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INSTITUTIONAL RESEARCH, DEVELOPMENT, AND EVALUATION IN MICHIGAN COMMUNITY JUNIOR COLLEGES

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Margaret James Neill

A Dissertation Submitted to the Faculty of The Graduate College in partial fulfillment of the Degree of Doctor of Education

Western Michigan University Kalamazoo, Michigan April 1975

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Margaret James Neill

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CHAPTER I

INTRODUCTION

While social scientists are trying to determine whether or not a college or university is an institution or a complex organization, institutions of higher education are being pressured to examine their "mission" or "purpose" and to be specific in identifying their goals (Graubard, 1974). The pressures appear to emerge from several basic changes in American society and represent major attitudinal and circumstantial movements. Among these changes impacting on institutions of higher education are: 1) economic conditions, 2) the attitudinal and legally supported concept of higher education as a right of all people rather than a privilege for the few, and 3) the change to the concept that education is a life long process and the responsibility of educational institutions (Graubard, 1974; Knowles, 1974; Peterson, 1973).

Whatever the basic causes or the dominant social theme, there are pervasive and persistent demands for the development of clear statements of institutional goals and action priorities in the field of higher education (Bushnell, 1973; Carnegie Commission on Higher Education, 1973; Gleazer, 1973; Peterson, 1971; Trivett, 1973). At the same time that questions of institutional goals are being raised, serious students in the field are trying to define and/or describe these elusive abstractions.

Trivett (1973) developed a comprehensive operational description of goals which clarifies the concept and simultaneously identifies its complexity. Goals for higher education:

- . are complex phenomena;
- . are desired states which are not totally attainable;
- represent public policy and may indicate intended outcomes;
- . are responsive to societal fluctuations;
- exist at several levels within institutions and society;
- . are culture-bound.

Beyond the complexity of goal statements is the complexity of higher education. Since 1900 a newcomer to the postsecondary educational scene has emerged -- the community junior college. Cosand (1968) reported the establishment of new two-year colleges at the rate of 50 per year and projected continuous growth in numbers throughout the seventies. An example of this rapid growth rate is found in Michigan where 14 new community junior colleges were established between 1960 and 1970. The community junior college, although a relative newcomer to the area of postsecondary education, is not exempt from the need to define and specify institutional goals. Rather, because of its differences from other institutions the community junior college may be better prepared to identify its goals and to develop effective strategies for goal achievement (Richards, Rand and Rand, 1969).

Institutional research is a developing art in many community junior colleges and a relatively new source of data for use in decision-making by community college leaders (Roueche, 1968). Among four year colleges and universities, offices of institutional research appear to be an emerging phenomenon which has grown rapidly in the last decade (Roney, 1970). The increase in data collection and analytical resources in these institutions may be attributed to several causes. A primary impetus is a more scientific emphasis in institutional management. Other trends which may be contributing to the rise in the number of offices of institutional research are: 1) the shift in characteristics from the traditional academically oriented student to a more diverse population and the need to know more about them; 2) the rapid growth of the institution which has created new demands on increasingly scarce resources; and 3) the need to reallocate monies and personnel which increases administrative demands for more date for complex decision making (Cross, 1971).

In the past ten years more and more postsecondary institutions have developed institutional research offices, functions and/or responsibilities to respond to the need for self study and evaluation of individual institutions. The functions and responsibilities of such resources are almost as varied as the institutions they serve. The resources provided by institutional research services appear to be gaining acceptance by many administrators (Cook, 1970; Roney, 1970).

Institutional development has referred to the process of securing funds for the operation of postsecondary educational institutions. More recently, the definition has expanded to include activities designed to increase the quality of an institution's educational activities (Suchman, 1971). These new areas include the acquisition

and utilization of management, curriculum, and professional development resources. The particular nature of developmental processes may range from a purely financial focus to providing professional and technical expertise in institutional management. The Western Interstate Commission on Higher Education (WICHE) is one such example of the newer approach to institutional development. The resources provided by this agency are primarily designed to increase the effectiveness of participating institutions in a variety of operational areas including planning, management, and evaluation (Micek, 1975).

Evaluation of postsecondary educational institutions was previously the primary role of the various accrediting associations and agencies. However, with the provision of funds by the Office of Education for institutional self study in underdeveloped or developing institutions, the process of evaluation became a specific function for each institution (Dressel, 1965; Hodgkinson, 1974). With the impetus of federal funds, an increasing number of postsecondary institutions began to engage in self examination for the purpose of increasing effectiveness. As the number and diversity of students attending postsecondary institutions grew to unprecendented proportions in the sixties, so did the demands for quality outcomes increase. The pressures for accountability from society combined with the resources and pressure from federal sources, commissions and other higher education study groups, appear to be persistently encouraging joint responsibility for educational evaluation by all systems, groups, and organizations. The decade of the 70's has been characterized as

one in which postsecondary education will reach a "leveling off" point in terms of numbers of students and the amount of financial support available (Bushnell, 1973).

The Final Report of the Carnegie Commission on Higher Education (1973) identified policies in higher education. Among these was the issue of increased reticence on the part of the general public to continue pouring money into the education industry as one of the most critical concerns of the Carnegie Commission. They suggested that without more specific and measurable evidence of the value of the products of higher education there will be less money spent for postsecondary education.

As of this writing, the state of Michigan does not have a completely operational master plan for coordinating postsecondary education. However, with the pressures generated by an inflationary economy and the demands for accountability at all levels of education, it is reasonable to assume that some means of increasing the quality of educational products and decreasing duplication of services will be developed. Already this pressure is being felt in public schools via the state accountability plan. This shift toward measurable outcomes of education may lead to greater emphasis upon collaborative efforts among postsecondary institutions. At the same time, articulation among the agencies of education becomes a mandate for effectiveness in meeting the educational needs of the state.

To the extent that research, development, and evaluation resources focus upon providing educational leaders with information designed to facilitate institutional effectiveness in managerial

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operations and teaching/learning processes, they can enhance the capability of institutions to respond to demonstrated educational needs.

The Purposes of the Study

As community junior college leaders identify and articulate institutional goals, there is the concomitant demand or urgency to find effective ways to achieve those ideal states. The joint task of identification of goals and achievement of results puts the leader in the dual role of rhetorical leader and organizational manager. Meeth (1971) and Morphet, Johns and Reller (1967) make clear distinctions between the leader and administrator roles of the college president. The purposes of this study are directly related to the dual responsibilities of the leader/administrator of the community junior college just as goals are intimately related to the processes and tools used in their achievement.

A major purpose of this investigation was to identify and assess institutional goal areas among community junior college leader/administrators in Michigan. The level of priority for each activity over several years was also identified as an area of importance in order to determine what trends, if any, existed.

A second purpose was to identify the priorities of institutional activities which are related to institutional research, development, and evaluation. These areas of systematic inquiry were incorporated in a survey instrument to determine the level of interest of community junior college presidents in the resource potential offered

by research, development, and evaluation.

The final purpose of the study was to develop a model for an interinstitutional resource which could serve several institutions in meeting their needs for institutional research, development, and evaluation. The completed study could be used by institutional leaders as information for decision-making related to interinstitutional cooperation and articulation.

Statement of the problem

The development of institutional research, development, and evaluation capabilities among community junior colleges in Michigan has evolved as a result of individual institutional priorities and needs. The resources available, working priorities, institutional role, and methods of operation vary according to the personnel employed in each college and the requirements of its leaders (Gross, 1974). The number of colleges having an institutional research resource as a formal operation, is less than one-third of the total number of community colleges in the state (Michigan Department of Education, 1974). In assessing the need for institutional research, development, and evaluation, it is important to determine the past, present, and future priorities of the institution as perceived by their chief administrative officers. The specific tasks undertaken in this study were:

 to develop an instrument which would provide information on the past, current, and future priority ratings of selected institutional goal areas;

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- to analyze the data collected in order to determine the need for research, development, and evaluation activities among publicly supported community junior colleges in Michigan;
- to develop a model for interinstitutional research, development, and evaluation which related these activities to institutional goal achievement, and was based upon resources currently available in the state; and,
- 4. to provide information to community junior college leaders and others in the Michigan higher education community concerning the activity priorities of the presidents of responding institutions.

Limitations of the study

The study of institutional goals and needs for resources in institutional research development and evaluation was limited to its implementation by several factors. Of primary significance was the population. Only presidents or chief administrative officers of publicly supported community junior colleges were invited to participate in the study. This limitation was imposed because of the rapidity of the growth of these institutions across the state. There is no parallel among private junior colleges.

The chief administrative officer was asked to respond because of his role as leader/administrator for the institution. No attempt was made to generalize these findings to the total college population nor to the intent of the state. The significant population for this study was the president and his perception of the priorities, past, current, and future, of selected institutional goal areas.

A second limitation was the use of the survey method which, in this study, forced the researcher to rely upon generally accepted definitions of terms used in the instrument. An inherent difficulty in using the mailed survey is the lack of surety that the intended respondent indeed did complete and return the instrument. Frequently, survey instruments of this kind are delegated to persons other than the intended respondent for completion. Finally, the researcher was unable to ensure an adequate return for an appropriate analysis of the data. In this study, these methodological limitations appeared to be of minimal significance.

The third limitation of the study was in the selection of goal areas and the particular items which comprised the instrument. The areas were limited to those which related to administrative functions, current issues from the literature, and recommendations and responses from a pilot test of a questionnaire used by Bushnell (1973) in his study. The items and categories do not cover the universe of possible goal areas or activity statements but are representative of items deemed important by a significant sample of the population surveyed.

Definition of terms

<u>President</u>. The person empowered by the board of trustees with institutional responsibility for providing leadership and management resources for a community junior college.

<u>Community junior college</u>. A postsecondary educational institution chartered by the state, based in a community, and developed to provide vocational/technical training, academic opportunities for potential transfer to a baccalaureate institution, and community services.

<u>Development</u>. A process for creating, refining, organizing and utilizing research, personnel, materials, and other resources to produce observable changes in the achievement of the goals and objectives of a college or university.

Evaluation. The process and product of systematic investigations designed to measure materials, processes, or ideas such that value judgments can be made. Operationally, evaluation is that set of activities in which individuals, groups, and institutions engage in order to provide information for decision making.

<u>Institutional activity</u>. Those functions and operations, actual or potential, of an institution which are designed to achieve the institutional mission. The activities may be global and complex and represent goals or they may be specific, time-bound, and measurable as stated in objectives. Operationally, an institutional activity is one which is rated on the survey instrument.

<u>Institutional skill</u>. The perceived ability of an institution to perform an activity as indicated on the survey instrument used in this study.

<u>Data capabilities</u>. The capacity of an institution to secure and/or direct personnel and resources to achieve a desired end or goal.

<u>Resource</u>. A resource is a collection of knowledge, skills, expertise, materials, competencies, finances, and/or organizations which can respond to needs expressed by those individuals or groups requesting services. Operationally, a resource will be the people,

materials, equipment, and services available to regional community junior colleges and a senior institution.

Senior institution. A college or university providing educational opportunities beyond the Associate Degree, and generally serving a population beyond regional or state boundaries. Degrees conferred by such an institution range from the baccalaureate to the doctorate in a variety of fields of knowledge.

Significance of the Study

As of this writing, there has been little formal study of institutional research, development, and evaluation for Michigan public community junior colleges. Second, there have been limited attempts at the development of systematic linkages between community colleges and other colleges and universities for the primary purpose of facilitating and developing interinstitutional research programs. The Michigan Community College Association for Development and Research (MCCADAR) is a new organization beginning to explore this area of concern.

Third, there is a dearth of systematic literature relating to the development of these needed resources in a time of economic retrenchment. Fourth, this investigation was supported in part by a major regional university which has increased its efforts in articulation with community junior colleges across the state. The purpose of the support was to provide the leadership of the university and the community junior colleges with information which might be used to enhance interinstitutional relationships.

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To the extent that this study achieves its objectives, its significance lies in the contribution of a data based strategy for exploring and developing institutional research, development, and evaluation resources for community colleges in Michigan.

Assumptions

In developing and implementing a descriptive analytical study designed to determine if a state of need exists in a given area, it is essential that the basic assumptions which guided the investigation be articulated. The assumptions made by this investigator were:

- Institutional research, development, and evaluation resources are now and will continue to be needed by community junior colleges and other institutions of higher education.
- Senior colleges and universities have some of the resources necessary to provide assistance in the development of institutional research services to community junior colleges.
- Community college presidents, as educational leaders and institutional administrators, must perceive the need for institutional research and have some commitment to using its findings in order for a new resource to be developed in their colleges.
- The findings of institutional research, development, and program evaluation can be used effectively by administrators to achieve the goals and objectives of their colleges.
- Educational leaders and administrators will utilize the findings of institutional research and program evaluation in a variety of ways including planning and decision making about all aspects of institutional functions.
- A feasible process model for interinstitutional research, development, and evaluation can be constructed from data collected using a survey of institutional activities.

