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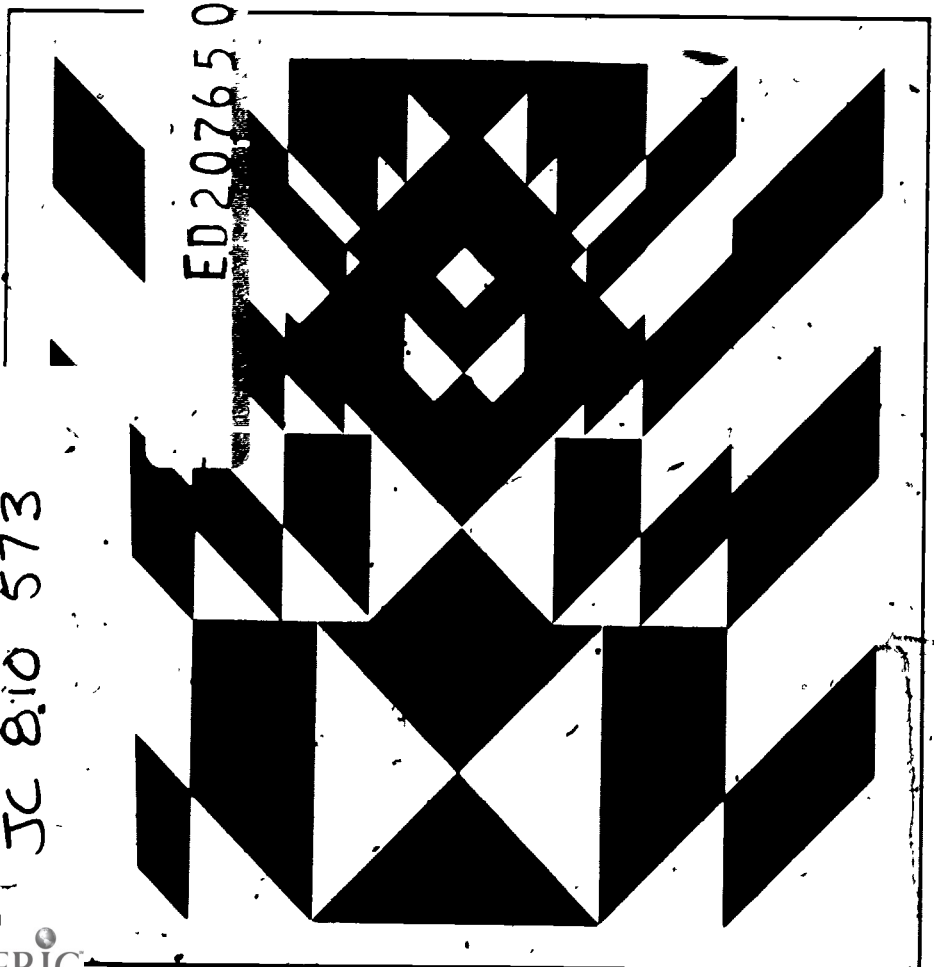
ABSTRACT

This collection of essays focuses on the importance of accurate and timely information for effective decision making. First, Ivan Lach considers the proliferation of statewide planning and policy formation and discusses problems with and ways to improve statewide research. Next, Cheryl Opacinch focuses on decision making for federal postsecondary policy, discussing strategies for influencing the policy-making process by improving the use of community college research. After tracing trends in two-year college research, William Ramsey presents plans for action to involve research as a tool in the development of a master plan. Joseph Rossmeier places his discussion of information resource management in the context of the growing importance of computers, the role of information as a primary institutional asset, and a hierarchy of information needs. M. Kathryne Baratta examines the use of student data in planning and for better management. The utilization of student information systems is further discussed by Toni Hall and Jim Reed, who recommend a planned approach to student follow-up, strategies for organizing research and promoting data utilization, and ways that decision makers should use student information. Mike Stevenson and Dan Walleri present nine guidelines for financial decision making in a period of retrenchment. Mantha Mehallis deals with the improvement of decision making through institutional research. Finally, Donna Dzierlenga cites relevant ERIC documents. (AYC)

NEW DIRECTIONS FOR COMMUNITY COLLEGES

Improving Decision Making

Mantha Mehallis, *Editor*



Improving Decision Making

Martha Mehallis, *Editor*

NEW DIRECTIONS FOR COMMUNITY COLLEGES
Sponsored by the ERIC Clearinghouse for Junior Colleges
ARTHUR M. COHEN, *Editor-in-Chief*
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Improving Decision Making
Volume IX, Number 3, September 1981
Mantha Mehallis, *Editor*

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Arthur M. Cohen, *Editor-in-Chief*; Florence B. Brawer, *Associate Editor*

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Editorial correspondence should be sent to the Editor-in-Chief, Arthur M. Cohen, at the ERIC Clearinghouse for Junior Colleges, University of California, Los Angeles, California 90024.

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Contents

Editor's Notes

Effective decision making is dependent upon the utilization of accurate and timely information. Such information is best obtained from an ongoing, systematic institutional research effort. In order for that effort to be meaningful in the community college, it must be closely aligned with the president and the executive administration. Focus upon management, planning, and evaluation will provide the information necessary for administrative decision making to develop and monitor policies and procedures.

The first two chapters of this sourcebook deal with policy formulation. The first, by Ivan Lach, demonstrates how statewide planning and policy formulation have proliferated in scope and significance. However, statewide research has failed to support the level of decision making that has been fostered. Good statewide research about community colleges cannot be obtained overnight, but such research can and should be used to advocate the community college role in postsecondary education.

The second chapter, by Cheryl Opacinch, focuses on decision making for federal postsecondary policy. Policy-making powers are designated by those in positions to influence policy. As a senior policy analyst at the federal level, she discusses strategies for influencing the policy-making process by means of improving the utilization of community college research.

William Ramsey's chapter presents a plan for action and involvement of research as a tool in the developmental, decision-making stages of producing a master plan. He traces the trends in

I am indebted to Arthur M. Cohen, director of the ERIC Clearinghouse for Junior Colleges at the University of California at Los Angeles, for the assistance he has rendered to the National Council for Research and Planning. My most heartfelt thanks go to Bonnie Sanchez, for her encouragement, and to Gayle Bycock, also of ERIC, who helped to initiate this sourcebook and bring its publication to fruition. The entire Clearinghouse staff has been most encouraging and helpful. Last—but definitely not least—I thank the members of the National Council for Research and Planning who served as authors for this volume. We are all truly committed to the improvement of decision making through the utilization of institutional research in the community college and hope that this sourcebook will bring that realization closer.

research at two-year colleges and raises questions to be answered if the colleges are to conduct useful research leading to planning The master plan contains information about where the institution is, where it is going, and how to get there with a continuity of regularly scheduled research efforts

Information resource management is a challenge that Joseph Rossmeier confronts in his chapter He bases his remarks on three major assumptions 1 The computer is destined to become one of the most important societal and technological advancements, 2 information is a primary institutional asset and warrants the same recognition and status as human, physical, and fiscal resources, and 3 colleges have a basic hierarchy of information needs closely aligned to their organizational management levels With a guiding management philosophy, a planning process for applying computer technology to management information and a computing services master plan were developed and implemented locally

Student data can be used to aid academic planning in the community college M Kathryne Baratta gives examples of student data that can be used for planning purposes The data can contribute to better management by providing information that facilitates choices among planning alternatives

The utilization of student information systems is further described by Toni Hall and Jim Reed They call for the coordination of information with the decisions to be made Participation by users in the design and execution of student follow-up studies will result in greater utilization of results to improve educational planning and decision making Hall and Reed describe survey implementation, utilization strategy, and the monitoring of the uses

Research of the literature on community college resource allocation/budgeting revealed nine guidelines, which are presented by Mike Stevenson and Dan Walleri They deal with financial decision making in a period of retrenchment They call for the use of data as an aggressive communication tool to confront, not react to, the financial environment

Martha Mehallis deals with the improvement of decision making through institutional research The history of institutional research is traced with projections concerning its future in the community college The focus is on management, planning, and evaluation for administrative decision making, with a close alignment at the policy-making level

The final chapter, by Donna Dzierlenga, presents reference sources regarding the role of institutional research in the planning and management process.

Mantha V. Mehallis
Editor

Mantha V. Mehallis is the immediate past president of the National Council for Research and Planning and director of Institutional Research at Broward Community College in Ft. Lauderdale, Florida.

Statewide planning and policy formulation have greatly increased in scope and significance, but statewide research to support decision making has not

Research for Policy Formation at the State Level

Ivan J. Lach

One of the significant changes that has occurred in community colleges during the past two decades is the major shift in primary fiscal support from the local to the state level. Martorana (1978) compiled data from financial statistics on higher education collected by the National Center for Educational Statistics to show that while local communities were the predominant source of operating revenue for the community colleges prior to 1960, the state has become the predominant source of fiscal support for these institutions during recent years. Nationwide surveys of practices in financing community colleges in several states, conducted by Wattenbarger and his colleagues (Wattenbarger and Starnes, 1976; Wattenbarger and Stepp, 1979), show not only that the state has become predominant in providing support for community colleges, but that in a number of states the local tax support for community colleges has disappeared. This shift is of particular importance because these institutions, as their names imply, were designed to be local community colleges. Martorana, one of the leading community college scholars, bemoans

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this departure from predominant local financing of community colleges and considers it to be a wayward drift to state and federal dominance of the community college movement (Martorana, 1978).

The trend toward increased financing of community colleges with state funds has resulted in a substantial increase in the amount of significant policy formulation regarding community colleges that takes place at the state level. State-level policy decisions deal not only with matters related to state funding but also with such critical issues as mission, education program approval and evaluation, faculty tenure and compensation, and the very existence of institutions in certain locales. Barnes and Wellman (1979) have documented the significant role that state agencies have in planning, coordinating, approving, and evaluating community college instructional programs. In Illinois, important mission questions are being considered at the state level, such as "What system of postsecondary education should have the primary mission of providing remedial education to adults?" and "What is the proper mission of the universities, the community colleges, and the public schools in providing adult basic education, adult secondary education, and continuing education?" It is clear that policy formulation on such major issues made at the state level can significantly affect each local community college.

The Need for Information and Research

State-level policy formulation required statewide information and research on the community colleges within the state. Sound information and research is a basic ingredient in the decision-making process at most state agencies, the governor's office, and the legislative bodies. Certainly, political considerations are not ignored, but educators often underestimate the everyday use of sophisticated information and research by businessmen, modern farmers, and other professionals who serve as state legislators or members of the various state coordinating boards. Specific examples of needed information and research for policy formulation at the state level involving the community colleges of Illinois and coming from the state legislative bodies in the form of mandated resolutions during 1980 include the following: 1. an equity study of community college funding to determine if the less wealthy districts were overburdened in financing their colleges, 2. a study of remediation in the higher education institutions of Illinois, and 3. a study of salary increases, by income

level, provided for faculty, administrators, other professionals, and classified staff.

There has been a dramatic growth in the demand for information about community college students, instructional programs, facilities, and personnel by the various state agencies that have a great impact on policy formulation for community colleges. Although in a few states the community colleges have attempted to respond to this increased demand for information and research through the development of statewide management information systems, statewide research studies, and statewide planning systems, in most states the community college systems have taken a reactionary approach in responding to this increased demand for information. Each information request is responded to with the best data available or by conducting a special survey of the community colleges. The information provided is often invalid and misleading. In addition, conducting surveys at various times during the year imposed a severe burden on the local institutions.

