%	4.47% TO 11.03%
45.00	AVERAGE DAILY ATTENDANCE	(+)	93.75%	92.25%	88.96% TO 95.54%
	ABSENCE BY SEX				
12.00	BOYS	(-)	7.02%	8.49%	5.81% TO 11.17%
13.00	GIRLS	(-)	6.89%	8.63%	6.08% TO 11.18%

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