Summary

It was the purpose of this chapter to introduce some elements of the current status of higher education with specific reference to institutional goals and community junior colleges. The relationship between resources for institutional research, development, and evaluation and institutional goal achievement was described. The purposes of the study were described, a statement of the problem and the limitations of the investigation were presented. Important terms used in this study were defined and the significance of the investigation was reported. The chapter ended with a statement of the assumptions which guided this research project and the organization of the study.

Chapter II will present a selected review of the literature related to this study. The major divisions in the review include: 1) educational leadership; 2) institutional goals; 3) institutional research, development, and evaluation; and a summary.

Chapter III will present the methods and procedures used in the study. The major divisions of the chapter describe the instrument, the survey method, the management of the data, and the development of the process model for interinstitutional research, development, and evaluation.

Chapter IV will present the results of the survey in two parts: 1) presidential responses to the total instrument; and 2) institutional research, development, and evaluation.

Chapter V will present the summary, conclusions, and recommenda-

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tions resulting from the investigation. The recommendations will be presented in the form of a process model for a regional resource for interinstitutional research, development, and evaluation.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to present theory, practice, and research relevant to the investigation. To achieve this purpose, the materials were organized in terms of 1) leadership and institutional goals, 2) institutional research, development, and evaluation, and 3) a summary of the literature.

Educational Leadership and Institutional Goals

A basic assumption in this study was that the president of a community college has at least a dual role as an organizational manager and an educational leader. This dichotomy of functions is artificial but permits the examination of various functions and behavior of an institutional leader/manager.

Griffiths' (1959) discussion of administrative theory emphasized the decision-making functions of the administrator. The decisionmaking focus did not exclude other administrative behaviors but served to draw attention to a major process in which the educational leader is involved. The basic concepts in the theory posed by Griffiths and relevant to this project are: 1) decision-making, 2) organization of structures to facilitate decision-making, 3) perception, 4) communication, and 5) power. The key to effective administrative behavior is the decision-making process.

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There are three significant steps in the process in which the administrator/leader can benefit from and should seek out objective and systematic data. These steps are: 1) analysis and evaluation of a problem; 2) collection of data; and 3) evaluation of the results of the solution as implemented. The approach taken by Griffiths appears to be consonant with other theories of leadership which focus upon the process rather than specific functions of the leader/manager.

Hungate (1961) took a different posture and addressed the managerial aspects of administrators in higher education. In an extensive description of the evaluative function of management, Hungate presented a strong case for systematic assessment of the types and quality of evaluations being made by managers. Because of the pervasive nature of the evaluative function, he further recommended the development of a system to gather evaluative information on a regular basis in a variety of institutional activities. The information collected would then be used by managers for on-going decision-making and planning.

Given the theory and recommendations of the academicians, what do community junior college presidents really do? Cohen and Roueche (1969) conducted an investigation of community college presidents and concluded that the majority of persons responding: a) were not operating under a formal statement of presidential responsibilities; b) did not produce periodic reports to any group; c) were neither assigned nor responsible for leadership in educational activities; and, d) did not address themselves to educational leadership matters in their formal presentations. One might surmise from this report

that many community college presidents are managers of the status quo rather than leaders of educational change processes. If this were true, presidents could be assumed to have minimal interest in setting goals and objectives for the institution and even less concern for active planning for change. Cohen and Roueche (1969) leave this rather dismal picture with a set of suggestions for boards of trustees which implies that if the president does not lead, then boards should assume that responsibility and/or demand it of their presidents.

In 1968, Gross and Crambsch reported a survey of goals for college and university administrators and a sample of faculty. The purposes of the study were to find answers to the following questions.

- What is the role of the administrator? Is it support or leadership? What are the goals? How is the administrative function changing?
- What factors in the institution effect goal achievement? What is the relationship between the power structure and goal attainment?
- Goals are an organizational function. Where is the organization going and who decides? What are the positions and roles of faculty and administrators?

Gross and Grambsch (1968) developed an instrument with 47 goal statements in two categories of administrative concern, output goals and support goals. The instrument asked the respondents to rate each statement in terms of current emphasis and ideal emphasis. In addition several items were included which addressed the issues of power in terms of decision-making and information control. Their major findings were:

1. Academic freedom was the strongest interest area across all institutions and groups.

- There was little emphasis on student goals (output) across all institutions.
- High prestige institutions focused on intellectual development of students and tended toward elitism in their practices.
- 4. Low prestige institutions emphasized service to the sacrifice of graduate work and intellectual stimulation. These institutions tended to emphasize career development aspects of student goals.
- Administrators make the major decisions in the institutions and have greater power than faculty.
- 6. There was general congruence between the ideal (should be) and the real (is now) for all groups. This lack of large variance across groups and goals was attributed to an assumed similarity among the populations responding.

A conclusion from this investigation was that the role of the academic administrator is changing from simple support of faculty activities to a position of power and leadership in the educational enterprise.

Peterson (1973) conducted a similar survey of institutional goals using a larger population which included public and private colleges and universities and community colleges. The populations sampled included administrators, faculty, students, and community residents.

Ninety goal statements were developed from socially valued functions and products of educational institutions. The goal areas were educational outcomes and processes. These 90 statements were categorized into 20 goal areas of institutional functions and outcomes.

The most significant finding from this project was the extent of homogeneity among community college presidents in terms of their rating of institutional goals. There was very low priority ratings in the areas of research, advanced training, off-campus learning, and cultural/aesthetic awareness. Highest ratings were made in the areas of meeting local needs, social egalitarianism, community, innovation, intellectual orientation, vocational/technical training, and accountability/efficiency. These findings are consonant with other literature concerning the nature, purposes, and directions for the community college (Carnegie Commission on Higher Education, 1971; Johnson, 1969; Knoell and McIntyre, 1974; and Medsker and Tillery, 1971).

Bushnell, in a study reported in 1973, surveyed a random sample of community college administrators, faculty, and students on institutional goals. His findings support those of Peterson (1973) and Gross and Grambsch (1968). Bushnell found a high degree of consensus among all groups about institutional goals. Faculty and students disagreed with presidents about the adequacy of their participation in decision-making. Presidents were perceived to make major decisions about the substance and levels of priorities of institutional goals while faculty and students perceived themselves to have less than adequate participation in the process. The presidents rated output goals higher than did either faculty or students.

The evidence of these studies support the assumptions guiding the present study, that presidents of community colleges perform the roles of educational leaders and institutional administrators. In supporting this assumption, other studies implicitly indicate a need for these leaders to have more and better informational resources available to them if they are to provide effective leadership and efficient management for their institutions.

A logical follow-up to this premise is an implicit need to test the reality of these assumptions. The literature suggests that institutional research, program development, and evaluation are likely resources to meet the need for systematic and objective information which is necessary for the effective leader/manager. The questions to consider in this project were related to the actual and potential role of institutional research, development, and evaluation.

Institutional Research, Development, and Evaluation

A basic question raised by many leaders in education is the necessity for an institutional resource for research, development, and evaluation. An immediate, and not inappropriate response, may be that these areas provide the leadership with data based information for decision-making as a means of developing accountability and credibility in the community. With increased pressures for more sophisticated managerial techniques such as Management by objectives and information systems, the president and his/her administrative staff may find themselves reacting as if they were blind men navigating a freeway with little sense of direction about what to do, when actions should be taken, and the consequences and implications of their actions for the college.

The question is lodged more deeply in leadership and management than in a temporary response to situational demands, fads, or crises. Rather, the need for systematic, objective, and data-based information for the community junior college leader rests in the basic theory and practice of effective leadership and management. Leaders have a

primary responsibility for, if not competence in, providing directions, problem solving, and decision-making. The practicing community junior college president solves problems and makes decisions about individuals, groups, collections of groups, and the total institution (Cohen and Roueche, 1969). To be most effective, presidents should have available a competent resource with expertise in gathering data, translating that data into usable information, and presenting that information to him/her (Roueche and Boggs, 1968). In an increasingly complex institution, a significant help to leadership is the management of information from collection to dissemination. Information is also a vital key to change. Research, development, and evaluation resources assist in the systematic management of information needed by a president for change, problem solving, and decision-making.

Coffrey makes the point most clearly in his preface to the survey by Gross and Grambsch (1968):

> "...College and university presidents and their administrative staffs have a special responsibility, as a vital aspect of their leadership function, to develop, organize, and use the resources of the institution to achieve its goals with maximum effectiveness. An essential phase of this goaloriented function is to clarify the institutions present goals, and especially to distinguish between the real and the supposed, in order to evaluate the effectiveness of progress toward these goals --- and, equally important, continually to reevaluate the goals themselves" (p.v.).

A second question raised by the administrator/leader is the extent to which a specialized and expensive resource unit can benefit the institution and its leaders. There are many ways in which institutional development, research, and evaluation can be helpful and the

descriptions range from theoretical functions of leaders through political and societal concerns to the day-to-day tasks of institutional management.

Brambaugh (1960) made a strong case for a research resource to managers in higher education:

"The key to effective administration is the ability of the president and those who work with him to ask the right questions and then find the right answers. But the right answers to the right questions...must take into account all the relevant, factual data -the kind of data that only institutional research can provide" (p.2.).

The suggested uses of institutional research range from policymaking, planning, management, and evaluation to curriculum, facilities, and goals. The range of potential uses for systematic and objective data collection and analysis is then based upon the ability of the user to ask the questions to which answers are needed.

The response to the need for better answers to complex questions being posed to colleges and universities today has prompted a large growth in the development of offices of institutional research and in professional personnel providing services in this area. The field has grown to the extent that Dressel (1971) suggested that no institution could function optimally without a research resource. Roueche and Boggs (1968) make the same plea for community college institutional research.

Roney (1970) in a national survey of the role of institutional research in higher education found that most offices of research were less than five years old and that the studies tended to cluster in those areas deemed necessary for managerial decisions. The existence the offices and their current studies indicate that some leaders not only perceive the need for such resources, but also commit the institution, through budgetary allocations, to using such a resource.

Chick (1974) in a survey of eight community colleges in Michigan, Illinois, and Ohio, found offices of research and development to be primarily responsible for studies requested by administrators. A central organizational unit was received more favorably by the college than the practice of allocating responsibility for research and development to individuals throughout the institution.

All the literature reviewed appears to support two propositions: 1) institutional research and development are needed for institutional effectiveness; and 2) the research resource is a support to the president or administrator and should increase his/her effectiveness. A central issue among these documents was their single focus upon individual institutional need. In an age of scarce resources, an unstable economy, and a confidence crisis between institutional productivity and societal needs, perhaps another perspective may be useful for approaching the development of institutional resources in research, development, and evaluation.

Two of the many concerns among community junior college presidents today are the: 1) establishment of institutional identity within the postsecondary education community; and 2) meeting community needs in a period of financial restraints imposed by the economy. In an era of economic retrenchment and projected decreases in the student population, an alternative to individual institutional need emphasis may be a viable area of exploration for community junior college leaders.

Berghaus (1974) suggested an alternative involving planning and coordination of resources among community colleges to meet area needs. The emphasis is thus shifted from single institutional change to meeting the educational needs of an area or a region. Institutional researchers can facilitate this kind of cooperative venture by planning and initiating studies of regional educational needs and institutional goals for community junior colleges in a given area.

Development and evaluation resources also contribute to institutional effectiveness in management and educational programming. Each of these areas takes an institutional focus and the perspective is not limited to a single program or a particular curriculum. Millard (1973), in an article stressing the need for coordination of state and federal support to community junior colleges, cited the federal legislation beginning in 1963 and culminating in the Higher Education Amendments of 1972 as indicators of the massive amounts of support to institutions with a focus on increasing institutional effectiveness. The shift in focus in the legislation was identified in three stages: 1) the provisions of loans, fellowships, and scholarships to individuals; 2) support for specific programs and curricula; and 3) significant amounts of dollars to institutions on a long term basis as in the Advanced Institutional Development Program.

With this increase in support to institutions for developmental purposes, there was also the companion increased demand for: 1) strengthening current programs; 2) developing more options for learners; 3) evaluation of efforts with supportive quantitative and qualitative data; and 4) increased managerial effectiveness. These four areas,

operationally and theoretically, are different.