Problems with State-Level Community College Data

The present status of state-level research and information about community colleges is very inadequate. Most information obtained is based on traditional definitions and procedures developed for universities or secondary schools and is often inappropriate for community colleges. Information required by the National Center for Education Statistics in its Higher Education General Information Survey (HEGIS) and the Vocational Education Data Systems (VEDS) reports provides the major source of state data about community colleges. Yet, both the HEGIS and VEDS reports have serious definitional and procedural problems for community colleges.

The major problems with state-level data about community colleges are caused by (1) the nontraditional nature of community colleges, (2) the great diversity among community colleges, and (3) the lack of cooperative effort by local colleges and state agencies.

Nontraditional Nature of Community Colleges. The nontraditional nature of community colleges makes it difficult to accurately describe the outputs of a community college education in terms that are readily understood by state agency staff as well as by the general public. Many traditional definitions and output measures are simply inappropriate for community college functions. For example, program retention

and completion rates are common measures of program effectiveness in educational institutions, but these have little meaning when applied to basic education, job retraining, or improving vocational skills or to adults who are employed full-time and enrolled in college part-time. A "dropout" or "leaver" has meaning in the secondary schools, but the terms are not appropriate for community colleges that serve primarily adults enrolled on a part-time basis. A transfer student who changes colleges but pursues the same program is much different from a student who enrolls in a community college's data processing program after completing two years in history at a nearby university.

Classification of students by program of enrollment is another confusing area in the community colleges. Research involving reasons why students enroll at community colleges indicates that the majority of students do not enroll to pursue a program at the college (Lach, 1978; Sheldon and Hunter, 1978). These students have other objectives that often involve completing one or more courses in their desired areas. Effective methods to articulate and advocate this very important function of community colleges have not been developed to date.

Not only do community colleges serve nontraditional clientele, but they use unique procedures and instructional formats. Many community colleges do not have traditional semesters or quarter terms. Courses often start anytime during the year and are designed for variable lengths of time. Students enroll at some community colleges on almost any day of the year.

Great Diversity Among Community Colleges. Not only are community colleges different from traditional universities and secondary schools, but they are also very different from each other. A community college in a metropolitan area will likely provide much different educational services to respond to the needs of its citizens than will a community college in a rural setting. Hence, it is difficult to measure and report the processes and outcomes of these different community colleges on a comparable basis.

Lack of Cooperative Effort Between Local Colleges and State Agencies. Many community college administrators do not understand the importance of good state-level data for policy formulation. Statewide research projects, as well as statewide requests for information, often receive a very low priority and are delegated to the lowest level of the administrative structure. These surveys, data requests, and studies are often considered as unnecessary state impositions at the local college. The responses that are provided are not always examined carefully for

their impact on the local college or on the state system of community colleges. Yet, the impact of such poor information on important policy considerations at the state level could be devastating.

Many state agencies are staffed with personnel who have very limited understanding of the unique nature of the community college system. Based on their traditional university backgrounds, these staff members, although well intentioned, make some false assumptions about community college data. For these personnel to do an effective job, they need to work very closely with community college personnel to make sure they are accurately describing the situation in the community college system.

A lack of cooperative effort by community colleges and state agencies hurts not only the state agency but the community colleges as well. Through cooperative effort, the high-priority data needs about community colleges can be separated from those that are of little value. Local colleges will not only help support research efforts that are in their best interest, but will help develop the most effective methods. Unique circumstances in the community colleges can be explained to state agency staffs, and appropriate methods can be found to mutually handle these situations.

Improving State-Level Research

Due to the many problems with state-level community college data, it is clear that the traditional, reactionary approach to meeting state-level needs for information about the community colleges neither serves the needs of the various state agencies nor the interests of the local community colleges. What is needed is a proactive approach to state-level community college research needs. A few states have initiated such statewide projects, and the results are very encouraging.

The California College Student Longitudinal Study. The statewide longitudinal study of community college students being conducted in California is an excellent example of the type of statewide research that is needed. This study does not start with false assumptions about why students enroll in community colleges; nor does it use the traditional levels in classifying students. Instead, it attempts to identify the many different objectives that students have for enrolling at community colleges and the many different ways that the community colleges help these students achieve their objectives.

To conduct a valid and meaningful longitudinal study in the

community colleges is a major undertaking that requires a great deal of time and resources. The California study, which includes fifteen colleges, was initiated in 1978 and is scheduled to continue for several years. Personnel resources were contributed by the fifteen colleges, and the effort involved was very significant. The Chancellor's Office of the California Community College System is providing financial support for the analysis and reporting of the results of the study.

Tex-SIS. The Texas Student Follow-up Information System (Tex-SIS) is an example of a statewide community college student follow-up that was designed to obtain meaningful data about the outcomes of community college education. Using commonly developed definitions and procedures, this system enabled the community colleges in Texas to pool their resources and conduct follow-up studies that are much more reliable at the local level and are also useful for statewide purposes.

Tex-SIS was funded from a variety of sources, including a state general revenue appropriation, state vocational education funds, federal vocational education funds, and contributions from the local community colleges. Not only were all sources involved in the funding of Tex-SIS but all levels were also involved in developing and implementing this system.

Illinois Statewide Studies. Illinois has had a number of cooperative efforts in developing statewide information about community colleges. In 1969, the community colleges, in cooperation with the Illinois Community College Board (ICCB), developed a statewide unit cost study. This study has been conducted by every college in the state since fiscal year 1970 (FY70). The ICCB provides the technical assistance, coordination, computerized processing of the data, and analysis of the results. Each college has its part to play in the study, which includes reporting the cost information in a uniform and consistent manner and assigning certain costs according to mutually agreed upon procedures. Community college personnel are involved on the ICCB Unit Cost Study Committee, which develops the guidelines and procedures to be used in the study and makes recommendations for needed revisions from year to year. At the request of this committee, the ICCB developed a special, computerized comparative analysis report, which has the capability of comparing a college's unit cost results by the various cost categories with similar results from a selected group of community colleges.

The community colleges of Illinois realized the inadequacy of statewide data about community colleges in 1972. During that year,

the Illinois Economic and Fiscal Commission compiled a statewide report regarding the community colleges for the state legislature. This report, which used the best data available, was very negative toward the community colleges. Although most of the implications of the report were questionable, it was evident that statewide data about community colleges in Illinois were inadequate. As a result of this experience the Illinois Community College Trustees Association, the Illinois Council of Public Community College Presidents, and the Illinois Community College Board worked together to obtain a special appropriation from the state to develop a comprehensive Statewide Management Information System for the public community colleges housed at the ICCB Office.

This computerized information system was specifically designed for community colleges. It involved extensive development of definitions and procedures that were suited for community colleges. An advisory committee that was responsible for guiding the development of this system was formed and included local community college trustees, presidents, faculty, and students, legislative staff members, and staff members from several state agencies. This committee, which was chaired by a local community college trustee, insisted that this new information system be uniquely designed to accurately represent the processes and outcomes of community colleges.

The Illinois community colleges have also developed statewide follow-up studies of both transfer and occupational students. These studies are conducted by the local colleges but are coordinated by the ICCB. The ICCB also provides technical assistance, computerized processing of responses, and analysis of the results. Although these statewide studies are conducted without special funding, a great deal of resources are devoted to these studies by both the community colleges and the ICCB. In addition, a special committee of community college personnel has been formed to work with the ICCB staff in designing, implementing, analyzing, and reporting each of the studies. This local input has helped make these studies uniquely designed for community colleges.

Key Features of Successful Statewide Research

Each of these examples of successful statewide research projects had several key features, although each was conducted in a different state and for different purposes. None of these projects was created to

produce a quick response to an immediate need for data. Instead each project was carefully planned to provide information that would accurately represent what is happening in community colleges to meet future needs rather than immediate ones. The emphasis in these projects was on the involvement of community college personnel rather than on university experts, on the development of needed definitions or procedures rather than on the use of traditional higher education terms, and on a proactive approach to community college research rather than a reactive one.

The key features of successful statewide community college research projects are as follows:

1. Serious and meaningful involvement of local community college personnel.
2. A needs assessment of critical research issues in the community colleges.
3. Careful planning and coordination to ensure that the projects are conducted with minimum local burden and produce valid and reliable results.
4. State-level assistance provided to community colleges in conducting the research projects and in analyzing the results for local use.

Involving Local Community Colleges. One of the major errors made by state agencies in conducting state-level research is the omission of involvement of local community college personnel. Local community colleges need to be involved in identifying the critical research needs, prioritizing these needs, selecting the statewide research projects, designing the projects, implementing the studies, and reporting the results. Not only does the involvement of local community college personnel provide for a better spirit of cooperation and a better understanding by the local institutions of the need for a particular research project, but it also identifies pitfalls and problems. Avoiding these pitfalls and problems at the initial stages usually results in much greater validity and reliability of the results obtained. The process of involvement of local community college personnel also helps the state agency personnel keep in touch with the complex nature of the various community colleges that they are studying.

The Illinois Community College Board makes use of a special Research Advisory Council which is composed of local community college personnel to provide involvement and input on statewide research activities. The Research Advisory Council often forms special

subcommittees involving even more local community college personnel in the development and design of specific studies. This involvement has proven to be very effective and has greatly improved the validity and reliability of the statewide research studies conducted in Illinois.

Needs Assessment of Critical Research Issues. It is important for the state level research plan to be based on relevant and critical issues in community college education. No one has enough time or resources to conduct studies that are not greatly needed. The selection of a statewide research project must be based on a careful needs assessment that involves not only the state-level agencies but the local community colleges as well. This needs assessment must not only determine the critical issues but must also determine which of the issues are appropriate at the state level and which ones are appropriate only at the local levels. Many research projects are useful both for state and local needs if they are carefully designed for both purposes.

Careful Planning and Coordination. Statewide research projects require a great deal of planning and coordination to make sure that the projects are implemented on a consistent basis at each of the community colleges and to ensure that two or more statewide projects do not conflict or present a tremendous burden on the local colleges. In Illinois the Research Advisory Council assists the ICCB staff in developing a five-year plan for statewide research studies. This plan identifies the statewide research projects to be conducted each year for a five-year period. This not only helps to eliminate duplication and reduce the burden, but also helps the local institutions to prepare for future projects.

State-level Assistance. To ensure that statewide research projects will result in valid and reliable data about the community college system they must be coordinated so that they are conducted consistently from college to college. Such coordination can also be beneficial to local community colleges that do not have adequate research capabilities. In Illinois the ICCB has assisted the community colleges in state-level research projects, as well as in research projects primarily designed for local use, in the following ways:

1. A task force of community college personnel works with ICCB staff to develop the procedures and research design for the statewide research study.

2. A handbook describing the procedures to be used in each research study is developed and is disseminated to the community colleges conducting the research study.

3 Workshops are conducted to provide training on procedures and methods to be used in the study

4 Processing of the responses is provided by the computer services area of the ICCB by use of SPSS or SAS software

5 Analysis and dissemination of the results are provided by the ICCB staff, and assistance is provided to the local community colleges for analyzing and using the local data for their own use

6 A computer-generated comparative analysis is produced for several of the studies, which enables a local college to compare its results with a selected number of other community colleges

Conclusion

Although good statewide information and research is often very difficult and time consuming to obtain, many significant decisions, which are dependent on the best data available about the community colleges, are made at the state level Lack of good information can lead to decisions that might severely hurt the community colleges within the state Yet good statewide data about community colleges cannot be obtained overnight Good statewide research about community colleges can show the great impact that the community colleges are having on their many students Such research can and should be used to advocate the community college role in postsecondary education

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Ivan J. Lach is director of planning and research at the Illinois Community College Board. He served as president of the National Council for Research and Planning in 1979.

Federal postsecondary policy is an enigma. Its presence is clear, but its creation and modification are hazy.

Federal Postsecondary Policy

Cheryl Opacinch

The presence of federal postsecondary policy is felt in many ways: required adherence to a variety of regulations, mandated reporting of a multitude of college information, the effects of changes in student financial assistance programs on enrollment, and, sometimes, the unavailability of federal funds to support a needed and creative curricular proposal. This federal presence is both welcomed and resented. Funds to support students, programs, and services are applauded for the opportunities they provide. But there is a lurking suspicion—at least occasionally—that the price the college is required to pay to receive these funds is unnecessarily burdensome and costly, and there are complaints that many of the real needs of colleges go unanswered.

The reality of federal postsecondary policy is felt at each and every college, but the reality of how to influence its creation and modification is vague. How is federal postsecondary policy made? How can colleges successfully intervene in the process? What information is needed and likely to be influential? And how can this information be linked to policy making—and policy implementation—

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at the federal level? But first, what has been the focus of federal postsecondary policy?

Policy Focus

Federal postsecondary policy encompasses three major types of programs: 1. financial assistance programs in the form of grants and loans for graduate and undergraduate students that are designed to increase access to higher education, 2. institutional building programs that assist colleges in facilities building, and 3. categorical programs that provide assistance to improve the quality of instruction in general, or for a specialized clientele. These programs are linked by a common focus: expanding and fostering opportunities for higher education. Student assistance, designed to increase access for those previously disenfranchised from higher education, is clearly the major policy thrust.

There are numerous other federal programs that affect higher education institutions, such as those that provide funds for scientific research and development and those that provide educational benefits to specialized groups, such as Social Security beneficiaries. Yet these programs do not have higher education as their major focus and, therefore, lie outside the major postsecondary policy arena.

The extension and modification of the three types of programs within the postsecondary policy arena tend to define the major issues and provide the focus for those who seek to alter federal postsecondary policy.

Policy-making Powers

The policy-making powers are those in positions to influence policy. In postsecondary policy making, the major powers typically include members of Congress, the federal bureaucracy, and higher education associations.

Congressional powers are those affiliated with the House Subcommittee on Postsecondary Education and the Senate Subcommittee on Education. Included are senators and representatives serving on those committees, their staffs, and the staffs of these subcommittees.

Powers from the federal bureaucracy are those from administrative units under the assistant secretary for postsecondary education and the assistant secretary for planning and budgeting in the Depart-

ment of Education. Included, too, are those in the Education Branch of the Office of Human Resources, Veterans, and Labor at the Office of Management and Budget.

Higher education association powers represent postsecondary interest groups and program clientele. Most are housed at One Dupont Circle, the National Center for Higher Education. The American Council on Education coordinates policy efforts among the many associations and maintains a capable research and planning office that provides research and analytic information, including that which deals with the effects of policy alternatives on postsecondary students and institutions.

Most associations, such as the American Association of Community and Junior Colleges, have their own "policy persons" who seek to lobby effectively for policy modifications and extensions that will most favorably serve that association's constituents. Views of constituents are sought, and the constituents themselves may be encouraged to become involved in the policy-making process by making their views known to Congress through letters or testimony.

Long-standing and close ties characterize the policy powers. The informal network is extremely strong. "Washington is a telephone town" is an accurate description of the way in which business is done. The person aspiring to influence policy will need to develop a "telephone relationship" with at least one person operating in this power sphere and identify avenues to others. Specialized lobbying groups that coalesce on specific issues, usually as issues arise, are other possible avenues.

The Policy-making Process

To successfully influence federal policy making requires not only linkages to influential persons but an understanding of the policy-making process. This process is not a single event, but a series of continuous events. Even following the enactment of policy into law, there are administrative regulations to be drafted and debated that implement the statute, budget appropriations to be formulated yearly, and an annual, congressionally voted appropriation. And to further complicate the policy-making process, many political powers are involved in some of the decision-making events. But seldom, if ever, does one individual, or even one defined set of political powers, make major program or policy decisions in isolation or in a single setting.

There are certain generalizations about federal policy making that give it form and suggest when it may be influenced. A case study by Gladieux and Wolanin (1976) concerning the policy process that occurred during the enactment of the Education Amendments of 1972 yields these generalizations: 1. Policy making is conditioned by the basic calendar of American politics—the schedule of presidential and congressional elections, the expiration dates of statutes, the annual budget cycle. 2. multiple and diverse sources advance a variety of policy options and in the formative stage of policy making, no single source is likely to have a monopoly on policy ideas; and, perhaps most importantly, 3. new policy choices are actually modifications and additions to already existing policies.

Thus, the existing federal postsecondary policies define the issues that will be debated, and the regular calendar of events determines when these issues will be raised. In addition, regulations that implement statutes must be published and time provided for interested persons to make their views known.

College Information for Federal Policy Making

Once the federal postsecondary policy-making issues, powers, and processes are identified—and the college has decided its position on these issues—decisions need to be made about the information available at the college that is most likely to be influential. What types of research and other information can be made available from colleges? What sorts of research information are most likely to be influential?

Available Community College Research

There are problems, although no insurmountable ones, in attempting to use much of the available community college research in federal policy making. Typically, research from an individual college is about that college and not generalizable to the national scene. Such research is usually about a single service or program and lacks the simulation capability to examine the effects of alternative policy options. Further, college research is necessarily focused on issues of concern to that institution and not intentionally geared to federal policy issues or time-lines. Also, college research is presented in a mode useful to college decision makers, which may be a quite different mode from that useful to federal policy decision makers.

But colleges do have research information that can be most useful to federal policy makers. Evaluations of federally funded programs or services can give congressional members an idea of which federal programs are working. Research on access and retention issues can suggest new and needed avenues for student assistance or support programs. Case studies can provide anecdotal information and commentary which is particularly useful when giving testimony to underscore an issue position. But how does the college's research enter the policy-making process?

Improving Research Utilization

Improving the utilization of research information in policy making is a serious problem at the local and federal levels and is a problem receiving increased attention from both policy makers and researchers. Responsibility for enhancing the likelihood of utilization is increasingly placed with the researcher. This responsibility is viewed as not only including the dissemination of research results but also the very issues and problems the research attacks.

Stufflebeam (1974) suggests that if a study is to have utility—that is, if it is to be informative and make a desirable impact—the six criteria that must be met are relevance, importance, scope, credibility, timeliness, and pervasiveness.

- Relevance requires that the needs of the audience who will use the findings be clearly identified and that the questions asked by the research be clearly related to these needs.
- Importance necessitates choosing the data to be gathered that will be most significant to users and to the purposes of the study.
- Scope requires that the research examine all the questions of major importance to the audience.
- Credibility involves the faith that potential users, usually unskilled in judging the technical merits of a study, place in the group that conducts the study.
- Timeliness is perhaps the most critical of these utility criteria and demands that the information reach the audience when they need it.
- Pervasiveness involves the dissemination of the study's findings and requires that they be made available for use by all members of the identified audience.

These six utility criteria, in addition to the technical merits of

the study, underscore the difficulty a researcher faces as improved utilization is sought and responsibility for it is accepted. This change in the role of the researcher "may not be comfortable, but it may well be more relevant, and in the long term more productive" (Rosenthal, 1980, p. 42).

In increasing the likelihood for utilization, not only the study itself but also the target audience must be assessed. From Cox (1977), who links the characteristics of decision makers with the utilization of findings, come generalizations that may be applicable and useful to the researcher attempting to influence federal policy makers.

- Data will never be the sole source of information and may not be used immediately, but may resurface at a later time.
- Research data must compete with other information from other influential sources.
- The decision maker's interests will be specific and concrete, and research information will be utilized to the extent it is relevant to these interests.
- Decision makers are likely to have a rather casual attitude towards issues of validity.
- Verbal dissemination is most effective when accompanied by a written report for documentation purposes.

Perhaps improving utilization of research in policy making requires less the training of policy makers in research methodology and interpretation of results than the training of researchers and those who would influence the process. Knowledge of federal organizational and political realities are needed, as well as communication skills.

Conclusions

Influencing federal policy making requires knowing the federal postsecondary policy focus, powers, and process. New linkages to policy-making powers must be forged. Particularly, members of Congress and the policy directors of educational associations must be kept aware of the needs of community colleges and their clientele. Policy directors often have newsletters containing policy issues and calendars of events available to members, in addition to serving as experts on successful ways to make needs known during the policy making, regulations formulation, and budgeting cycles.

Stufflebeam's (1974) six utility criteria provide a valuable checklist against which any college-conducted applied research can be assessed to increase the likelihood of use of research results in policy

making. Cox (1977) gives insight into the decision maker's characteristics that influence research utilization.

These factors, coupled with the increased responsibility of the researcher to conduct studies that will be useful to policy makers and to disseminate this information to them, suggest a new role for the community college researcher. It is clear that researchers should be talking to policy makers. The research needs to consider the type of information—and the format in which it is presented—that is most likely to be useful to Congress, the federal government, and policy-related audiences. The major policy issues, the legislative and oversight needs of congressional committees, and the calendar of policy-related events need to be taken into account.

But perhaps the responsibility for influencing federal policy speaks not only to the researcher but to others on the community college campus. Perhaps a new college linkage is required among the researcher, college president, and administrator responsible for coordinating governmental affairs or resource development. The college president best knows the needs of the college and its students and is able to present these views to federal policy makers. The resource development administrator is knowledgeable about federal policy-making issues, powers, and processes. Joining the skills of the president and the administrator with the skills of a college researcher suggests a basis for successful influence in the extension and modification of federal postsecondary policy.

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Cheryl Opacinch is currently a senior policy analyst in the Office of the Inspector General, U.S. Department of Health and Human Services. She has directed institutional research efforts at a community college and has been involved in federal postsecondary policy analysis in the Office of the Assistant Secretary for Planning and Evaluation in the former U.S. Department of Health, Education, and Welfare.

Master plans necessitate a continuity of regularly scheduled research efforts

Using Research for Planning

William L. Ramsey

A master plan is a guide—a road map—to the orderly journey of the community college into the future. The master plan must identify the destination and suggest the means to get there. In some instances, the destination may be more controversial than the means to attain it; in other circumstances, the goal is readily apparent, but discussion about the route to get there erupts into argument. In any event, the decision-making, developmental stages of the production of a master plan include research as a tool.

Research Trends

Three major developments are now beginning to take place in research in two-year colleges. The need for assistance in institutional decision making has brought this about through an increased emphasis on accountability. The first development is a renewed emphasis on applied rather than theoretical research. This has resulted in more

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usable and less abstract models. The second development is on the focus of research. The focus is now changing to include enrollment projections, outcomes in career programs, economic impacts of the college on the community, cost effectiveness, administrative organization, institutional goals, college governance, instructional effectiveness, community needs, and many related topics. These studies emphasize specific areas of individual needs rather than general student characteristics. The use of research in specific areas makes it possible to meet the specialized educational needs of women, rural and urban dwellers, ethnic and elderly citizens, and others. The third development in research helps community colleges meet the expectations of their communities as well as the requirements of legislative agencies.