Development means more than an increase in institutional size. Its emphasis is upon creating and organizing knowledge, skill, capabilities, and resources to facilitate program implementation. Traditionally, institutions have viewed development only as securing financial support for the college. Today's pressures demand an expanded definition which should include evaluating present activities and creating more effective alternatives in programs, personnel functions, and instructional delivery systems. Institutional development is the formulation of organizational and instructional materials and techniques (Suchman, 1971). The purposes of developmental activities are to increase operational effectiveness. In the community junior college these activities reach beyond the college boundary and into the community.

Millard (1973) suggested that the community college should assume the leadership role in reaffirming the concept that education is for all the people. As the community junior college perceives its functions as serving a community it must, as Gross (1975) commented, develop programs and opportunities to meet the needs of the community it serves.

Evans and Neagley (1973) in a comprehensive volume, described the steps necessary in planning and developing an innovative community college. Among their concerns was the continuous research, development, and evaluation of: 1) the total institution; 2) educational programs and curricula; 3) the personnel; 4) the community; and 5) the political and social climate in which the college operates. Self renewal and

innovation were based on planning and constant assessment of effectiveness.

Evaluation is not a new concept in education nor is it new in management. Institutions of higher education are evaluated through an accreditation process. Regional accreditation associations perform a monitoring function for the postsecondary education system. Evaluation has changed its status and utility during the past ten years and is fast approaching the stage in which it may be viewed as a separate field of study and concentration for professionals. Although the state of the art is changing (Stufflebeam, 1971) the concept and practice of evaluation continues to add to the operation of institutions.

Dressel (1961) identified the two major functions of institutional evaluation as: 1) facilitating long range planning and 2) developing an institutional perspective among all role groups such that they are able to see the interrelationships between decisions, policies, and practices.

Hungate (1964) took the next logical steps and described an evaluative program for an institution which is broad in scope and specific in its functions and relationship to the president. He described an evaluation program which operates at all levels of the institution on a continuous and systematic basis.

Evaluation is an educational and institutional constant. Its functions are vital to optimum operation and planning for an educational enterprise. Its contributions can be extensive. Evaluation can be used to examine the adequacy of institutional goals and policies as

well as the levels of student competencies and faculty performance. Community junior colleges are in an excellent position to utilize professional resources in evaluation to create, develop, and demonstrate effective programs in management instruction and learning. With resources in research, development, and evaluation, the community junior college has an opportunity to create its own identity and develop effective practices in instruction and management.

New developments and change will occur without overt action on the part of any individual. However, with the technology and theories available today, it is possible to plan and influence the direction of those changes. Numerous cases exist where unplanned change has influenced the course of individuals and society. Institutions will change or they will cease to exist. Institutional self study, development, and evaluation provide more information to leaders for use in influencing the direction of change. Cooperative efforts, when several institutions are involved, can contribute to the potential for continuation for all (Havelock, 1969; Millard, 1973).

Community college personnel and the community at large must increase their sensitivity to the structures and processes involved in identifying their goals and developing policies and strategies for achieving them. Data based, systematic investigation of important issues and problems are a primary and effective means of achieving the status of a self-renewing system. These data can be utilized for issues ranging from policy analysis, and goal setting to dress codes and institutional climate. Senior institutions can profit from similar research and shift the focus of their research activities from

data collection and survey responding to similar areas vital to institutional viability and development (Bushnell, 1973; Dressel, 1971; Gleazer, 1973; Knoell & McIntyre, 1974; and Roueche & Boggs, 1968).

The development of state plans for postsecondary education with a trend toward increased state control demands that local institutions gather data critical to their operations. These data can provide one means of ensuring local control. Without them, institutions can become state legislated and lose the ability to respond quickly and appropriately to local community needs. This premise of response to local need has been a purpose for which community colleges were based. In a time of retrenchment at all levels, it is essential that these institutions maintain necessary degrees of freedom for carrying out their mission and charge (Cross, 1971; Gleazer, 1973; Knoell & McIntyre, 1974; Medsker & Tillery, 1971; and Millard, 1973).

There is an increasing need for educational leaders to have more and better information about the content, personnel, students, and educational processes which they guide. As new information is made available and utilized, the leader and the institution increase their potential for change and maintaining their viability.

As educators increase their awareness of the need for new and better information, they frequently find that the resources needed to provide the information are either not available to them or operate at a level which is not useful (Guba, 1964). Frequently, social scientists resort to models which serve as guides for the

systematic organization of selected phenomena. Models are appropriate for the practitioner and the researcher in education and facilitate the determination of viable courses of study and action (Joyce, et al, 1972). The most effective models are generated through sound deductive reasoning and the application of logic to its propositions, and from an empirical data base which demonstrates practical need. Models can be helpful to the community junior college leaders and their development and testing can serve as an information and conceptual base for all educators.

There is a growing awareness of the need to establish more and better communications among institutions of higher education in institutional research, development, and evaluation. The Western Interstate Commission on Higher Education (WICHE) and the National Center for Higher Education Management Systems (NCHEMS) are examples of operational efforts in this area. The growth of the ERIC Clearinghouse for Junior College Information is another attempt to communicate program and research findings on a regular and systematic basis. The increase in the number and prevalence of offices of institutional research and centers for evaluation are other indicators of a professional response to expressed needs in education. Most of these efforts are occurring at the national level and there are limited opportunities or structures for these resources at regional and state levels. A purpose of this investigation was to assess the needs and resources within the state and to identify potential processes for getting research, development, and evaluation resources closer to the presidents, administrators, and faculties of community

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junior colleges.

A regional interinstitutional resource for research, development, and evaluation, defined as the personnel, materials, techniques, finances, and equipment which are designed to increase the efficiency and effectiveness of institutions through the utilization of systematic problem solving techniques is a potential solution to this need.

Summary

This chapter has presented a review of the literature which focused upon the leader/manager role of the community junior college president. The need for new and better information as well as the potential for support provided through research, development, and evaluation were presented. The final portion of the chapter was devoted to the concept of and rationale for a data based model and its effacacy for meeting the needs of community junior college presidents.

The next chapter will present the method and procedures employed in the implementation of this study.

CHAPTER III

METHOD AND PROCEDURES

The purpose of this chapter is to present a review of the problem; the rationale for the method; the population and the instrument; the procedures for data analysis; and model development. A brief summary will complete the chapter.

Review of the Problem

The objectives for this study were to identify the priorities among selected institutional goal areas for presidents of public community junior colleges in Michigan; to assess the need for institutional research, development, and evaluation resources; and to develop a process model for the resource. The study was designed to explore and describe potential goals and activity objectives of presidents of community junior colleges. The analyses of the responses of the presidents were planned to provide some answers to the major questions in this study. For this reason, the objectives of the study were translated into the following questions:

- . How do community junior college presidents rate selected institutional activities?
- Are there differences in priority ratings as a function of location, size, and presence of an office of research and development?
- . Is there a need for institutional research, development, and evaluation resources in public community junior colleges in Michigan?

. Do location, size, and presence of an office of institutional research affect responses to activity statements and need for assistance?

The population

The institutional activity, skill, and capability instrument was sent to the president for each of the 29 public community junior colleges listed in the <u>1974-75</u> <u>Directory of Institutions of Higher</u> <u>Education in Michigan</u>. Each college was coded for location and size in order to determine if these gross demographic descriptors would have any bearing upon the responses of presidents. The presence or absence of an office responsible for research, development, and evaluation activities was considered an important descriptive variable for analyzing presidential responses. The three institutional descriptors: location, size, and Institutional Research office, were used to measure their impact upon presidential responses to institutional goal areas.

The state was divided into four geographical areas which are commonly used as reference by Michiganders and are distinguishable by population density. The Upper Penninsula (UP) is a scarcely populated region with limited accessability during the winter months. The UP is physically separated from the remainder of the state by a body of water. The remaining three areas, Mid-Michigan (MM), Southwest (SW) and Southeast (SE) represent the more populous regions of the state and contain the majority of the colleges and universities.

The institutions were grouped by location for ease of analysis. The results of this grouping are displayed in Table 1 which shows

the regions, the number of community junior colleges in each area, the number of presidents responding by regions, and the percentage of responses by location categories.

TABLE 1

Distribution of Michigan Community Junior Colleges by Location

Location		State Totals	Number of Respondents	Category Percent
Upper Penninsula (UP)		2	2	100
Mid-Michigan (MM)		6	4	66
Southwest (SW)		8	7	87
Southeast (SE)	Total	<u>13</u> 29	$N = \frac{12}{25}$	92

There was a 93 percent response rate for the survey. However, of the 27 responses received, one was unusable, and one was returned too late for analysis. There were 25 usable instruments returned for an 86 percent return rate. Of the presidents responding, the UP was the only group with a 100 percent return rate. The Southeast followed with a return rate of 92 percent and Mid-Michigan respondents presented the lowest return rate of 66 percent.

Michigan community junior colleges range in size from single small campuses with a headcount of 723 to multicampus units with a student population of 19,217 (Michigan Department of Education, 1974). Multicampus institutions were treated as one college for this study. Table 2 shows the distribution of the colleges by size giving state

and respondent totals and percentages within each category.

TABLE 2

		State	Number of	Category
Size		Totals	Respondents	Percent
less than 1,000		5	4	80
1,000 - 3,999		11	9	81
4,000 - 6,999		6	5	83
7,000 - 9,999		2	2	100
10,000 +	Total	<u>5</u> 29	$N = \frac{5}{25}$	100

Distribution of Community Junior Colleges by Institutional Size*

*Headcount, Fall, 1973

Presidents in the largest institutions had a 100 percent return rate but no response category fell below 80 percent. The response rates were greater than 50 percent for both institutional location and size.

The level of response persisted for the institutional research variable as shown in Table 3. Those institutions reported as having a research office responded 100 percent while presidents of colleges without such an office showed an 82 percent response rate.

Some institutions listed offices of development while otherc combined development and research. Any college listing a person designated as director, dean, or other administrative title followed by research, development, or grants was considered to have a resource office whose function was to support the institution in increasing its educational and operational effectiveness. Table 3 shows that only six (6) of the 29 colleges or 20 percent of the community junior colleges reported a research or development resource for Fall, 1973.

TABLE 3

Distribution of Community Junior College Offices of Research, Development, and/or Grants

Office of Research	State Totals	Number of Respondents	Category Percent
Yes	6	6	100
No	Total 29	$N = \frac{19}{25}$	82

The instrument

The review of the studies conducted by Gross and Grambsch (1968), Peterson (1973), and Bushnell (1973) served as a basis for developing the institutional activities survey. An assessment of their methodologies and rate of return from presidents suggested that certain criteria be developed and followed in constructing the institutional goal survey. The following criteria were used in developing the survey instrument:

- The goal areas and activity statements must have face validity for the presidents of public community junior colleges.
- 2. The instrument must be brief.
- 3. The instrument should allow the respondent to indicate changes over time.
- 4. The statements should be precise.

5. The goal areas should cover significant issues and areas of interest for the leader/administrator.

These criteria served as guides for the selection of goal areas and activity statements included in the survey instrument. The procedures followed in constructing the survey included a review of the literature on institutional goals and community junior colleges; the generation and refinement of a list of possible goal areas; the identification of key concepts for each goal area; the construction of items, and testing of a draft instrument. The final instrument contained eight goal areas with a total of 47 activity statements designed to measure the level of priority for each goal.

<u>Goal areas and concepts</u>. The goal areas and key concepts used in the instrument are described below.

- Institutional Planning (IP) was defined as those activities which relate to the development, implementation, and assessment of present practices for use in providing direction for future goals and activities of the institution. Key concepts incorporated into activity statements for this goal area were: policies, involvement, and resource allocation as they related to and impacted upon the total college community. Eight activity statements were developed for this goal area.
- 2. Institutional Management (IM) defined those activities which, relate to the administrative functions of the president and involve institutional maintenance through policy implementation, provisions for planning, product monitoring, and program and personnel evaluation. Key concepts incorporated into activity statements were: communication, decision making, budgeting, and reorganization. A total of nine statements were developed for the institutional management goal area.
- 3. Articulation (Ar) was described as the interrelations and interactions of different segments of the educational system for assuring continuous advancement of learning at all levels. Important ideas in this section related to: local, regional, and state level planning; cooperation; interinstitutional linkages; and student support. Nine

activity statements were constructed for this goal area.