Research Defined

Research can be defined as a process to help institutions define their goals and purposes, identify their programs and policies that meet these goals, evaluate programs to find out whether they are useful to the institution, and chart the flow of resources to determine the cost effectiveness of the programs.

Sources of data derived from the needs of the community or the requirements of the state agencies. The value of such resources depends upon how well the data are collected, organized, and applied. Research is a management tool that planners can use to make key decisions as well as to bring the necessary change as a result of those decisions. If research becomes just "window dressing" for decisions that have already been made, then it will not be acceptable. For research to be acceptable and to serve as a management tool, it must meet three essential conditions: 1. It must help faculty and administrators establish institutional goals and objectives, 2. it should play an integral part in planning, and 3. it should provide the means for evaluating institutional programs and activities in relation to stated goals.

These conditions have to be based upon a feeling of the administration that the research is necessary to help formulate the goals and that research both provides and follows the establishment of institutional goals. In addition, research plays a key role in planning for the institution's long-range development. And finally, there needs

to be a recognition by the administration that research findings have to be converted into decision-making alternatives.

Research in the community college contains four specific subsystems: 1. goal setting, 2. program development, 3. program review, and 4. cost effectiveness. Each subsystem has a component data field. These data fields are community, students, programs, and resources. The resources data field may be expanded into facilities, finance, and staff—particularly in larger multicampus college districts.

Planning and Decision Making

Research data must be translated into planning concepts and alternatives. There is a great need to convert past, present, and future research data into planning concepts. Data on program outcomes have to be collected and translated into the planning alternatives. This makes it possible for administrators to formulate some kind of decision-making system for converting data into action.

The absence of a decision-making system allows the accumulation of many unanswered questions that hinder good educational planning. Some of these questions are: What are the uses of research data in community colleges? What procedures should be used for the conversion of the data into planning? Who should be responsible for assessing the implications of various data trends and advising management of alternative decisions to be made on the basis of research data? What is an appropriate balance between politics and research in the planning process? How can research data be used to improve management decisions? What is the value of planning in an institution if political concerns override planning alternatives? Questions like these have to be answered if two-year colleges are going to conduct a useful research program that leads to successful planning.

A program can be developed that defines the environment for converting research findings into planning concepts. These planning concepts have to strike an even balance between political considerations and research data. Sometimes political expediency has been the dominant force in decision making, and research has not been realistic enough to meet the needs of the planning process. Sometimes administrators manipulate research findings to fit their own expectations based on political considerations.

The key is to develop different alternatives based on research

findings. The different alternatives can provide administrators with the information necessary to arrive at decisions for long-range development. Available data can be combined with goals and staff input and used to form the decision-making alternatives. By identifying the potential alternatives, administrators can establish the criteria for future planning.

Research would be of limited value if there were not a decision-making system to convert the research data into planning concepts. Values and interests of college constituencies will not always be compatible with research data. Administrators will have to achieve a consensus on an objective base for planning if accurate and meaningful information is provided. A good decision model can be developed that is sensitive to the political climate in which the institution functions as well as flexible enough to allow time for the development of decision-making alternatives.

A Plan for Action and Involvement

Step One—Adopt a Mission Statement. Every community college has some excuse for being—perhaps a legal mandate from the state legislature or the statements in articles of incorporation. The mission statement is the succinct embodiment of the avowed purposes of the institution—the reason why it exists. It is meant to be the motivation for all functions of the college. All actions must be consistent with it. Every word and connotation in the mission statement is critically important. Management, to the best of its ability, prepares or resurrects the mission statement and distributes it widely, seeking reaction. Incorporating suggestions from students, faculty, and staff, and perhaps from the community, administrators prepare a revised mission statement for review by the trustees. Every word in the mission statement is evaluated. Interaction between governance and management finally results in adoption of the community college's official mission statement.

Step Two—Prepare Departmental Self-Studies. With the adopted mission statement acting as a common guide, department heads are charged with conducting their own self-study. The self-study is a concise document that may contain four sections. Section One is a short discussion of the purpose of the department, answering such questions as: What functions are carried out? How do these contribute to the mission? What services are provided, and for whom?

Section Two is the identification of those aspects or outputs that are considered departmental strengths. Wherever possible, the rationale for citing the strengths should be presented: for example, level of performance exceeding an established norm, or a demonstrable improvement over past performance.

Section Three is the identification of those elements of performance that are below a satisfactory level. The rationale for including an item as a weakness should be cited: for example, frequency of unmet deadlines or excessive rates of error, turnaround time, or unit costs. Also included in this section is the perceived reason for each weakness, that is, personnel, facilities, school policy, or procedural restrictions.

Section Four is the final segment of the report—the planning section. Here efforts to increase the effectiveness and efficiency of the department or for adapting to projected change are discussed. Some questions that should be given consideration include: Are identical or similar services being provided in other departments? Are all existing departmental functions appropriate to the department, or should some be transferred out of the department? Are there trends or influences that will affect the department in the future? If so, identify them and recommend adjustments in the department to accommodate them. Another focus for this section of the report is the recommendations for eliminating or ameliorating departmental weaknesses and enhancing existing strengths. The departmental self-study should not be an exhaustive document, but rather a practical examination of departmental conscience with emphasis on the realities of operation—not on scholarly research or literary merit.

After discussion with the superior, the department chairperson receives acceptance on the self-study, and the study is placed in the division "tickler" file for review and revision three years hence.

Step Three—Establish Goals. Goals are defined as relatively long-range, ideal outcomes of the functioning of the college. Management drafts a list of tentative goals and again seeks schoolwide reaction. A revised list of goals is submitted to the trustees for review, modification, and a check for consistency with the mission statement. Again, interaction between governance and management results in official adoption of a list of goals. Governance has completed its task. Management now has the responsibility of achieving the goals within the framework of the mission statement.

Step Four—Develop Objectives. Objectives are defined as short-

term, specifically identified attainable outcomes of the functioning of a department. Each objective includes the name of the implementor and, wherever possible, quantifies the desired outcome. The official list of goals is directed through the administrative structure of the college to all department heads. Each department head is required to develop a series of objectives to be accomplished within the year for each applicable goal. Division heads review the departmental objectives and, with each department head, agree upon a list of departmental objectives. The list, in essence, becomes the individual department head's management-by-objectives.

Note that the mission is a broad statement having indefinite stability, while the goals are more specific and are reviewed by the governance-management team periodically. Goals must be reevaluated every three years, although some may be achieved in a single year, or be reaffirmed in the same or modified versions for another three year period. Objectives, by definition, must be reasonably attainable in one year. There is no real value in listing objectives that have little likelihood of being reached within a year. Experience suggests that long-range objectives defy evaluation and encourage lackadaisical effort and even downright procrastination.

Ideally, each department head will have completed all objectives on the list by year's end. The theory here is that more progress is obtained by a sustained series of sure-footed small steps than by faltering attempts at a few giant steps -- progress through evolution rather than revolution.

To realize the full benefit of this approach, each department head is encouraged to state the objectives in a quantifiable manner, for example, the purchase operation will reduce purchase order turnaround time to three days, or the average student will complete registration in less than two hours, or all student grades will be issued within two weeks of the end of a grade period, or the number of low-enrollment classes will be reduced by 10 percent.

Note also the mandatory three-year reevaluation of goals and the annual review feature for objectives. Without this requirement, the continuous nature of the planning process could not be met. The result of the four steps -- mission statement, departmental self-study, goals, and objectives -- has simply been a formalization of existing practice in most community colleges.

To recapitulate, thus far we have established a realistic, continuously evolving system of management by-objectives and depart-

mental self-studies with involvement of governance and management on all levels. The system provides for democratically derived objectives but contains a firm commitment to monitor individual progress to attain the objectives. Internal consistency is achieved with objectives resting on goals that in turn reflect the mission statement, however this still does not constitute a master plan.

A Plan for a Master Plan

The management by-objective and departmental self-study or first phase of master planning results in a series of independently produced departmental mini-plans. While demanding participation of all appropriate parties enforcing internal consistency. The second part of the development of a master plan mandates a mechanism for interdepartmental and interdivisional communication. The mini-plans must be fused into one master plan. However a master plan is not the sum of the mini plans; rather it is a distillation and evaluation of ideas and issues brought into sharp focus by the departmental self study and objective statements from each department. Decision making at the top administrative levels in a community college is generally hindered by insufficient interdivisional communication during the plan formulating step. Too often a proposal for change reaches the final approval stage—the desk of the chief administrative officer—without adequate communication between divisional administrators. When this occurs a negative, suspicious reaction by other divisional administrators is a foregone conclusion. The possibility of finding mutually acceptable alternatives or of reaching a compromise is greatly lessened in such an atmosphere. Continuing communication between departments and divisions within the college is desperately needed. It is a sad fact that college presidents talk to college presidents, deans talk to other deans, the plant engineer goes to conferences to meet other engineers, the purchasing agent joins with fellow purchasing agents—but the college president may seldom talk to the plant engineer, who may almost never talk to the dean, who avoids the purchasing agent, and so forth. Teamwork can apparently be confined to the football field or the basketball court.

The brief outline for master planning that follows contains major elements of a developmental program introduced at the Milwaukee Area Technical College. The program places emphasis on the

process rather than the product With the proper mix of ingredients and control, the product is bound to be salable

Formation of a Continuous Evaluation Planning Advisory Committee. One possible way to attain vital interdepartmental communication is through continuous evaluation and planning by advisory committees It is with a great deal of reluctance and some trepidation that one recommends the formation of committees Committees have a bad reputation as devices to share the blame and waste time, It is commonly known that the committee assigned the task of designing the horse actually produced the camel But in the interest of bringing people with diverse interests together to talk with one another, this evil will be accepted

The Continuous Planning Advisory Committee reviews the goals and objectives and departmental self-studies, as well as any proposals for change initiated anywhere within or outside of the school The type of membership on the committee is crucial to success Obviously, there should be representation from all major divisions of the college organization To satisfy this requirement in almost any college would result in a large, unwieldly group So a number of smaller committees are created perhaps three, each having an assigned specialty Before describing the functions of the three committees, it is most important to note that one member of each committee—the secretary—is from the Research Department This is an ex officio position to give continuity to the deliberations and recommendations of the committee and, of equal importance, to provide a direct link to the Research Department which has the ultimate responsibility of drafting the master plan

Three committees are established to review specific areas:

1 The Organization and Function Committee reviews and makes recommendations concerning goals, objectives, and departmental self-studies; initiates recommendations for establishment of a new service or function, or the elimination of an existing one, alters the organizational structure and transfer of responsibility or service from one division to another

2 The Student and Fiscal Accountability Committee reviews and makes recommendations concerning goals and objectives and departmental self-studies, initiates recommendations or procedures for student enrollment projections, integration of student enrollment data with budget projects, mechanisms for providing student and budget information to appropriate department heads for future

decision making, prepares the college budget, reviews procedure for establishing budget priorities, preparing format, analysis, and so forth

5 The Physical Facilities Committee reviews and makes recommendations concerning goals objectives, and departmental self-studies, initiates recommendations for construction, remodeling and maintenance, and procedures for space management and utilization

The purpose of the Continuous Evaluation Planning Advisory Committee is to discover identify, and analyze the effect that a goal, objective, or self-study plan of one department has on other departments and the school as a whole Because the committees have broad representation from departments within the school, each member develops an appreciation for the work and problems encountered by the others Conflicts tend to be resolved at the department-head level instead of festering until they reach the president's desk. The primary mission of the committee is to communicate a proposed change to all departments and to provide the opportunity for reaction Once this has been accomplished, recommendations are made to the president The recommendation for the solution of complex problems is seldom simple, and recommended solutions are in the form of a series of alternatives that may be given a priority order by the committee

Drafting the Master Plan. With input from a host of sources, the trustees and the president have adopted a mission statement and established long-range goals With a mission and goals in mind, departments have determined immediate objectives and produced self-studies containing departmental plans All these have been reviewed by the Continuous Evaluation Planning Advisory Committee with subsequent recommendations to the president The president evaluates the committee recommendations and discusses them with the chief administrators Decisions are ultimately made by the president Armed with this written documentation, and having participated in the discussion of the evaluation planning committees as ex officio members, research and development personnel find themselves in ideal positions to draft a skeleton of the master plan The draft focuses upon issues, pro and con Statistics are included only as they relate directly to the issues

Review and Redrafting of the Master Plan The skeleton draft of the master plan eventually goes to the president and then to the trustees for review and recommendation The modified draft may then be exchanged between the trustees, president, and administrators several

times before the final document is completed. As the drafts move back and forth, "meat" is added to the skeleton by the Research and Development Department in the form of the usual biographic and demographic data, charts, drafts, and tables. Preparation of the final copy includes photographs and a cover that is the pride and joy of the Art Department.