- 4. Institutional Research (IR) was defined as the implementation of systematic studies into institutional programs and operations for the purpose of increasing institutional effectiveness. Concepts basic to the development of activity statements in this goal area were: services, impact, needs assessment, planning, and management. The survey instrument contained seven activity statements for institutional research.
- 5. Professional Development (PD) was defined as those activities in the college which were designed to increase the competencies of institutional faculty and stuff. Important concepts for professional development were: comprehensive, defined as all levels and ranks of college employees, innovation, and assessment. Three items for this goal area were included in the final survey.
- 6. Instructional Delivery Systems (IDS) was used to describe the programs and processes of the college which were designed to increase the opportunities and options for learning. Central concepts in this area were: credit options, learner characteristics, outreach, cooperatives, culture, and evaluation. Seven activity statements were devised for this area.
- 7. Accountability/Evaluation (A/E) was defined as those institutional activities designed to increase data based decision making (evaluation) at the most appropriate levels within the college and for the community (accountability). In the three statements measuring this goal, major attention was given to decision making, educational products, and communication.
- 8. Collective Bargaining (CB) was defined as a process designed to protect the rights and privileges of employed individuals through group action and negotiation. The two statements in this area focused upon the utilization and outcomes of the bargaining process.

Table 4 shows the goal areas and the distribution of the activity statements for the total instrument. The Institutional Management (IM) area had the largest number of activity statements and Collective Bargaining (CB) contained the smallest number.

The institutional activity, skill, and capability survey instru-

ment contained eight (8) possible goal areas which community junior college presidents were asked to rate with five possible choices:

- (1) Very high priority;
- (2) High priority;
- (3) Low priority;
- (4) Very low priority; and,
- (5) Not appropriate.

TABLE 4

Institutional Goal Areas and Distribution of Activity Statements

	Number of
Goal Area	Activity Statements
Institutional Planning (IP)	8
Institutional Management (IM)	9
Articulation (Ar)	8
Institutional Research (IR)	7
Professional Development (PD)	3
Instructional Delivery Systems (IDS)	7
Accountability/Evaluation (A/E)	3
Collective Bargaining (CB)	Total <u>2</u> 47

The complete instrument presented a total of 47 institutional activities which were rated by circling the number under the appropriate priority level. A rating of one (1) indicated that the activity had a very high priority for action. A rating of five (5) indicated the activity was not an appropriate objective for the institution. In order to establish trends, three time periods were selected, past (1970-74); current (1974-75); and future (1975-80). Ratings at each of these periods would provide a perspective for assessing present and future needs in the areas of research, development, and evaluation.

In addition to the priority ratings for the three time periods, each president was asked to check each activity in terms of his perception of the present level of skills and capabilities in the college to achieve each objective. The institutional skill area was checked only once. In order to indicate the level of institutional skill and capability, presidents were asked to check one of the boxes described below:

Can do alone;
Can only do with outside resources;
Cannot do.

Twenty-two of the 47 items on the survey were identified as representative of research (R), development (D), and evaluation (E) concerns. To determine the presence of need for interinstitutional research, development, and evaluation, a decision rule was made and is described below:

- If a president a) rated seven of the 22 items of R, D, and E as a high priority (1 or 2) for the present and the future, and b) checked the column "can do only with help" or "cannot do", then the institution was defined as needing assistance to achieve selected institutional activities.
- 2. If nine of the responding presidents met the criterion above, then there was sufficient data for developing the

content for a process model for a regional resource in interinstitutional research, development, and evaluation.

The survey procedures

A major problem in survey research is getting a sufficient rate of return to answer research questions. To ensure an adequate return rate, each president was sent a letter introducing the project and notifying him of the survey instrument to which he was being asked to respond. Within a week, the second letter of instructions and the instrument were mailed. A follow-up card was sent to nonrespondents. A subsequent telephone call was made to all nonrespondents by a president of a community junior college. A final letter and instrument were sent to the remaining presidents. The letters and the instrument are shown in the appendix.

Analysis of the data

The exploratory and descriptive nature of the project determined the questions to be answered and the procedures for data analysis. The primary analysis required the use of descriptive statistics. The mean and standard deviations (sd) were computed for all activity statements and goal area means were computed for each time period. The research, development, and evaluation items were collapsed into a variable labelled Research (R) and means for Research and Nonresearch (NR) statements were computed. Percentages, frequencies, and rankings were used to further describe the results by the descriptive categories, location, size, and research resource.

A two-way analysis of variance with repeated measures technique was used to identify significant differences in priority ratings. Statistical significance was set at the .05 level for these analyses. The variables used in these analyses were location, size, institutional research office, Research, Nonresearch, time, and the eight institutional goal areas. A series of \underline{t} tests was computed as a follow-up to some of the \underline{F} tests. The results were used to specify the sources of differences found in the analyses of variance. The procedures described in this section provided information which was used to answer the research questions and interpret the data collected in the survey.

Model development

The procedures used in the development of the process model for interinstitutional research, development, and evaluation (IRDE) were designed to follow the data from the instrument. The first step was to determine the existence of a need for assistance. Subsequent to this assessment, the steps described below were taken.

- . Described the content of the activities in which assistance was needed;
- . Identified the skills and competencies required to achieve these objectives or tasks;
- . Specified additional needs for information for constructing a model;
- . Developed criteria for the construction of the model including a rationale and limitations;
- . Described the important issues addressed by the model;

. Specified the processes necessary for implementation and indicated a plan for evaluating the paradigm.

Summary

This chapter has presented a review of the problem with a specific focus on the methods and procedures used in conducting and reporting the study. The population, instrument, survey methods, data analysis, and model development procedures were identified and described. Chapter IV will present the results of the study.

CHAPTER IV

THE RESULTS

The purpose of this chapter is to present the results of the analysis of the data collected with the institutional activity survey. The chapter is divided into two portions which describe the responses to the total instrument and the analysis of items and categories related to institutional research, development and evaluation.

Responses to Institutional Activity Survey

The Institutional Activity, Skill, and Capability instrument was designed to identify the priority ratings of selected institutional objectives by community junior college presidents. The total instrument contained 47 activity statements; 22 were directly related to research, development, and evaluation, and 25 were nonresearch oriented. The rationale for the construction of the instrument with this combination of items was to be able to compare and contrast priority ratings in these areas of institutional operation. In order to gain some appreciation of the context in which the Research goal areas were rated, the first section of this chapter is devoted to an analysis of the complete instrument.

Michigan community junior colleges have grown rapidly in the past decade both in number of institutions and size of population served. This rapid growth rate has implications for changes in the institution in terms of educational and operational activities.

The rate of change tends to occur so rapidly that only the recent past appeared to be a meaningful time discrimination. The respondents were asked to rate each item for the recent past, 1970-74; the current school term, 1974-75; and for the near future, 1975-80.

Table 5 describes the mean priority ratings from one (1), high priority, to five (5), no priority, for each of the institutional goal areas with the number of activity statements which operationally define the eight (8) categories. The percentages of items for each category may not total 100 because of rounding.

TABLE 5

Goal Area	1970-74	1974-75	1975-80	Item Total	Percent of Instrument
Institutional Planning (IP)	2.5	1.8	1.7	8	17
Institutional Management (IM)	2.3	2.0	1.8	9	19.1
Articulation (Ar)	2.4	2.1	1.9	8	17
Institutional Research (IR)	2.8	2.4	2.1	7	14.8
Program Develop- ment (PD)	2.9	2.6	2.3	3	6.3
Instructional Delivery Systems (IDS)	1.8	1.9	1.8	7	14.8
Accountability/ Evaluation (A/E)	2.6	2.2	2.0	3	6.3
Collective Bargaining (CB)	3.3	3.4	3.2	2	4.2
N = 25					

Mean Priority Ratings of Institutional Goal Areas for Three Time Periods

Although all mean ratings for the categories of goal statements changed over time, the largest shift appeared to occur between the past and the current time periods. Institutional Planning (IP) showed the largest change from a past rating of 2.5 to a current rating of 1.8. The difference of .7 is larger than any other shift between proximal time periods. By contrast, Instructional Delivery Systems (IDS) means showed the smallest change (.1) between proximal time periods. The means for Collective Bargaining (CB) showed the next smallest change over the time periods and represented the smallest percentage of items on the instrument. Institutional Management (IM) contained the largest percentage of items on the instrument and followed the trend toward higher priority ratings from past to future. The mean ratings for the future approached one (1) more closely and consistently than any other time period. Four of the eight goal areas, IP, IM, Ar, and IDS were rated close to one (1) while three areas, IR, A/E, and PD received a high priority rating near two (2). Only Collective Bargaining (CB) remained at the low rating of three (3).

Table 6 presents the rank order of the means for the eight goal areas. Institutional Planning (IP) and Instructional Delivery Systems (IDS) tied for first place with a priority rating of 1.9. There was only a .1 difference in the grand means for the four highest rated goal areas: IP, IDS, IM, and Ar. Institutional Research (IR) ranked sixth and was .4 away from the fourth ranking area, Articulation (Ar). Accountability/Evaluation (A/E) ranked fifth while Professional Development (PD) was seventh and Collective Bargaining (CB) received

45

the lowest mean rating of 3.3 and ranked eighth. There was a .7 difference between the seventh and eighth ranked areas. The range of mean priority ratings was 1.4. Neither goal area received a mean of 4, the lowest possible priority rating, nor were any considered an inappropriate institutional goal area.

TABLE 6 Rank Order of Institutional

Prioritie	es for	Past,	Current,	and	Future	

Goal Areas	Mean	Rank
IP	1.9	1
IM	2.0	3
Ar	2.1	4
IR	2.5	6
PD	2.6	7
IDS	1.9	1
A/E	2.3	5
CB	3.3	8

Institutional location and size are frequently cited as factors influencing a variety of issues and problems confronting community junior colleges. Location and size are also used to explain differences among institutions. The relevance of these variables to institutional goals as perceived by presidents was tested with a series of two-way analysis of variance for the three time periods; past, current, and future. Table 7 shows the results of these analyses with Location

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and Time as the prime factors and institutional Goal Areas as the dependent variables. The \underline{F} ratios reported are in summary form and are a measure of the extent of differences within and between groups of goal area means over time. The statistical significance was set at the .05 level. There were four (4) categories of location, three categories of time, and eight goal areas used in these analyses. Time was used as a repeated measure of the goal areas. A perusal of the column labeled Location shows that only one (1) goal area, Ar, was significant at the .05 level.

TABLE 7

al Areas	Location	Time	Interaction
IP	1.657	35.463*	4.501*
IM	1.778	24.169*	1.651
Ar	4.337*	43.684*	3.945*
IR	1.642	39.046*	2.263*
PD	2.375	20.300*	3.096*
IDS	2.888	1.807	.473
A/E	.825	20,923*	1.957
СВ	1.157	.389	1.664

<u>F</u> Ratios for Location and Institutional Goal Areas by Time

The \underline{F} ratios displayed in the column marked Time were significant for six (6) of the eight (8) goal areas. The \underline{F} scores for IDS

and CB were not significantly different over Time.

Four (4) Interactions resulted in significant \underline{F} ratios at the .05 level. There was a statistically significant interrelationship between location and time for each of the goal areas: IP, Ar, IR, and PD. Ar was the only area which showed significantly different mean ratings by location, over time, and in the interaction.

A similar series of two-way analysis of variance with repeated measures was computed for each goal area with Size and Time as the main factors. Table 8 shows the results of eight analyses of variance with $\underline{\mathbf{F}}$ ratios for each Goal Area, Size, Time, and Interaction. There were five (5) categories of size and three time periods for 25 respondents and eight goal area means used in these analyses.

There were no significant differences at the .05 level found in any goal area for the Size factor. Neither were such differences found for Time or Location in IDS and CB. Both IDS and CB appeared to maintain consistent mean priority ratings regardless of institutional Size and Time. The remaining six (6) goal areas reached statistical significance at the .05 level. None of the interactions was statistically significant at the .05 level.

A two-way analysis of variance with repeated measures was calculated with two (2) categories of IR and Time as the repeated measure for each of the eight Goal Areas. The results of these eight analyses are shown in Table 9. The <u>F</u> ratios reached statistical significance at the .05 level only for the Time factor at IP, IM, Ar, IR, PD, and A/E goal areas. There were no significant <u>F</u> ratios in the Interactions. The IR factor and Time do not have a

statistically significant interrelation at the .05 level.