Summary

No enterprise can exist without some knowledge of where it is, where it is going, and how it will get there. The master plan contains this information. No college can be effective without one. A plan in and of itself has little value unless it is recognized by governance and all levels of management as a living document, realistically committing the college to arrive at a specified destination in the given time. Involvement in the developmental stage of a plan, the planning aspect, is essential if the completed document is to evoke the positive response needed for successful implementation. A master plan is built around the mission statement and goals of the college, and it is here that the influence of applied research with its potential alternatives is brought to bear. To remain a living document, a master plan must evolve in response to a changing environment, or perish. A master plan, therefore, necessitates a continuity of regularly scheduled research efforts.

William I. Ramsey is president of Milwaukee Area Technical College District. He served as chairman of the Board of Directors of the American Association of Junior Community Colleges.

Management of information resources is utilized for systematic, institutionwide planning of rational decision making

Information Resource Management

Joseph G. Rossmeier

Higher education in the 1980s is likely to give new currency to Heraclitus's dictum, "Nothing is constant but change." To survive, most colleges and universities will need systematic, institutionwide planning for rational decision making.

The focus of this chapter will be on planning for the use of information technology rather than on the larger educational master planning process that encompasses all aspects of the institution. However, the planning principles highlighted are the same as those applicable in the larger planning process. The chapter aims to illustrate how planning for the use of information technology occurs by presenting an abbreviated case study of the experience of the Virginia Community College System, a large, complex organization.

Information technology is a means to an end. Information must be managed like any other major resource by harnessing it as a means for assisting an institution to meet its goals and objectives effectively and efficiently. John Diebold, an internationally acknowledged leader in the field of management technology, defines "infor-

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mation resource management" as "the way a company manages and regards its information" "View Information ," 1981, p 15 He further emphasizes that an organization's success during the 1980s will be measured to a large degree by its ability to manage information

Information was gradually recognized as a major resource in the mid to late seventies Today, the information resource management function and its relation to modern management practice are receiving increasing attention both in the corporate sector and in nonprofit agencies In the next few years executives will be challenged by an information explosion equal to what they have witnessed over the last twenty years The next generation of information processing systems will provide executives with the capability to make their management effort far more effective than it has been A technology has emerged to facilitate the evolution from data processing to information processing, but this technology must now be effectively managed to maximize the use of information resources

Information Resource Management Function

The information resource management function has been broadened in recent times to extend well beyond the traditional realm of computing services for example, administrative data processing, academic computing, and research support in institutions of higher learning Information resources now encompass (1) text management, including word processing, filing and retrieval systems, and document production tools, and (2) computer/communications networks, including electronic mail systems, such as communicating word processors, facsimile and computer-based message systems, and teleconferencing

Given that information technology is still evolving, it might be well to state three major assumptions that underlie this discussion Rossmeier, 1980 First, the computer is destined to become the most important advancement society has developed since the automobile, the printing press, the reciprocating engine, and manned space flights The computer has a growing importance in our lives, and it is expanding our intellectual control of the world around us Lusa, 1980 Consider the computer's pervasiveness in our daily lives Microprocessor chips are used in games, toys, automobiles, household appliances, communications devices, commercial travel, health care, banking, credit, the office, supermarkets and other retail establishments, and, of course, education

As we move into the 1980s, computer literacy is emerging as a requirement for high school graduation. In higher education, microcomputers and desktop computer terminals are becoming more abundant to support instruction through computer-managed instruction, problem solving, tutorials, drill and practice, and simulation capabilities regardless of what discipline the students are pursuing. In a number of colleges and universities, serious discussions are underway toward making computer literacy a fundamental requirement for graduation. In some, steps are being taken toward requiring each student to purchase a personal computer and providing a computer terminal for every faculty member (Magarrell, 1981).

The second assumption is that information is a primary institutional asset and warrants the same recognition and status as human, physical, and fiscal resources. John Diebold, 1979, pp. 41-42, asserts that "Information, which in essence is the analysis and synthesis of data, will unquestionably be one of the most vital corporate resources in the 1980s. It will be structured into models for planning and decision making. It will be incorporated into measurements of performance and profitability. It will be integrated and treated as an asset." The challenge is to learn how to use information most effectively.

The third assumption is that colleges and universities have a basic hierarchy of information needs that is closely aligned to their organizational management levels. The trend is to have computers fulfill a major role through information systems in meeting these needs. The prime role of an information system is to facilitate the achievement of an organization's goals and objectives more efficiently than is otherwise possible. Defining the relationship between the organizational hierarchy and information needs is critical when developing an information system, since planning, organizing, directing, controlling, and operations activities occur at different levels and vary in information requirements.

The comments that follow focus primarily on information systems required to support the operational and management processes/activities of an institution at all levels of its organizational hierarchy. While hardware and software for 'academic computer' support of research are normally a part of the information resources inventory, these two aspects of computing are not discussed further because they are outside the scope of this chapter.

The generic term "information systems" includes the three categories of systems defined by Sheehan (1980) as (1) the basic

operational data systems, 2 the management information systems and 3 the planning and management systems During the last ten years, many institutions have found their information systems falling far short of supporting management decision making as orginally envisioned by the early advocates of electronic data processing The present concern over information management expressed by institutional users encourages a complete refocusing of computer-based systems to identify ways to bridge the gap between data processing and management decision making

Planning Processes

A first major step towards improving the management of information resources is to develop a planning process for responding to short- and long-range information needs, a continuous planning process in which each cycle culminates with the development of a master plan If a strict planning methodology is not adopted and followed a "knee-jerk" development effort is likely to occur in most instances, which at best results in cathartic, rather than creative, pursuits

In simple terms planning for the use of information technology involves the setting of goals and objectives, the development of a methodology for achieving these goals and objectives, and the implementation of follow-through procedures, including the allocation of sufficient financial resources Specific planning components include

1 Strong commitment and direct involvement by institutional executives

2 Active participation by mid-level management and users, often through committees, such as an information resource planning committee, system development project teams, operational priority committees, and so forth,

3 Identification of an organizational hierarchy of information requirements that is based on institutional processes/activities and essential information needs for each requirement,

4 Identification of existing and anticipated constraints on resources and technologies, including major decisions affecting institutional mission management philosophy, centralized versus distributed processing centralized versus distributed systems development, data base management systems, hardware/software compatibility

among organizational units, availability of staff technical expertise, state procurement regulations, and so forth.

5 Development of achievable goals that are compatible with hardware, software, and telecommunications requirements,

6 A cyclical rather than one-time or intermittent process that is guided by a working calendar containing a series of actions on what tasks will be performed, by whom, and by when,

7 A priority-setting mechanism that sorts out the "nice to have" from the "critical" requirements and offers the most cost-effective solution to a problem

8 Direct linkages with other strategic and operational planning efforts within the institution,

9 Production of a periodic information resource master plan that reflects in empirical terms the efforts of a planning process, and

10 Designation of a key planning office or officer to serve as both energizer and staff resource to the information resource planning process

Obviously, there are other components that may be deemed highly essential, given the wide range of variance found today among colleges and universities in their level of sophistication in the use and control of computer technology. The significant point here is that decisions regarding information resources have too broad an impact on the institution's well-being to be left solely in the hands of the technicians. More importantly, and sometimes quite disconcertingly, major decisions affecting computing services inevitably have a pervasive impact on most aspects of an institution, including its mission, educational programs, enrollment patterns, financial solvency, and staffing. Wrongs have been difficult to correct.

Traditionally, computing has been a controversial subject with crucial decisions about its management being swayed less by the technology at hand than by nonlogical considerations and institutional dynamics (Robbins and others, 1975). Often the political arena is enlarged to include external agencies who get involved to contain the high cost of information resources, even though such expenditures, both in the past and today, usually account for no more than 2 to 4 percent of an institution's annual total operating budget (Arth, 1980). Many institutions bear indelible scars left in the aftermath of decisions based on only one set of considerations, decisions often resulting from a low-bid situation, which failed to consider the adequacy of vendor support or problems associated with

multivendor environments or to provide potential for orderly growth and development

Fortunately, examples of successful planning efforts are becoming more commonplace in higher education. Recent issues of the bi-monthly journal *Cause Effect* published by College and University Systems Exchange (CAUSE), have cited excellent examples of planning methodologies currently in use at various institutions. Other studies (Buchanan and Linowes 1980a, 1980b; Emery 1979, 1980) cite valuable planning tools to improve the management of information resources that have significant potential for the more complex institutions. The *New Directions for Institutional Research* sourcebook entitled *Examining New Trends in Administrative Computing* (Staman, 1979) also illustrates how advances in computing are affecting the manner in which colleges and universities are being managed.

Information Resource Planning in the Virginia Community College System

We have had a significant personal experience in the planning and management of information resources with the Virginia Community College System (VCCS). For the last several years, a rather ambitious planning process has been underway to develop a statewide computing services master plan for the VCCS, a complex organization comprising twenty-three colleges, thirty-five campuses, and the System Offices staff. The VCCS had a 1980 fall quarter enrollment of 110,129 credit students. Institutional size of the twenty-three colleges ranges from Eastern Shore Community College's 481 students to Northern Virginia Community College's 33,899 students among its five campuses.

Since VCCS began in 1966, the information processing function has had a history of turbulence primarily because of the continuing debate about the proper locus of control and authority between the System Offices and the colleges. The problem was exacerbated as the colleges matured and the central staff wrestled to maintain centralized control over college operations.