TABLE 8

Goal Areas	Size	Time	Interaction
IP	1.383	23.239*	.652
IM	.807	19.459*	.224
Ar	2.280	34.478*	1.479
IR	1.297	30.706*	.463
PD	.848	17.084*	1.372
IDS	.714	1.768	.483
A/E	1.499	21.467*	1.893
CB	.964	.348	.812
N = 25; * <u>p</u> <u>2</u> a Note: Head	.05 count, Fall, 1973	i	

F Ratios for Size^a and Institutional Goal Areas by Time

The two-way analyses of variance with repeated measures completed the description of the community junior colleges by mean priority ratings of the presidents over time. The description included a presentation of the mean responses of presidents by institutional goal areas, a series of analyses of variance to assess the presence of significant differences in response means as related to location, size, and presence of an IRD office. The summary tables presented above showed that time was the most significant factor in accounting for the differences in priority ratings for most of the

TABLE 9

oal Areas	IR	Time	Interaction
IP	1.049	23.651*	.011
IM	.241	21.548*	.139
Ar	.697	30.723*	.093
IR	.686	32.973*	.468
PD	.165	15.457*	.062
IDS	.347	1.897	. 528
A/E	.280	17.927*	.024
СВ	.007	.346	.145

F Test Results for Institutional Research with Institutional Goal Areas by Time

Institutional Research, Development, and Evaluation

The important question for this investigation was the feasibility of developing a regional resource for interinstitutional research, development, and evaluation. To assess the existence of need for this kind of resource, goal statements which measured research, development, and evaluation activities were identified for analysis. Table 10 shows the research goal statements with the item numbers as they appeared on the instrument. The table also presents the combined mean priority ratings for the present (1974-75) and the

future (1975-80). The frequencies for presidents reporting a need for assistance and the rank order of statements by mean priority rating complete the table.

Of the seven goal statements which measured institutional research, item 19 was rated highest among the statements and 12 presidents

TABLE 10

Institutional Research Statements and Frequency of Need for Assistance (NA)

Item	Goal Statements	Mean*	FNA	Mean Rank
6	Initiate interinstitutional sharing of research findings.	2.6	8	6
9	Initiate community educational needs assessment studies.	1.8	8	2
19	Develop forecasting and analytical studies to facili- tate long-range planning.	1.6	12	1
24	Conduct periodic local employ- ment needs studies.	2.0	9	5
44	Use research and evaluative data in program development and policy making.	1.9	8	4
46	Examine the impact of resource allocation on institutional growth.	1.8	7	2
47	Allocate five (5%) percent of institutional budget to research, development, and evaluation activities.	2.9	7	7

identified the item as an area of need. Needs assessment, forecasting, and impact studies, items 9, 19, and 46, received the highest overall ratings among the research items. Seven presidents checked item 44, a program development and policy related goal statement, as an area of need. The mean rating for item 44 was 1.9 and the item ranked fourth among presidents indicating a need for assistance. The lowest ranked item concerned a budgetary commitment to institutional research, development, and evaluation, and received a mean priority rating of 2.9. There were a total of seven goal statements specifically related to institutional research in the total instrument. The combined mean priority ratings for the present and future for each goal area ranged from a high of 1.6 for item 19 to a low of 2.9 for item 47. Of the 13 presidents who reported a need for assistance, 12 chose item 19, and seven chose items 46 and 47.

Institutional development was another area of interest for this investigation. In constructing the survey instrument, eight statements were developed which related to developmental activities or had implications for institutional development. Table 11 shows the eight goal statements with the item numbers indicating their order of appearance on the instrument. As in Table 10, mean priority ratings, frequencies, and rank order are also shown in the table. The content of the statements ranged from personnel and faculty development to institutional image.

Items 40 and 41, both relating to institutional image, received an overall mean priority rating of 1.4. Only one president marked item 41 as an area in which external resources were needed.

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TABLE 11

Institutional Development Statements and Frequency of Need for Assistance (NA)

Goal Statements	Mean*	FNA	Mean Rank
Cooperate in regional planning for high-cost, low enrollment programs.	2.1	11	4
Provide for faculty and admin- istrative contacts with regional colleges and universities.	2.1	4	4
Establish and maintain programs for educationally and physically handicapped, gifted, and other groups with special needs.	2.5	10	8
Develop educational programs in cooperation with industry and labor unions.	1.6	2	3
Providing released time and funds for curricular and insti- tutional innovations.	2.4	6	6
Establish your community junior college as a unique postsecondary institution.	1.4	3	1
Identify the image of the institution.	1.4	1	1
Examine personnel problems and issues in serving multiple student groups.	2.4	4	6
	Cooperate in regional planning for high-cost, low enrollment programs. Provide for faculty and admin- istrative contacts with regional colleges and universities. Establish and maintain programs for educationally and physically handicapped, gifted, and other groups with special needs. Develop educational programs in cooperation with industry and labor unions. Providing released time and funds for curricular and insti- tutional innovations. Establish your community junior college as a unique postsecondary institution. Identify the image of the institution. Examine personnel problems and issues in serving multiple	Cooperate in regional planning for high-cost, low enrollment programs. 2.1 Provide for faculty and admin- istrative contacts with regional colleges and universities. 2.1 Establish and maintain programs for educationally and physically handicapped, gifted, and other groups with special needs. 2.5 Develop educational programs in cooperation with industry and labor unions. 1.6 Providing released time and funds for curricular and insti- tutional innovations. 2.4 Establish your community junior college as a unique postsecondary institution. 1.4 Identify the image of the institution. 1.4 Examine personnel problems and issues in serving multiple	Cooperate in regional planning for high-cost, low enrollment programs. 2.1 11 Provide for faculty and admin- istrative contacts with regional colleges and universities. 2.1 4 Establish and maintain programs for educationally and physically handicapped, gifted, and other groups with special needs. 2.5 10 Develop educational programs in ccooperation with industry and labor unions. 1.6 2 Providing released time and funds for curricular and insti- tutional innovations. 2.4 6 Establish your community junior college as a unique postsecondary institution. 1.4 1 Examine personnel problems and issues in serving multiple

Item 40 was so rated as a need area by three of the 25 presidents. Item one received a mean priority rating of 2.1 and was reported by 11 presidents as an area of need. Item 30, with a mean rating of 2.5,

was selected by 10 presidents as an activity in which external resources were needed. Item one was related to regional cooperation and planning, and item 30 was related to special programs for students with special needs. Among the eight items comprising the area of institutional development, the range of mean priority ratings was from a high of 1.4 to a low of 2.5. The items most frequently indicated as need areas were 1 and 30. Item 41 was least frequently indicated as an area of need and was followed by item 31 with only two institutions indicating the need for assistance in developing local cooperative educational programs.

A third area of concern in this study was institutional evaluation. Table 12 presents the goal statements, means, and frequency of need for assistance as indicated by the thirteen different college presidents whose total responses indicated the need for help in achieving an item activity. There were seven (7) items measuring priorities in evaluation. Items 15 and 22 received the highest mean priority ratings and were checked as needing assistance by seven (7) and six (6) presidents, respectively. Items 32, 37, and 38, each related to individual evaluation strategies, were checked by each of four of the responding presidents as areas in which assistance was needed. The content of the seven (7) items in this category ranged from institutional to individual assessment and evaluation. The range of mean priority ratings was from a high of 1.9 for item 15 to a low of 2.6. Two (2) items, 14 and 38, received the lowest mean ratings of 2.6. The frequency of institutional need for assistance ranged from four (4) in items 32, 37, and 38 to

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TABLE 12

Institutional Evaluation Statements and Frequency of Need for Assistance

Item	Goal Statement	Mean*	FNA	Mean Rank
14	Assess and evaluate the rela- tionship between collective bargaining and educational outcomes.	2.6	6	6
15	Evaluate the effect of insti- tutional stragegies and procedures.	1.9	7	1
22	Initiate a program budget and evaluation system.	2.0	6	2
28	Create an office for research, development, and evaluation.	2.5	5	5
32	Use competency-based evaluation for student achievement and graduation.	2.2	4	3
37	Develop systematic procedures for measuring professional growth.	2.3	4	4
38	Initiate new systems for grading and evaluation.	2.6	4	6
*M for 1 N = 25	974-75 and 1975-80			

seven (7) for item 15.

The total means reported in tables 10, 11, and 12 were computed from the mean priority ratings for all respondents for the present (1974-75) and the future (1975-80). The frequency of the need for assistance as presented in these tables showed that the 55

items in those activities related to research were most frequently checked by presidents while those in evaluation were checked by fewer presidents. The mean priority ratings for each area did not follow this descending order of need as evidenced by the following mean totals for each area: research, 2.1; development, 2.0; and evaluation, 2.3.

Further analyses of the data were made by combining the three categories of items, research, development, and evaluation, into one category labeled Research (R) with a total of 22 items. Table 13 shows the mean priority ratings for each of the three time periods for research (R) and nonresearch (NR) items. The complete means and standard deviations are presented in the Appendix.

TABLE 13

Item Category	1970-74	1974-75	1975-80
NR	2.4	2.1	1.9
R	2.5	2.2	2.0

N = 25

Mean Priority Ratings for Research (R) and Nonresearch (NR) Items for Three Time Periods

The research (R) items received lower mean priority ratings at each of the three time periods. R items showed an increase in mean ratings from a low of 2.5 in 1970-74 to a high of 2.0 for 1975-80. A similarity between the two areas occurs in the rate of change over time. The means for each variable decreased by the same amount as evidenced by a .3 change from the past to the present and a .2 change in rating from the present to the future. NR and R means remained at a .1 distance from each other for all time periods.

A two-way analysis of variance was calculated with R items over the three time periods to test for differences in mean ratings to these items. Table 14 shows the results of the analysis with time as a repeated measure. The <u>F</u> value for R was statistically significant at the .05 level. The significant <u>F</u> ratio for time identified differences in mean item ratings over the three time periods. The lack of a significant interaction ratio, at the .05 level, indicated that the two variables were not significantly interrelated.

TABLE 14

Two-Way Analysis of Variance for Research (R) Items over Time (T)

Source	SS	df	Ms	F
Research (R) Research x Subjects (S)	.351 1.594	1 24	.351 .066	5.290*
Time (T) Time x Subjects	6.424 4.500	2 48	3.212 .094	34.259*
Research x Time Research x Time x Subjects	.012 .271	2 48	.006	1.020
N = 25 *p ∠ .05				

As a further test of the analysis of variance, a \underline{t} test comparison of means for research and nonresearch items was computed for each of the three time periods. Table 15 shows the results of

this analysis. All of the \underline{t} values were significant and indicated that the mean values for the R and NR items were different in their mean ratings.

TABLE 15

t Test Comparison of Mean Ratings for Research (R) and Nonresearch (NR) Items for Three Time Periods

R/NR	Past vs Present	Past vs Future	Present vs Future
R	4.775*	7.634*	2.859*
NR	4.895*	8.273*	3.377*
df = 54.1 * <u>p</u> ∠.05	N = 25		

A final question on the survey asked respondents to indicate if they were willing to share research, development, and evaluation information, and all respondents checked "yes".

The leader/manager and research

Institutional research is a support function to management and useful in providing information for decision making at a variety of levels within a college. To the extent that community junior college presidents perceived any value in institutional research resources, this goal area could be expected to receive mean ratings similar to planning and management. In effect, this analysis was a test of the hypothesis that

$$H_{IR} = H_{IP} = H_{IM} = H_{A/E}$$

This hypothesis was tested for past, current, and future. Table 16 shows the results of the comparison of IR means with planning (IP), management (IM), and evaluation (A/E). IP and IM showed significant differences in mean ratings at the .05 level for each of the three time periods while A/E means failed to show significant differences. These results indicated that A/E and IR means were similar for the three times. There was a decrease in the <u>t</u> values from past to future for all areas.

TABLE 16

Goa1	1970-74	1974-75	1975-80
IP	4.922*	4.628*	3.533*
IM	3.761*	3.320*	2.645*
A/E	1.704	1.665	.738
N = 25 df = 264 *p $\angle .05$.9	1.005	.,,,,,

t Test Comparison of Institutional Research with IP, IM, and A/E

The <u>t</u> test results showed consistently significant differences at the .05 level between IR, IP, and IM. These <u>t</u> values also tended to decrease in size over time. The <u>t</u> values suggest that means for A/E and IR are similar while mean ratings for IP and IM are significantly different from IR.

A similar set of <u>t</u> tests was computed comparing A/E with IP and IM. This analysis was a test of the hypothesis

$$H_{A/E} = H_{IP} = H_{IM}$$

for the past, current, and future. Table 17 presents the results of these analyses. The means for institutional planning were significantly different when compared with A/E at all time periods. Institutional management was significantly different from A/E only during the past (1970-74). No significant difference was found between A/E and IM means at the .05 level.