New Executive Management Philosophy

In the summer of 1979, the VCCS adopted a new executive management philosophy which stated the following: "The VCCS

central staff System Offices shall focus on management review and oversight functions, thereby delegating maximum authority to presidents for the day-to-day management of the individual colleges" *Virginia Community College System* 1981

This philosophy provided the basis for major, discrete functions to exist at both the System Offices and the colleges The System Offices would provide systemwide planning develop policies and procedures, conduct audit reviews, and provide management oversight. College presidents, in contrast, would be accountable for all other major aspects of the decision-making management, and operational responsibilities delegated to the individual colleges

As the new management philosophy was implemented, a statewide computing services planning committee was established to 1. develop a planning process for applying computer technology to management information and 2 develop a computing services master plan These tasks were indeed arduous to accomplish, and an acceptable master plan was not developed until January 1981, eighteen months after the guiding management philosophy was first enunciated

Planning Assumptions

Actually, the original committee failed to achieve either task successfully, hence, a second committee was constituted, which finally succeeded in producing the long-anticipated plan The major components of the planning process developed for this purpose were similar to the ten points discussed earlier Additionally, the committee clarified a set of assumptions that would have a direct impact on the chances of getting any future plan approved by all decision-making authorities

1 State procurement regulations dictated the need for flexibility, shareability, and nonduplication of applications software within the VCCS entity These were deemed fundamental to the development and expansion of computing services throughout the statewide community college organization

2 Information would be recognized as a major institutional resource along with fiscal, human, physical, and intellectual resources

3 The computing environment would support a VCCS hierarchy of information needs

4 Attainable goals would be established, and they would have to receive firm commitment from all levels of VCCS management

5 Resources would be tight although an earnest effort would be made to obtain sufficient staff and resources to achieve these goals

6 An overall computing services planning committee would assume primary responsibility for the continuous planning associated with computing services after the first plan was approved

7 A common data element dictionary would be developed and maintained by the System Offices

8 All systems development/enhancement efforts would be conducted in accordance with a state-approved system development methodology and would be supported by full user and technical documentation.

9 An all-out effort would be made to establish and maintain a statewide community college computing environment that would reflect state-of-the-art technology given restricted fiscal and human resources

Planning Goals

The first major task accomplished by the planning committee was to establish a set of goals to be reviewed and approved by all organizational units VCCS computing services will

1 Satisfy data processing requirements for colleges and the System Offices through effective acquisition and use of resources

2 Support the VCCS mission and the VCCS executive management philosophy through data processing and computational capabilities

3 Minimize the duplication of resources by encouraging a high degree of compatibility in general systems software data base, data communications software, interactive and batch retrieval software, and applications/analytic software

4 Meet external and internal reporting requirements in terms of data accuracy appropriateness, timeliness and accessibility

5 Emphasize flexibility in the design of the distributed computing configuration to permit cost-effective hardware/software alternatives

6 Develop applications reflecting the administrative and academic processes of the colleges rather than the organization of the colleges and the VCCS System Offices

7 Provide networking, shared software, network backup and load balancing to the extent that such capabilities are cost effective

8 Encourage information exchange and user input, and promote consensus within the VCCS

9 Establish a computing environment that reflects state-of-the-art technology and enhances computer lore throughout the student body, faculty, and staff of the colleges and System Offices

10 Provide a strong central mechanism for planning, auditing, governing, and coordinating data processing for the VCCS *Virginia Community College System* 1981

In the past, the System Offices' staff had preferred a centralized approach to both systems development and information processing because this approach was deemed more in line with the centralized management philosophy The colleges never really accepted the centralized approach to computerized support, one of the primary reasons why the level of computing services in the VCCS fell substantially below that needed for adequate support

The 1981 master plan recognizes the new VCCS management philosophy major advances in state-of-the-art computing technology, and the increasing importance given to spreading a whole array of activities associated with managing information processing and systems development among the various organizational units—the colleges Consequently, the plan calls for the establishment of 1 a distributed processing environment and 2 coordinated, shared systems development These two aspects are described briefly

Distributed Information Processing

A number of factors make the move to distributed information processing attractive Declining hardware costs, improved telecommunications capabilities, reduced need for highly trained staff at each center, and increased sophistication on the part of users make this alternative quite feasible The proposed configuration reflects four levels of computing power, with levels 1, 2, and 3 having central processing units CPU's that are plug-compatible and have similar operating systems Level 4 will consist of both remote job entry units and terminals linked to CPU's at the other levels, depending on the function to be performed

Level 1 will deal with the System Offices' requirements that can be supported by a student reporting system and other similar planning and management systems, and most batch academic computing Level 2 resources will provide most of the support for interactive

academic computing and selected, but few administrative applications. Level 3 will support the colleges' comprehensive student information system and associated administrative applications dealing with the course schedule, facilities, faculty management, and possibly, financial accounting and personnel at a later date.

This distributed configuration should allow the VCCS to build a strong consensus among the dispersed organizational units by creating an environment that increases the potential for assigning responsibility for activities related to data processing to staff who have first-hand knowledge of the functions being automated.

Obviously, the concept of distribution means more than locating equipment at various remote sites. Instead, information processing is recognized as a major organizational resource with many activities, each of which can be assigned to and coordinated by one or more individuals. The full scope of responsibility assignments has to be carefully planned, as Buchanan and Linowes (1980a, p. 145) point out, because "assignment of responsibilities by default seldom works." These authors elaborate on a series of activities associated with managing information processing in a distributed environment that needs to be "delegated downward or assigned laterally."

Coordinated Shared Development

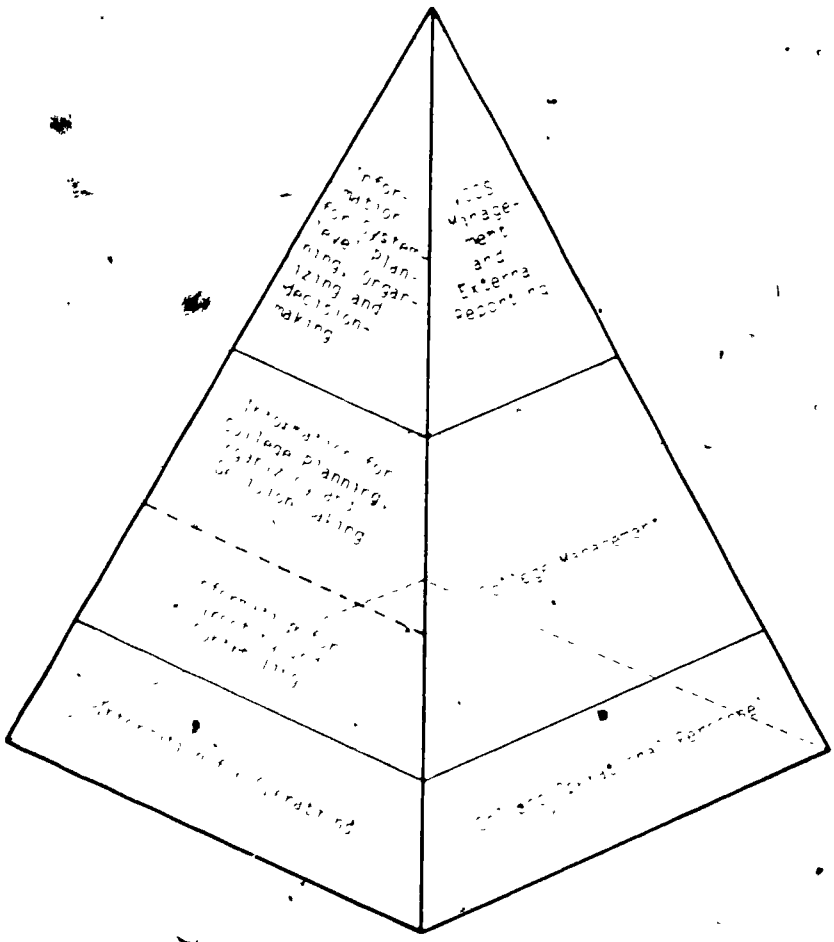
Coordinated shared development of systemwide administrative applications in a distributed processing environment appears to be most advantageous. Systems development in the VCCS is a rather sensitive issue because it is closely aligned to approval of personnel positions and the placement of these personnel. In the past, central development was believed by some to be most efficient and manageable in terms of staff; however, in actuality, the track record of centralized development accomplishments has been most unsatisfactory, although not all problems with this failure were attributable to the centralized development concept. Meanwhile, it has been demonstrated by several colleges within the VCCS that shared development has provided high-quality information resources within a relatively short time period.

Shared development is supported by the majority of VCCS users and, therefore, has an extremely high potential for succeeding because of their commitment and motivation. This approach increases end-user involvement, thereby promoting end-user interest and satis-

faction. Also, many personnel resources necessary for undertaking the development exist at the colleges.

All new systems will be designed in accordance with a statewide planning structure supervised and coordinated by the System Offices' management to ensure system compatibility and reduce long-term system maintenance. One data element dictionary will be devised to satisfy the information needs of all levels of the VCCS organizational hierarchy as shown in Figure 1. One data base management system will be used for administrative applications residing at computing centers at all levels. Similar security requirements will be incorporated in all system designs. Only the most efficient design protocols that is

Figure 1. VCCS Hierarchy of Information Needs



such concepts as pseudoconversational terminal I/O will be utilized to best exploit computer resources. Overall management and coordination of the systems development activities will be the responsibility of the VCCS Computing Services Planning Committee and the System Offices personnel in charge of data services.

Probably the most exciting feature of the coordinated shared development approach is the ability to design applications that meet the requirements of users at a particular level of the information hierarchy. For example, the System Offices student reporting system is designed for VCCS executive management and external reporting. Each quarter, student enrollment census data will be transmitted to it from the student information system of the colleges, which supports the operations of admissions, registration, student finances, and other student-related functions. A common thread of data elements runs through these two systems, thereby allowing each system to meet the functional needs of a specific level of users.

The *Virginia Community College System Computing Services Master Plan*, like any plan, must withstand the test of time before the extent of its success or failure can be assessed. As of this writing, the plan is working well, and information resource management in the VCCS is finally moving in an appropriate and fruitful direction through shared development and distributed processing. A major commitment has been made to manage these resources more carefully, since effective decision making, operations, planning, research, evaluation, and institutional representation depend on high-quality information and the ability to collect, store, manipulate, and retrieve this information through the use of [illegible] computer. The development of a network of information systems should lead to marked improvement in information quality and availability.

The most critical benefit to be derived from the management of information resources is the enhanced ability to support the institution's hierarchy of information needs. To the extent that these needs are met, an organization can achieve its goals and objectives, responding effectively to the changes anticipated for the 1980s.

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Joseph G. Rossmeier is the director of planning, research, and management services at Northern Virginia Community College.

Student data can be used as an aid to academic planning in community colleges

Using Student Data for Academic Planning

M. Kathryne Baratta

The American public is expressing a growing lack of tolerance for bureaucracy, delay, waste, and programs that promise solutions but do not deliver. This growing current of thought will probably prevail throughout the 1980s; thus, the 1980s may be characterized as a decade of impatience.

The American public is beginning to question the worth of a college education. This is evident by the passage of Proposition 13 in California, by the voter-approved cutbacks in spending for higher education in Michigan and Ohio, and the "cut the cost" speech made by the governor of Illinois to higher education agencies requesting increasing funding. The public seems to be taking a dim view of duplication of effort in higher education.

One of the ways in which educational institutions are attempting to deal with this growing questioning by the public, and at the same time deal with economic retrenchment, declining enrollment, and changing market demands, is through increased planning efforts. The buzz words for the 1980s in educational institutions seem to be

M. Mehallis, Ed. *New Directions for Community Colleges: Improving Decision Making*, no. 35. San Francisco: Jossey-Bass, September 1981.

planning" and "managing." Administrators are now attempting to reassess the purposes and objectives of institutions of higher education.

In order to plan well, administrators need timely, accurate, and concise information upon which to base their assessments. Unfortunately, prior to the 1980s many educational institutions were accommodating enrollment growth and planning was conducted on gut-level feelings; the need for hard data was not a felt necessity. Most new curricula succeeded whether they were properly planned or not. When enrollments started to decline, the "me" attitude took over educational institutions. Each college asked itself what it could do to survive. The answer to the problem seemed to be expansion. As a result, the curricula seemed to grow in depth and breadth. Students once thought not to be academically talented enough for college soon found that they were being courted by the very educational institutions that once shunned them.

These efforts to survive at all costs did not succeed for all colleges. Thus, still faced with problems, educational institutions found a new answer that they felt could solve all their problems—retrenchment. Reductions in budget, staff, and programs had to be made, and they had to be made quickly. The budget was the driving force that determined which programs and staff would survive. Low-cost, high-enrollment programs were "in"; high-cost, low-enrollment programs were "out." Not much thought was given to whether such reduction was within the framework of the mission and scope of the college.

The pendulum of answers to college problems has swung between the extremes of retrenchment and expansion. Now it appears that the pendulum is somewhere in the middle. However, when administrators asked for indicators of quality and effectiveness to aid them in their decision making, in most cases the data were not available. Decisions had to be made again with gut-level reactions. The lesson to be learned is that educational institutions should be proactive and not reactive. In order to be proactive, an educational institution needs timely, accurate, and objective data on which to base decisions. As Peter Drucker indicates, "Planning is concerned not with future decision but with the futurity of present decisions"—the actions that are taken today help us prepare for the uncertainties of tomorrow. Tarrant, 1976, p. 259.

The planning process requires timely and accurate information that will allow administrators to

- Define the mission and scope of an institution
- Develop specific goals as guides to setting priorities
- Assess the strengths and weaknesses of divisions and programs
- Identify educational needs consistent with institutional resources and mission
- Determine costs and resources of programs and allocate the resources on the basis of institutional priorities
- Evaluate the educational system on all levels

Planning should occur on three levels operational—yearly planning coinciding with the annual budget cycle, developmental—short-range planning, two to five years, focusing on intermediate objectives, and strategic planning—long-range planning, five to twenty years, focusing on the identification of forces and trends that are expected to affect institutional functioning in the long term

Building an institutional data base to support planning is not a task that can be completed quickly. It takes time, and it requires the refinement of processes once they are in place. A planning model developed at one institution will not necessarily succeed at another. However, there seems to be a necessary and essential data base common to all planning models.

Nonetheless, each planning process requires different data. To enumerate the types of data that would support each of the planning cycles would make for uninteresting reading; instead, some examples of data that can be collected to support planning will be given.

Some underlying thoughts must be kept in mind when dealing with data. First, data exist everywhere, however, until they are collected, analyzed, synthesized, and presented in a cogent manner, they are of little value. Second, data do not dictate decisions, they are merely an aid to decision making. Finally, it is a rare piece of data that can serve only one purpose.

Student Data for Supporting the Planning Process

Student data occur in many forms. They can be used to complete government reports or as an aid to planning. Several examples of how student data can be used in the planning process are presented; each example is selected because it can be used with several planning styles.

Needs Assessment. This area of research deals with determining

the needs and interests of college students, high school students, and adults in the area served by the college. It may also include determining the needs and interests of staff, state agencies, federal agencies, and the broader profession of education.

Needs assessment can be either formal or informal, ongoing or special purpose. Two examples of formal, ongoing needs assessment research activities that exist at Moraine Valley Community College in Palos Hills, Illinois are the yearly high school survey and the annual community survey.

Each year, all the high school seniors in Moraine Valley Community College's district are surveyed. The purpose of the high school survey is to provide the college with information regarding the needs and interests of graduating seniors, their perception of the institution, their reasons for selecting college, and the colleges where these high school seniors plan to enroll. This information is used for both program planning and recruitment activities. It also allows the college to monitor its image to see if it is consistent with the college's mission.

A community survey is conducted—also on a yearly basis. The purpose of the community survey is to determine the approximate size of the population participating in adult learning activities, the demographic characteristics of the potential market, the scope of demand for educational offerings, the current mode and locality of delivery, and the potential expandability of the market. This data set is thus an important resource for institutional program planning, program assessment, and marketing.

An example of a special-purpose, formal needs assessment is the survey to determine the interest in continuing education of the Moraine Valley Community College nursing graduates working in the district. Questions centered around which topics may be of interest to the college's graduates, types of preferred instructional delivery systems, and time and location of instruction. The information gathered was used to plan a continuing education program for nursing graduates.

An example of an ongoing, informal needs assessment is the sensitive response of the college faculty to student needs. For example, faculty noticed that students in their accounting classes had a variety of experiences in dealing with accounting principles. Some students had no previous experience with bookkeeping principles, some had a basic knowledge of bookkeeping principles, and some were already

working in accounting departments. As a result of this informal needs assessment, the accounting course was redesigned to accommodate the student's previous experience with accounting principles.

An example of a special-purpose, informal needs assessment involved some faculty members at the college who became interested in the general education requirements for occupational graduates. A group of faculty sensed a need for occupational students to have an alternative to the current general education requirements. The feasibility of alternative courses is now being explored.

No major modification in programs or services at Moraine Valley Community College is made without adequate data to aide the decision-making process. After the data are collected, they are integrated into the planning process.

Manpower Needs. Data gathering in this area involves making a careful determination of the present and future manpower supply and demand situations. Current job openings and salaries at the national, state, and local levels are determined, as well as projected job openings, work force mobility, and the economic outlook for the area, in order to determine the number and kind of employment opportunities that will be available for program graduates. Various sources of manpower supply are also examined. At Moraine Valley Community College, all ongoing programs have manpower studies conducted on a regular basis, and all new programs must have a manpower study conducted before any administrative action can be taken regarding the implementation of the program.

Evaluation of Programs. Another important and essential component of planning involves the evaluation of programs. This type of evaluation, which can take many forms, is necessary to obtain useful information for program improvement and appropriate data for local, state, and federal program accountability. Although colleges may have well-developed procedures for student follow-up, faculty evaluation, unit cost analyses, and so forth, these elements are seldom integrated into a systematic program evaluation system.

The evaluation system at Moraine Valley Community College is divided into four phases: program selection, program evaluation, feedback and response, and impact evaluation.

Phase one is the selection of programs to be evaluated. The Office of Institutional Research is responsible for designing, collecting, analyzing, and scheduling the evaluation. Since Moraine Valley Community College offers more than fifty programs, it is impossible

to evaluate every program each year. Therefore, a program review model was developed to determine the programs to be considered for evaluation. The model is based on program enrollment, placement of graduates, unit cost, program attraction, and program retention. This information is included in a formula to determine an index number for each program. The index numbers are then rank ordered, and the programs eligible for evaluation are identified.

In phase two, the actual program evaluation takes place. A model was developed for the in-depth program evaluation that centered around program documentation, facilities, operations, student information, costs, job market information, and graduate information. See Table 1 for the specific data collected. The information is then integrated into an audit report. This one document provides an administrator with almost everything there is to know about a program.

In phase three, there is feedback and response to the program evaluation. A peer group-intergroup model (Alderfer and Holbrook, 1975) is used to present written and oral feedback of program evaluation data to campus administrators, program administrators, program faculty, and program support staff. At their respective levels of responsibility, college staff prepare action-oriented responses to evaluation data, using both the college's management-by-objectives system and a local extension of the response system developed by the Illinois Board of Adult, Vocational and Technical Education (Sampson, 1975; Van Raes, 1975). Observations, conclusions, recommendations, reactions, and actions to be taken and target dates for completion of tasks are listed after reviewing the audit. The action plans are then reproduced and disseminated to all involved units.

The final phase involves impact evaluation. Using procedures adapted from Cunningham (1974), Hall and others (1975), Kester (1976), and Willett (1975), research staff assess the impact of program evaluation on program development and review the evaluation processes.

Six months after the completion of the audit, the Institutional Research Office begins impact and process evaluation. The following questions guide the evaluation: What is the status of the recommendation? If there was implementation of the recommendation, how long after the audit was the implementation completed, and how much did the audit influence implementation? If the recommendation is approved, then the questions, when will the recommendation be and who will be primarily involved are answered. Finally, if no action

Table 1 Outline for Audit System

I Program Documentation
- A Program control documents
- B Course outlines
- C Relationship between program control documents and course outlines

II Facilities
- A Physical facilities strengths, weaknesses, adequacy
- B Equipment inventory list and condition
- C Faculty evaluation of instructional space facilities supplies and equipment

III Operations
- A Personnel academic credentials work or field experience preparation for teaching teaching experience student evaluations
- B Student success rate by instructor by course
- C Course scheduling patterns
- D Staff dynamics
  - 1 Faculty evaluation of staff relationships
  - 2 Faculty evaluation of support services
  - 3 Student evaluation of support services

IV Student Information
- A Student demographics race sex residence age credit-hour load
- B Enrollment trends in the program
- C Enrollment trends in program courses
- D Program retention rates
- E Program in- and out-migration
- F Induced course load matrix
- G Student performance in courses
- H Student success rates in core program courses

V Costs
- A Cost/revenue per course per student
- B Student cost per program

VI Job Market Information
- A Manpower needs trends salaries
  - 1 National
  - 2 State
  - 3 Local
- B Local community colleges granting similar degrees
- C Employment status of graduates

VII Graduate Information
- A Evaluation of vocational training
- B Evaluation of program courses
- C Employer evaluation of graduates

The above information is then integrated into an audit report

has been taken, questions such as "Why not?" must be answered. Appropriate revisions are made in the evaluation system based on this review.

The systematic and integrated program evaluation system has been in operation for five years at Moraine Valley Community College and, in that period, twenty-five programs have been audited. The audits have been instrumental in the revision of courses, in some cases the revision of entire programs, and in other cases the decision to no longer offer a program.

Evaluation of Support Services. Many times students do not enroll or re-enroll at a college because their needs are not being met. In order to determine if student needs are being met in nonacademic areas, an evaluation of support services is beneficial. Each of Moraine Valley Community College's support services are evaluated on a yearly basis. Questions center around whether the services were used, if they were used, how often, and whether they were beneficial; if they were not used, why not; and whether the services were available at convenient times. Student Activities, Health Services, Admissions and Records, Counseling, Career Planning and Placement, and Financial Aid Services are evaluated. Questions specific to each office are also included along with the earlier general questions. Problem areas are identified, and their solutions then become part of the objectives for that office for the next academic year.

The counseling staff also conducts a survey of all its clients once a year. Two counseling dimensions are examined: the counseling process and counseling outcomes. Students respond to a variety of statements that are then combined into scales that measure counselor acceptance of counselee, counselor support of counselee, counselee's acceptance of counselor, worthwhileness of sessions, and counselee independence. The information is given to the counselors in summarized form and becomes part of their evaluation and their management-by-objectives for the following academic year.

Measuring Student Outcomes and Goal Accomplishment. It is almost universally agreed upon that information from and about students as they progress through college and after they leave college is important for program evaluation and future planning. If follow-up information is reliable, it can be a valuable aid to decision makers.