TABLE 17

loal	1970-74	1974-75	1975-80
IP	3.218*	2,963*	2.795*
ім	2.057*	1.656	1.908

t Test Comparison of Accountability/ Evaluation with IP and IM

These data suggest that community junior college presidents rated the A/E and IM items similarly for the present and future.

Among the 25 presidents responding to the survey, 13 indicated a need for assistance (NA) on the R variable. Table 18 shows the respondents were distributed across all geographic boundaries in the state. The largest percentages of responses for NA were in the SW and SE.

Institutional size can be used as an indication of actual and potential resources for use in the development of an interinstitutional research resource. If, for example, only small institutions with limited financial and personnel resources indicated a need for assistance, then a model resource would need to attend to specific issues related to personnel and finances which the college might contribute. Table 19 shows the distribution of presidents who indicated the need for assistance in terms of institutional size. All sizes of institutions were represented by the 13 colleges which followed the decision rule for determining institutional need.

TABLE 18

Distribution of Need for Assistance (NA) by Location

Location		State Total	Number of Responses	NA	% of Responses
UP		2	2	1	50
Mid		6	4	1	25
SW		8	7	4	57
SE	Total	<u>13</u> 29	$N = \frac{12}{25}$	7	58

Institutions with student headcounts between 1,000 and 3,999 formed the largest single group with an indicated need for assistance.

Many of the institutional activities in the research area should and can be performed by offices of research and development or grants and development when they exist. The presence or absence

of such an office might affect the responses of presidents to these items. Table 20 shows the distribution of presidential responses by presence or absence of an office of institutional research. Of the six (6) institutions with offices of research and development, three (3) were among those which reported a need for assistance. Among the institutions without such offices, 52 percent reported a need for assistance.

The need for assistance as defined by this investigation was present in institutions in each of the categories within descriptor variables of location, size, and presence of offices of institutional research.

Summary

Michigan community junior colleges were described in terms of their geographic location, size, and presence or absence of offices of Institutional Research by the 25 presidents who responded to the institutional activities, skill, and capabilities survey. All categories of institutional types were represented by the respondents.

An initial analysis of the data by goal areas of institutional activity showed that presidents varied in their responses to items over the decade for which they were asked to rate activities. The mean priority ratings for articulation reached statistical significance when compared with location over the three time periods. There were no significant differences among presidential responses as a function of the presence or absence of an office of Institutional Research. There were statistically significant differences among goal

TABLE 19

Distribution of Need for Assistance (NA) by Size*

Size	State Totals	Number Respondents	NA	% of Responses
less than 1,000) 5	4	1	25
1,000 - 3,999	11	9	6	66
4,000 - 6,999	6	5	2	40
7,000 - 9,999	2	2	1	50
10,000 +		$N = \frac{5}{25}$	3	60

*Headcount, Fall, 1973

TABLE 20

Distribution of Need for Assistance (NA) by Offices of Institutional Research

Office Present		State Totals	Number Respondents	NA	% of Responses
Yes		6	6	3	50
No	Total	<u>23</u> 29	$N = \frac{19}{25}$	10	52

area means across all time periods except in Instructional Delivery Systems and Collective Bargaining. Both of these goal areas attained nonsignificant differences in mean ratings over time.

The need for assistance in achieving institutional goals in the areas of research, development, and evaluation was found among 13 of the 25 responding presidents. The 13 colleges represented by these presidents were distributed across all categories of institutional location, size, and presence or absence of offices of institutional research. Institutional research items were indicated as a need area more frequently than either development or evaluation activities. Institutional development activities received a higher mean priority rating than did either research or evaluation statements.

Institutional Research, Institutional Development, and Institutional Evaluation, support areas to administrators, were combined into a total research (IR) category. There were significant differences found between the Research and Nonresearch items when the means for both areas were statistically analyzed. These differences were identified with a two-way analysis of variance with repeated measures technique and t tests.

Additional analyses of the goal areas by means of \underline{t} test comparisons were calculated and showed differences in ratings between IR, IP, and IM. Significant differences were not found between A/E and IR for any of the three time periods tested at the .05 level.

Chapter V will present the summary, conclusions, and recommendations derived from this investigation into institutional priorities as perceived by presidents of community junior colleges in Michigan.

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CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

It is the purpose of this chapter to present a summary of the study with conclusions and recommendations.

Summary

The purposes of this study were to identify and measure the priorities of selected institutional activities for the presidents of Michigan public community junior colleges; to assess the need for assistance in institutional research, development, and evaluation; and to develop a model for an interinstitutional resource as indicated by the data. A selected review of the literature was presented in Chapter II with special attention to the theory and practice of educational leaders; the theory and practice in institutional research, development, and evaluation; and, the research studies on goals and objectives for postsecondary education and community junior colleges. The methods for developing the goal areas and objectives, the survey procedures, and the analyses of the data were presented in Chapter III.

Discussion of the results

The first section of Chapter IV presented the results of the priority ratings by the presidents for the complete 10 year span (1970-80). The figures indicated two facts: that in the 10 year 65

period measured, selected priority ratings for community junior college presidents in Michigan have changed from the first four years of this decade and are predicted to change in the next five years; that the direction of that change is toward higher priority ratings for Institutional Planning, Institutional Management, Articulation, Institutional Research, and Professional Development. Instructional Delivery Systems and Collective Bargaining showed the lowest change rate. These findings support the assumption that changes have occurred and will continue to occur in the action priorities for the leader/managers of publicly supported community junior colleges. The highest priority areas for presidents were Institutional Planning and Instructional Delivery Systems followed closely by Institutional Management. The high ratings for the planning and management combination (with only a .1 difference in mean ratings) suggest that presidents have a high concern for leadership effectiveness and a desire to prepare for the future through planning. Key concepts in these goals were policies, resource allocation, educational impact of the college, community and personnel involvement in decision making, and communications. In implementing any one of the activities, several levels of the college personnel hierarchy would be affected. Several of the activities implied or stated cooperation with other levels of the educational system such as regional, state, and national. Effective management of these kinds of issues and levels of operation would necessitate short term and long term planning with a variety of individuals and groups.

Instructional Delivery Systems was rated highest priority and

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was consistently rated high by the presidents. Apparently, of all the goal areas reported, the teaching and learning processes have been and will remain high priority activities for community junior college presidents. The clustering of these three areas suggests that presidents were interested in those activities which related to administrative effectiveness and instructional guality.

The focus in Collective Bargaining was upon the potential for utilizing this process as a means of involving staff in decision making. The presidents consistently rated the two items in this area as a low priority or as an inappropriate activity (5). These results are not surprising in view of the current controversy about the necessity, propriety, and value of negotiation and bargaining in an academic setting. The low ratings suggest that presidents may perceive negotiation and bargaining as an administrative chore rather than as a potential opportunity for achieving institutional goals.

The results of the two-way analyses of variance with repeated measures for location, size, and presence of an office of Institutional Research and differences in priority ratings presented some interesting findings. Only Articulation was found to show significance in terms of location. This finding can be accounted for in several ways. Perhaps foremost in this goal, as in no other, was the requirement for transportation and active communication with other institutions. The results indicate that presidents differ in their emphasis on Articulation as a function of where the college is located, the nature of the activity statement, and when the activity was rated.

The significant interactions between time and location indicate

that mean ratings for the goal areas change as a function of time and location. The particular sources of the variations were not accounted for in this analysis.

The analyses of variance with Size and Time strongly indicated that time was the critical factor in producing rating variations among the presidents. The lack of significant interactions suggested that changes in ratings can be predicted by the time factor without knowing the size of the institution. In essence, size does not serve as a dependable determinant of institutional priorities as rated by the presidents.

The results of the analyses with IR as a main factor were similar to those of size with no significant differences for IR or in the Interaction.

The analyses for the total instrument indicated that of the factors used to analyze the community junior college goals, time was by far the most important. Size, location, and offices of institutional research accounted for almost none of the differences in priority ratings.

Institutional research, development, and evaluation

Research, development, and evaluation activity statements were separated out of the total instrument for analysis. An important finding from the initial analysis of mean priority ratings was that no activity statement achieved a combined low priority of 3.0 or higher. Institutional development activities received highest mean ratings for the combined 1974-75 and 1975-80 time periods and

evaluation was rated lowest. The institutional research items showed the highest frequency of need for assistance with evaluation rated lowest in NA. These findings suggest that: the presidents regard institutional development activities as high priority for action with mixed reactions to the need for assistance; the presidents apparently need more assistance in working on institutional research activities of all kinds; and they rate evaluation activities lowest and perceive less need for assistance in terms of the items on the instrument. In each of these three areas there were changes in priority ratings for the items over time. The direction of the changes was toward a higher priority rating for the future (1975-80).

Of the 25 presidents, 16 rated activity statements 19(R) and 1(D) as areas in which assistance was needed. "Developing forecasting and analytical studies to facilitate long-range planning"; and "Cooperate in regional planning for high-cost, low enrollment programs"; were the items identified as areas of need by the largest number of presidents. Developing forecasting studies was rated 1.6 and cooperative programs was rated 2.1. The achievement of these types of activities would require research and development resources. The number of presidents rating these as need areas lends support to the hypothesis that a need exists for research and development in community junior colleges.

In the research area, a total of 12 of the responding presidents checked items 9 and 24 as areas of need. One half of the respondents reported the need for assistance in initiating community educational needs assessment studies and in conducting periodic local employment

needs studies. These items received high mean priority ratings of 1.8 and 2.0 respectively. These results suggest that there is high interest among the presidents to identify community needs in order to provide necessary training services. In addition, there appears to be a high priority in preparing students for work which would require presidents to have knowledge of local employment needs for use in planning and developing training programs. These findings are also supported in the literature which describes one of the purposes of the community junior college as meeting local needs for vocational training and preparation (Berghaus, 1974; and Knoell and McIntvre, 1974). Two activities, 6 and 30, with means of 2.6 and 2.5. respectively, were reported as areas of need by 11 presidents. These two institutional activities related to initiating the sharing of research findings among institutions and establishing programs for students with special needs. These highly rated activities are also supported by the literature which indicates that an important role of the community junior college is one which reaffirms the concept of education for all the people and develops programs to meet the needs of the community to be served (Gross, 1975 and Millard, 1973). The fact that 11 of the responding presidents checked these activities as need areas suggests that they are aware of these needs but are unable to act on their awareness given their current level of resources.

An important issue in higher education in general and in community junior colleges in particular is the concern for policy development and governance structures. Ten of the 25 presidents 70

reported item 44, "Use research and evaluative data in program development and policy making", as an area in which presidents needed help. The item received a priority rating of 1.9 which suggests it is important to the total group of presidents and sufficiently valued by ten of them to desire some assistance in achieving the objective. All of these items were taken from the research and development section. The activity in which there was least need for assistance was item 41 which addressed the image of the institution as an area of concern. Only one president checked item 41 as an area in which he needed help to achieve the objective.

The institutional evaluation statements received the lowest number of NA ratings. Item 15, "Evaluate the effect of institutional strategies and procedures", was rated 1.9 and was checked as an area in which assistance was needed by nine (9) presidents. The second high priority statement, item 22, dealt with the initiation of a program budget and evaluation system and was rated 2.0 with eight (8) presidents indicating a need for assistance. The lowest rated areas were, assessing the impact of collective bargaining (item 14) and initiating new grading and evaluation systems (item 38). Each received a 2.6 mean rating by the presidents. These findings suggest that community junior college presidents, as many others, feel less need for systematic evaluation in the institution when compared with other college activities. Secondly, as suggested in the literature on accountability, the confusion among the experts in this area may lead the presidents to distrust its value for institutional leadership and decision making. Finally, the lower ratings in this area

may suggest that the majority of the presidents are managing relatively new institutions (14 were established after 1960) and for this reason the extensive and systematic evaluation indicated in these items was too early to be of much value to them. Rather, the need to know (research) and the need to act (development) have a much higher priority for the provision of leadership and effective management to their institutions.

There was one major contradiction in the findings in that presidents tended to rate the activities at high to moderate high in priority, 1.4 to 2.6, and to indicate a high need for assistance in most areas while demonstrating a relatively low priority for making an institutional budgetary commitment to research, development, and evaluation. Only seven presidents rated the item on budgetary allocation (41) as a NA area. This contradiction between priorities, need, and apparent lack of willingness to commit funds to meet needs is a constant problem in education from which community college presidents in Michigan have not escaped.

The need for assistance

The results of the ratings by the presidents in terms of research, development, and evaluation appeared to be supported by the current literature on community junior college issues and goals. There appears to be agreement among the presidents about the levels of priorities for certain institutional activities and about the need for assistance to achieve them. Only one president returned a survey with no indication of the need for assistance for any of the 47 items.

There is also an apparent need to achieve these goals without a major investment of institutional dollars.

The three areas, research, development, and evaluation, were collapsed into one Research (R) variable for purposes of comparing the mean priority ratings between Research and Nonresearch activities. Nonresearch items were those which may not necessarily require the systematic collection, analysis, interpretation, and evaluation of data but could rely upon experience, tradition, and other less rigorous problem solving procedures. There were differences in the means for these two types of items which, when analyzed by F and t tests, showed statistical significance at the .05 level. These findings indicate that presidents perceive a difference between the two variables and persistently and consistently rated NR activities higher than R activities over the decade studied. These ratings also tended to support an untested assumption among researchers that presidents neither value research activities nor utilize the resources of research and evaluation in achieving institutional goals. The F values showed significant differences in ratings within research and NR and within time periods with no significant interaction. This result implies that for any time period presidents will vary in their priorities for action and that this variation is not statistically dependent upon the type of activities being rated. At the same time, it is possible to state that the variation in mean ratings for research vs nonresearch appears to be statistically independent of any given time period. In essence, presidents will rate action priorities differently at any time and by any category. This finding, though

not surprising, has important implications for the development of an interinstitutional resource for research, development, and evaluation.

Planning, management, and accountability are areas which, theoretically, are based upon the systematic collection and management of data and information. The community junior college president functions as an educational leader and an organizational manager. As a manager of organizational resources, he must plan, direct, and/ or participate in the control and evaluation of resources. The leader/manager must be able to utilize and request information from a variety of sources including institutional research. The current pressures for accountability and evaluation reported in the literature suggest that the community junior college president should be placing some emphasis upon activities which will ensure a creditable accounting for educational programs to the community being served.

To test the validity of this assumption, a series of \underline{t} tests comparing Institutional Planning, Institutional Management, Institutional Research, and Accountability/Evaluation means were calculated over the three time periods.

The results of the analyses showed that presidents rated A/E and IR similarly while rating IP and IM significantly different from IR. The means for A/E and IM were not significantly different for the present and future which indicates that the presidents probably perceive accountability and evaluation to be more closely related to management functions in the future than at present. The changes in ratings over time, as indicated by the \underline{t} values, may be attributed to response sets or to perceptions by presidents of the need to raise

the level of priorities for A/E and IR in the future.

The discussion of the results of this study have been presented in terms of their support for or differences from the literature and research related to the current goals, objectives, and issues among community junior college leaders. The analyses of the data have provided some insights into the current status of the existence of the need for assistance in the areas of research, development, and evaluation in Michigan community junior colleges. The next section will present the conclusions which were drawn from this study.

Conclusions

The conclusions are presented in terms of the survey procedure, the content of the items, the results of the data analyses, and the questions raised in the investigation.

The survey procedures used in this study were adequate and resulted in an 86 percent usable return rate. The 93 percent response rate was not found in other similar studies of community junior college presidents. The support provided by a major university and two community junior college presidents helped to ensure a high response rate.

The institutional goals, skill, and capability instrument used in this survey of public community junior college presidents in Michigan covered a 10 year time period from 1970 to 1980. An implicit hypothesis in this study was that rapid and drastic changes have occurred in the community junior colleges in Michigan and that they will continue throughout the decade. The results of this study

clearly support this educated guess. Seventy-five percent of the goal areas measured in the survey showed significant changes and gains in priority ratings during the three points in time measured. The activity statements which comprised the eight (8) goal areas were relevant to the community junior college presidents studied. Planning, management, instruction, articulation, professional development, accountability/evaluation and collective bargaining are valid issues for the presidents but vary in their level of priorities throughout the decade.

The fact that planning, management, and instruction were the top priorities for action as rated by the presidents led to the conclusion that the leader/manager role is an appropriate concept for community junior college presidents.

The consistently high priority rating for instructional activities confirms the reports in the literature that the community college has, as a primary goal, the provision of effective instruction to the community it serves. The equally consistent low priority rating for collective bargaining suggests that presidents do not perceive this conflict situation as an opportunity to achieve institutional goals. Rather, the rating suggests that presidents regard negotiation and bargaining as an activity which should take less institutional energy than other areas. Institutional research and accountability are also low priority areas for Michigan community junior college presidents.

The presidents rated nonresearch items at a higher priority level than research items. One can conclude that there is a greater

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perceived value in nonresearch activities than in research activities. This finding is also consistent with the literature which suggests that the need for systematic data collection and management is present but has a lower priority for presidential action.

The need for assistance in achieving institutional goals and objectives is neither a function of location, size, nor institutional research resources. The only goal effected by either of these gross descriptors was Articulation and the variation in this goal was only in terms of location. Presidents of institutions in all of these categories reported a need for assistance in performing and achieving the activity statements related to research, development, and evaluation.

The major conclusion here is that presidents perceive their institutions to be in need of help in research, development, and evaluation, but do not collectively have a high priority to commit monies to these activities.

In response to the questions raised by this research project, the results indicate the statements following can be supported by objective data.

- Presidents of public community junior colleges in Michigan vary in their ratings of 47 institutional activities for the decade of the seventies.
- The priority ratings for all the goal areas and for research and nonresearch items do not differentiate between institutions as a function of location, size, and existence of an Institutional Research office.
- There is currently a need for a resource which can provide research, development, and evaluation services to public community junior colleges in Michigan.

- 4. There is no apparent impact upon the existence of a need for assistance in research, development, and evaluation as a function of size, location, and presence of an Institutional Research office.
- There is insufficient data to support a complete process model for a regional interinstitutional resource for research, development, and evaluation.

Recommendations

The recommendations for next steps are presented in terms of the instrument, the findings, and suggested processes to meet the needs identified in this study.

The recommendations for further study with the institutional

activity, skill, and capability survey are:

- To conduct an item analysis on the instrument to increase the reliability of the goal areas and the statements of which they are comprised;
- To conduct further follow-up analyses of those statistics which showed significant interactions;
- To survey other populations relevant to the community junior college such as other administrators, faculty, students, boards of trustees, non-teaching staff, and community representatives; and,
- To compare results of ratings by presidents with other groups and to expand the populations beyond Michigan.

The recommendations for further study of the contents of the instrument and the findings are to continue the exploration of this need for a research (R) resource in terms of:

- The levels of skills and capabilities currently available and utilized by presidents in achieving institutional goals;
- The specific sources of variation and the magnitude of the differences between research and nonresearch activity statements; and,

3. Leadership styles and emphasis on leadership vs managerial functions.

The recommendations for developing a resource to meet the needs for assistance identified in this study will be presented in model form. The model will describe the content of the need areas and some important issues in resource development which were indicated by the data.

The priority areas

In developing a resource to meet perceived needs of Michigan community junior college presidents, it is imperative to identify, and, to the extent possible, specify the nature of the need for assistance in terms of each institution. The data provided by this study indicate that the broad areas in which external resources can be helpful are:

- Forecasting and analytical studies which can be used in long range planning;
- Institutional development through cooperative arrangements for supporting high-cost, low enrollment programs;
- Educational and employment needs assessment studies of the communities being served by the colleges;
- Communication of research findings relevant to community junior college leaders within the state;
- Developing special programs for students with special needs;
- 6. Utilizing research and evaluation findings to develop programs and for policy making; and
- 7. Impact studies or outcome measures of institutional strategies, procedures, and resource allocation.

The remaining areas of need for assistance identified by presidents involve budgeting for resource needs, professional and program development, and evaluation for students, staff, and the institution.

Issues in model development

The data also indicate that the presidents rated the establishment of an institutional image which sets the community junior college apart from other postsecondary institutions as a high priority activity (item 40). There was an equally high rating for identifying the image of the community junior college (item 41). These high priority ratings suggest that the development of an interinstitutional resource for research, development, and evaluation should be responsive to the value placed on institutional image by the presidents. Thus, the following steps are recommended to increase the potential for utilization of the resource:

- Identify specific research, development, and/or evaluation needs and establish priorities for action within each institution; and,
- Using the new list of activities and institutional priorities, categorize the potential projects by location and content areas, and involve community junior college personnel in the process to increase their visibility.

An operational issue in developing a resource model is the sharing of research findings which means sharing institutional information. This item received a mean rating of 2.6 on the survey instrument and this relatively low rating suggests certain precautions should be taken in developing the structure and processes of an interinstitutional resource. Many decisions must be made in establishing a research resource to serve several institutions. The entire operation must be developed with sensitivity to the needs of each institution as well as to the potential power of the information which the resource organization will obtain. Evaluation represents a threat for many persons and institutions and the data from this study support this contention. Evaluation items received the lowest priority ratings. This potential threat is significant when data are to be collected and shared among institutions and the possibility of comparisons may occur. The sources and nature of the control of the resource should be made clear and agreed upon by community junior college presidents.

There is one indication in the data that an interinstitutional resource might be utilized by community junior college presidents. That suggestion is implied in the relative low rating (2.5) for establishing an office for institutional research coupled with the low rating for willingness to commit funds but a high need for the resources. If the needed resources could be obtained at relatively low cost, which is feasible when limited monies are pooled, the development of a regional resource might well succeed. This proposition is not clearly stated but can be implied from the data. Thus, a final recommendation is to continue to explore the potential for developing an interinstitutional resource for research, development, and evaluation among Michigan community junior colleges.

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APPENDIX A

The Correspondence

WESTERN MICHIGAN UNIVERSITY

COLLEGE OF EDUCATION

KALAMAZOO, MICHIGAN 49008

January 3, 1975

Dr. Richard F. Whitmore, President Kellogg Community College 450 North Avenue Battle Creek, MI 49017

Dear Dr. Whitmore:

For several years, we at Western Michigan University have been interested in developing viable means for increasing interinstitutional communication and articulation with community colleges across the state. To enhance our efforts in this area, we have funded a project on Articulation and Community Junior Colleges with the express purpose of examining the issues and problems involved in articulation between community junior colleges and Western Michigan University.

Recognizing the great diversity among our several institutional needs, activities, and priorities, we have planned for a variety of activities for the year. Each is designed to enhance our understanding of community colleges and to discover effective ways of strengthening articulation. One of several facets of this project is a study of community college goals and resources for institutional research, development, and evaluation. Through this study and other activities we expect to gain more information which will serve as a basis for planning subsequent actions which will enhance articulation between us.

The survey instrument was developed and tested this fall with the consultation and assistance of Dr. Dale B. Lake and Dr. Richard F. Whitmore. We feel that their experience in and concern for the continued growth and development of Michigan community colleges has contributed greatly to the validity and practical utility of the instrument and the research project of which it is a part.

You will receive the survey instrument in the mail within a few days as a part of this study. We request that you complete the instrument rather than someone else. We are particularly interested in and concerned about your perspective as the chief administrative officer of your college. Your cooperation in this effort is greatly appreciated.

Cordially you Sandberg

COLLEGE OF EDUCATION

March 4, 1975

Dr. William J. Yankee, President Northwestern Michigan College 1701 E. Front Street Traverse City, Michigan 49684

Dear Dr. Yankee:

Enclosed is a second copy of the survey instrument which Dr. Dale Lake discussed with you last week. We do appreciate your interest and would like to thank you for your time and consideration in this effort. A stamped self-addressed envelope is enclosed for your convenience.

Sincerely yours,

 \mathbf{cmc}

Dorothy Buchan Project Director

cc: Dr. Dale Lake, President Kalamazoo Valley Community College

Enc.

COLLEGE OF EDUCATION

90

March 4, 1975

Dr. Thomas Lloyd, President Highland Park College Glendale & Third Avenue Highland Park, Michigan 48203

Dear Dr. Lloyd:

Enclosed is a second copy of the survey instrument which Dr. Dale Lake discussed with you last week. We do appreciate your interest and would like to thank you for your time and consideration in this effort. A stamped self-addressed envelope is enclosed for your convenience.

Sincerely yours,

Dorothy Buchan Project Director

cmc

cc: Dr. Dale Lake, President Kalamazoo Valley Community College

Enc.

APPENDIX B

The Instrument

WESTERN MICHIGAN UNIVERSITY

COLLEGE OF EDUCATION

January 7, 1975

Dear Mr. President:

The survey in which you are participating is a part of a Western Mickigen University community-junior college project sponsored by the College of Education. The purposes of the project are 1) to increase our knowledge about Michigan community-junior colleges and 2) to facilitate interinstitutional cooperation.

The purpose of this study is to gather information about community -junior college activities, priorities and institutional capabilities. The findings should contribute to a clarification of the status and needs of Michigan colleges as well as provide some indicators about the need for interinstitutional cooperation.

Your participation in this project is greatly appreciated. Please complete the form and return it in the enclosed envelope by January 21, 1975

Instructions The instrument will require approximately 20 minutes to complete. Your responses will remain anonymous.

The instrument is intended to collect information in two areas.

- Institutional Activities with your level of a priority rating for each activity for three time priorids. Each of the 47 activities should be given a ratine of from (1) Very high priority to (5) Not appropriate to this institution. Please sirele the number which represents your priority rating of each activity for each time period - Past(1970-74). Current(1974-75) and Future(1975-80).
- <u>Institutional Skill and Data Canabilities</u> that may be needed for each activity to be implemented at your institution. Each activity should be rated Can do alone, Can only do with outside resources or Cannot do. Please check () the box under the statement which represents your <u>ourrent</u> institutional skill and capability to implement each activity.

A summary of the results of the study will be sent to you. Thank you for your time and cooperation.

Sincerely yours,

Dorothy J. Buchan and Margaret J. Neill Project Director Project Director

Timing and Level of Activity

Past (1970-74) Current (1974-75) Future (1975-80)

	Institutional Activities	" Yery high priority N Bigh priority u Low priority P Yery low priority W Not sppropriate	"Very high priority Wilch priority use priority Very low priority Whot sproprists	w Tary high priority wigh priority wion priority * Very low priority when appropriate	and Can dó	stitutions1 : Dats Capabi Can only do with outside resources	lities
1.	Cooperate in regional planning for high-cost, low enrollment programe.	12345	12345	1 2 3 4 5	۵		
2.	Facilitate the flow of students from high school through post- secondary institutions regionally and statewide.	12345	12345	12345	۵		
3.	Install a management information system.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			
4.	Provide for faculty and admin- istrative contacts with regional colleges and universities.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	۵		
5.	Conduct follow-up studies on graduates, transfers and other students.	12345	1 2 3 4 5	1 2 3 4 5			
6.	Initiate interinstitutional sharing of research findings.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			
7.	Involve all segments of the institution in the decision- making process.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			
8.	Use decentralized administra- tive decision-making processes.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5		\Box	
9.	Initiate community educational needs assessment studies.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			D,
10.	Keep the board informed of current issues.	12345	1 2 3 4 5	1 2 3 4 5			
11.	Participate in statewide plan- ning smong postsecondary institutions.	12345	1 2 3 4 5	1 2 3 4 5		D	
12.	Allocate necessary funds for non-professional staff development.	1 2 3 4 5	12345	1 2 3 4 5	۵		۵
13.	Participate with regional organizations in staff pro- fessional development programs.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5		۵	۵
14.	Assess and evaluate the rela- tionship between collective bargaining and educational outcomes.	12345	12345	1 2 3 4 5	٥	Ø	۵
15.	Evaluate the effect of institu- tions1 strategies and pro- cedures.	1 2 3 4 5	12345	12345			۵
16.	Use faculty and students input for planning.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			Δ
	Develop guidelines and criteria for establishing institutional priorities.	12345	12345	12345	۵	۵	۵
	Establish other locations within the community for learning experiences.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	۵	۵	۵
	Develop forecasting and analytical studies to facili- tate long-range planning.	1 2 3 4 5	1 2 3 4 5	12345		۵	

20.	Establish and muintain organi- zational structures for short- term and long-range planning.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5		۵	۵
21.	Provide opportunities to earn credit by a variety of techniques.	12345	1 2 3 4 5	12345		۵	
	Initiate a program budget and evaluation system.	1 2 3 4 5	12345	1 2 3 4 5		\square	
23.	Use cost as a criterion in systematic program avaluation.	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			
24.	Conduct periodic local employ- ment needs studies.	1 2 3 4 5	12345	12345	\square	\square	\square
	Develop and use systematic evaluation of all programs and activities.	12345	12345	1 2 3 4 5	۵	۵	
26.	Use the collective bargaining process to increase non-teaching staff involvement in institu- tional operations.	12345	12345	12345		٥	
27.	Communicate systematically the college goals, activities and achievements to the community.	12345	12345	12345		□	
28.	Create an office for research development and evaluation.	1 2 3 4 5	12345	1 2 3 4 5			
29.	Organize all programs so that they reflect institutional goals and objectives.	12345	12345	12345		Ø	D
30.	Establish and maintain programs for educationally and physically handicapped, gifted, and other groups with special needs.	12345	12345	12345			
31.	Develop educational programs in cooperation with industry and labor unions.	12345	12345	12345		₫	
32.	Use competency-based evaluation for student achievement and graduation.	, 12345	12345	12345	Ø	₫	٥
33.	Provide cultural activities for the community,	1 2 3 4 5	1 2 3 4 5	12345	\square		□
34.	Participate in efforts which will allow students to earn credits from several institutions toward a single program of study.	12345	12345	1 2 3 4 5			۵
35.	Providing released time and funds for curricular and institutional innovations.	1 2 3 4 5	12345	12345		D	
36.	Develop a system which insuras free flow of communication across all segments of the college.	1 2 3 4 5	1 2 3 4 5	12345		۵	
37.	Develop systematic procedures for measuring professional growth.	1 2 3 4 5	1 2 3 4 5	12345		۵	Δ
38.	Initiate new systems for grading and evaluation.	1 2 3 4 5	12345	12345	\square		
39.	Establish lisison with institu- tional and community organiza- tions for local problem solving.	12345	12345	12345		۵	
40.	Establish your community junior college as a unique postsecondary institution.	1 2 3 4 5	1 2 3 4 5	12345		□	Δ
41.	Identify the image of the institution.	1 2 3 4 5	12345	12345		D	σ
42.	Examine personnel problems and issues in serving multiple student groups.	12345	12345	12345			۵

 Provide opportunities for avocational learning experiences. 	. 12345	1 2 3 4 5	12345	۵		D
 Use research and evaluative data in program development and policy making. 	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5			۵
 Provide basic education skills to propare students for college. 	1 2 3 4 5	1 2 3 4 5	12345		Δ	۵
 Examine the impact of resource allocation on institutional growth. 	12345	1 2 3 4 5	1 2 3 4 5		۵	
 Allocate five (5%) percent of institutional budget to research, development and evaluation activities. 	12345	12345	12345	□	۵	₫

Are you willing to share information from your institutional research, development and evaluation projects? 💭 Yes 💭 No

APPENDIX C

Michigan Community Junior Colleges

Dr. Herbert N. Stoutenburg, President Alpena Community College 666 Johnson Street Alpena, MI 49707

Mr. Edwin E. Wuehle, President Bay De Noc Community College 901 South Twelfth Street Escanaba, MI 48929

Dr. Charles N. Pappas, President C. S. Mott Community College 1401 East Court Street Flint, MI 48503

Mr. Donald J. Carlyon, President Delta College University Center, MI 48710

Dr. Justus D. Sundermann, President Glen Oaks Community College Centreville, MI 49032

Dr. James D. Perry, President Gogebic Community College Ironwood, MI 49938

Mr. Francis J. McCarthy, Dean Grand Rapids Junior College 143 Bostwick Avenue, N.E. Grand Rapids, MI 49502

Dr. Stuart M. Bundy, President Henry Ford Community College 5101 Evergreen Road Dearborn, MI 48128

Mr. Thomas Lloyd, President Highland Park College Glendale & Third Avenues Highland Park, MI 48203

Mr. Harold V. Sheffer, President Jackson Community College 2111 Emmons Road Jackson, MI 49201

Dr. Dale B. Lake, President Kalamazoo Valley Community College 6767 West 'O' Avenue Kalamazoo, MI 49009 Dr. Richard F. Whitmore, President Kellogg Community College 450 North Avenue Battle Creek, MI 49017

Mr. Robert A. Stenger, President Kirtland Community College Roscommon, MI 48653

Dr. James L. Lehman, President Lake Michigan College 2755 Napier Avenue Benton Harbor, MI 49022

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Dr. David H. Ponitz, President Washtenaw Community College 4800 E. Huron River Drive Ann Arbor, MI 48106

Dr. Reginald Wilson, President Wayne County Community College 4612 Woodward Avenue Detroit, MI 48201

Dr. John M. Eaton, President West Shore Community College Box 277 Scottville, MI 49454

APPENDIX D

Research (R) Priority Ratings Past (1970-74), Current (1974-75), and Future (1975-80)

Activity 1970-74		1974-75		1975-80			
Number	x	sd	x	sd	x	sd	X
1	2.8	1.1	2.4	1.0	1.9	1.0	2.4
4	2.4	1.2	2.2	1.1	2.1	1.2	2.2
6	3.3	1.0	2.8	1.0	2.4	1.0	2.9
9	2.5	1.1	2.0	0.8	1.6	0.7	2.1
14	2.9	1.3	2.8	1.3	2.5	1.3	2.7
15	2.5	1.0	2.1	0.7	1.7	0.7	2.1
19	2.4	0.9	1.8	06	1.5	0.6	1.9
22	2.3	1.0	2.1	0.8	1.9	1.0	2.1
24	2.5	1.1	2.1	1.0	1.9	0.9	2.2
28	3.0	1.2	2.7	1.1	2.2	1.3	2.7
30	2.8	1.1	2.4	1.1	2.0	1.1	2.4
31	1.8	0.9	1.6	0.9	1.6	0.9	1.6
32	2.7	0.9	2.4	0.8	2.1	0.7	2.4
35	2.7	1.1	2.5	1.0	2.3	1.1	2.5
37	2.6	1.0	2.4	0.9	2.2	1.0	2.4
38	2.8	1.0	2.7	0.8	2.5	1.0	2.7
40	1.5	0.6	1.5	0.6	1.4	0.6	1.5
41	1.6	0.8	1.5	0.6	1.4	0.6	1.5
42	2.7	1.1	2.4	1.1	2.4	1.2	2.5
44	2.3	0.8	2.0	0.6	1.8	0.6	2.0
46	2.2	0.9	1.8	0.6	1.8	0.7	1.9
47	3.2	1.3	3.0	1.3	2.7	1.4	3.0

APPENDIX E

Nonresearch (NR) Priority Ratings Past (1970-74), Current (1974-75), and Future (1975-80)

Activity		0-74	1974-75			5-80	
Number	x	sd	x	sd	x	sd	x
2	1.9	0.9	1.8	0.9	1.7	0.9	1.8
3	3.0	1.2	2.4	1.2	2.0	1.1	2.5
5	2.7	1.1	2.0	0.8	1.7	0.6	2.1
7	2.3	1.2	2.2	1.1	2.1	1.1	2.2
8	2.6	1.2	2.3	1.1	2.2	1.1	2.4
10	1.4	0.7	1.2	0.4	1.2	0.4	1.3
11	2.2	1.0	2.0	0.8	2.0	0.7	2.1
12	3.3	0.7	2.9	0.8	2.4	0.9	2.9
13	3.0	0.9	2.7	0.8	2.4	0.8	2.7
16	2.2	0.9	1.8	0.6	1.8	0.6	1.9
17	2.3	1.1	1.7	0.7	1.4	0.6	1.8
18	2.2	0.9	1.6	0.5	1.4	0.5	1.7
20	2.5	0.9	2.1	0.9	1.8	1.0	2.1
21	2.5	0.9	1.8	0.7	1.4	0.6	1.9
23	2.4	1.0	2.0	0.8	1.8	0.9	2.1
25	2.5	0.9	2.0	0.7	1.6	0.7	2.0
26	3.8	1.2	4.0	1.1	4.0	1.1	3.9
27	1.8	0.8	1.6	0.7	1.4	0.6	1.6
29	2.0	0.9	1.8	0.8	1.5	0.5	1.8
33	2.1	1.1	2.0	1.0	1.7	0.8	1.9
34	2.7	1.1	2.3	0.9	2.0	0.8	2.3
36	1.8	0.7	1.7	0.7	1.7	0.7	1.7
39	2.5	0.9	2.3	0.9	2.0	1.0	2.3
43	2.1	0.8	1.9	0.9	1.9	0.9	2.0
45	2.1	1.0	2.0	1.0	1.8	1.0	2.0