Two developments have increased the importance of these statements, particularly for students in community colleges. The requirements of vocational education agencies for data about graduates

and 2 increased pressure from state legislatures to hold community colleges accountable for the competencies of their students

These developments along with an awareness of the significant changes taking place in student populations instructional methodologies, and functions and general philosophy of the community college led Moraine Valley Community College to develop a comprehensive program of student follow-up surveys The purpose of the surveys is to provide the college with important information about students including their demographic characteristics backgrounds, goals, attitudes satisfactions, reasons for making certain decisions, educational plans occupational choices and achievements The surveys obtain the following information

1 Occupational Graduate Follow-up Information is collected on employment status relationship of employment to program completed, length of time employed in present position type and location of business in which employed, sources most helpful in finding jobs evaluation of specific occupational courses, usefulness of training to job performance salary information reasons for employment in areas unrelated to training, and opinion of general occupational training, educational experience, instructional services support services instructional methods and staff The survey also provides information about the students future educational plans

2 Employer Evaluations of Occupational Graduates This questionnaire is mailed to employers of recent occupational graduates The following types of information are collected opinion of program graduates human relations skills, communications skills, technical skills problem-solving skills,and life skills suitability of the graduate for the job, quality and quantity of work done by the program graduate and the employers willingness to hire other Moraine Valley Community College graduates

3 Transfer Graduate Follow-up The purpose of this study is to evaluate Moraine Valley Community College services, colleges that students attend student performance at transfer colleges, admission problems at transfer colleges, transferability of community college credit and adjustment problems at transfer schools

4 Three-Year Graduate Follow-up A survey of students three years after graduation is conducted to ascertain any further involvement with Moraine Valley Community College, educational status employment status evaluation of major programs and services, length of time in present position, number of job changes since graduating

relation of employment to program completed, usefulness of training to job performance, reasons for employment in an area unrelated to the program completed, and suggestions for additional education or training.

5. Achiever Follow-up. Students are studied who have declared a specific major and have completed either some or all advanced occupational courses. The purpose of this survey is to determine why these students did not graduate although they had been successful in their course work. Questions on the survey deal with the primary educational goal, goal accomplishment, time period of withdrawal from classes, employment status while attending classes, types of financial aid received, number of program changes since initial enrollment, present educational activity and employment status, future educational plans, reasons for withdrawal, evaluation of instruction, student, and support services, and educational program outcomes.

6. Partial Completer Follow-up. Students are surveyed who have taken beginning courses with either no area of concentration determined or only a broad area of study determined. The purpose of this survey is to determine why these students did not pursue their studies. The questions asked on this survey are similar to the Achiever Follow-up.

7. Nonstarter Follow-up. The purpose of this survey is to determine why people enroll in courses and then never attend class or take less than five semester hours of credit. Questions deal with the student's primary educational goal, time period of withdrawal from classes, employment status while attending college, types of financial aid received, present educational and employment activity, future educational plans, and reasons for withdrawal.

This program of student follow-up has the following advantages:

1. It provides a means for collecting data so that the college may initiate, develop, modify, or delete programs, services, or classes, thereby improving its operation.

2. It provides a system for accountability as measured by employee evaluations of the adequacy of established curricula and the job performance level of program graduates.

3. It identifies the educational goals of various students and how they perceive their goal accomplishment.

4. It is flexible in nature, allowing various administrative offices the option of selecting items to be included or deleted from surveys.

5 It is cyclical in nature so comparable data are collected for trend analysis

Estimating Budget Alternatives. Student data are used to forecast enrollment patterns of the college-attending populations. The state of Illinois funds community colleges according to their midterm enrollment in seven funding categories: Baccalaureate and General Academic, Business, Personal, and Public Services, Data Processing, Commerce, Natural Science, and Industrial Technologies, Health Technologies, Remedial-Developmental, General Studies, and Adult Basic Education, General Education Development, English as a Second Language. Each category is funded at a different level. Forecasts are made of the mix of students and the number of students who will enroll for the next academic year. These forecasts are then used to estimate the expected revenue from the state. These data and other projected revenue sources are then used to build the budget for the coming years.

Attrition Studies. Attrition studies have become increasingly important for planning. The traditional college-age population is declining, and no longer can colleges "go to the well" for additional students. One of the easiest ways to increase student enrollment is to stop the revolving door--once students enroll, the college needs to make a concerted effort to keep the students enrolled.

Attrition studies can provide information about temporary dropouts that may point to corrective action. Two types of surveys can be used: one at the time a student withdraws, sometimes known as the withdrawal or exit interview, and a second survey, general in nature, given to a random sample of students currently enrolled. Answers to questions such as "Have you ever thought about withdrawing from a course or from college?" and "What made you decide to stay?" can be revealing.

Documentation should exist for the number and percentage of students who leave an institution or a program of study. These trend data can provide clues to the attrition rates of programs. Programs that have high attrition rates can then be examined to determine why such weaknesses occur.

If the institution is lucky enough to have a highly sophisticated Management Information System, then "enrollment tracking" or "student flow" information is beneficial. With these data, models to predict how many and which students will either drop out temporarily or leave the institution permanently can be made.

Other Uses of Student Data

Enrollment Profile The enrollment profile is a document developed to present the comprehensive data base regarding enrollment at the college At Moraine Valley Community College the data are divided into several categories current-year high school graduates first-time freshmen who are not current high school graduates first-time transfer students first-time students all current-term students freshmen and sophomores Breakdowns are provided by sex, credit hours enrolled for residence credit hours completed, ethnic category age community of residence, high school of graduation and program enrollment The institution uses this data to plan effectively for students and to continually analyze the sources composition and quality of students

Graduation Report This report lists the degrees and certificates earned by students The information reveals which programs are awarding the largest numbers of degrees or certificates and how the graduating class is represented across the programs

Grade Distribution Reports Grades given by all instructors in all classes are analyzed each term by instructor by discipline and by program This information is needed so that the institution can be constantly aware of its grading practices and its students academic performances

Student Intent/Registration Study This study is conducted during registration each semester Information is collected regarding reason for attendance program choice, whether or not a student is seeking a degree ethnic background, number of credit hours enrolled for whether the student is primarily enrolled during the day, evening or weekend kinds of student development services in which they would like assistance, and problems with scheduling or registration The information is used to plan student development programs and identify problems in scheduling that can be corrected in the future

Orientation Information All new full-time students at Moraine Valley Community College are required to attend an orientation session before the beginning of the term At this time, tests are administered that measure reading, writing, and mathematical skills The data are used to build norms for the placement of students in courses The tests also help give the college an academic profile of its new students so that programs and courses can be developed to meet student needs

Summary

Student data can contribute to better management by providing information that facilitates choices among decision alternatives. In order for the data to be useful, they must be timely and accurate. Some examples of student data that can be used for planning purposes have been given. The list is not exhaustive. Collecting and analyzing data is hard work, but planning is harder work. Oftentimes institutions pay only "lip service" to the process of planning and therefore the rewards they reap from the process are few. If you believe that the future cannot be planned, then all you can do is commit yourself to a future governed by some random force over which you can exercise no control.

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M. Kathryn Baratta is the director of institutional research at Moraine Valley Community College and president of the National Council for Research and Planning.

Student information systems provide information about students that can be fully utilized by college decision makers

Utilization of Student Information Systems

Toni M Hall
Jim F Reed

Many factors have increased the need for greater effectiveness in decision making in community and technical colleges in America In the past, educational decision makers have often relied on subjective experiences, attitudes, and values to make key decisions that affect vital programs and operations More recently, the influx of the new student clientele has placed greater emphasis on accountability procedures and more efficient allocation of resources These circumstances point clearly to the need for a carefully designed system of student-based information for decision making Such information is needed for the planning, improvement, and redirection of programs A planned approach to information gathering and the processing of such data can ensure that student information will be available for decision making in a relevant and timely manner

The community college students of the 1980s will include those new students who are entering colleges with even greater frequency—adults, women, ethnic minorities, senior citizens, the

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handicapped and foreign students. One of the primary missions that has been assumed by educational institutions is the implementation of special programs and services designed for students with specialized backgrounds. Much research has been undertaken to determine who these students are (Cross, 1971, pp. 1-18) and as a consequence numerous specialized programs have been initiated. One of the major shortcomings of this program development effort has been the problem of assessing the impact of such programs on those students. Focus has been largely on meeting the growth demands of this relatively "unique student population" and not on measuring the effectiveness of the newly designed instructional programs and services. Student follow-up information can provide part of the information needed to assess the impact community college programs and services have on the student.

The purpose of this chapter is to provide an example of a system for collecting student follow-up information from students enrolled in community colleges. The procedures and suggestions outlined here provide a framework from which an institutional approach to student follow-up information might be developed. This framework is designed to assist: 1) those institutions initiating a student information system and 2) those institutions already in the process of conducting follow-up research. The chapter includes a discussion of a planned approach to a student follow-up effort, categories of students who might be included in such research, suggestions for organizing for follow-up research, and utilization of student information system data.

A Planned Approach to Student Follow-up

Colleges and universities generally lack specified plans to establish priorities in data collection and data processing and to achieve effective coordination of information systems with decision making (Sandin, 1977, p. 21). Unless there is coordination of information with decisions made about programs and services, student information will not be fully utilized. One approach to promoting the use of follow-up data has been merely to make information available to the user. Little evaluation has been done to determine whether information brought to the attention of the decision maker is then used in decision making. It is clear, however, that if a user is involved in the process of choosing the information to be collected, there will

be an increased likelihood that the data will be accepted and used. A procedure that gains institutional acceptance of the follow-up data to be collected will improve the coordination of educational decision making and information utilization.

Participation by Users. Many community and technical colleges have established user committees that assist in the coordination of student information with college decision making. For instance, before any follow-up surveys are conducted, a group of college personnel outlines a plan of action for such surveys. Representatives from all major college divisions are usually included on these committees. Such a committee would help to:

- Document a formal implementation plan
- Identify the information needs of decision makers
- Combine follow-up surveys with ongoing college operations
- Eliminate duplication in data collection
- Determine cycling procedures for conducting surveys
- Set guidelines for data processing and analysis
- Provide an avenue for campuswide dissemination of student information
- Discuss the availability of budget and financial constraints
- Monitor the cost effectiveness of student follow-up information.

Determining Information Needs. The advent of computerized information systems has made access to large amounts of data manageable. It is important to determine what kinds of data are needed and for whom, and what decisions will be made with the information obtained. Several studies have already been conducted to determine what follow-up data are needed by decision makers. One study of decision-related data conducted by the National Center for Higher Education Management Systems (NCHEMS) has made clear that special planning and management responsibilities of different decision-making groups have unique information needs (Micek and Arney, 1974, p. 27). This study indicated the kinds of outcome measures that were needed by type and administrative structure of institution, type of institutional administrator, and type of state-level personnel. The three outcome measures in this study that were given a rating of "high need to know" by most responding administrators (college, university, and state-level) were:

- Number of students graduating from the institution after a certain period of time as a percentage of the entering class

- Number and percentage of graduates for the year who transferred from another school.
- Number and percentage of students leaving the institution prior to receiving a degree, diploma, or certificate during a particular academic term or year

The NCHEMS outcome measurement study is an example of participation by users to determine student information needed for decisions. In this study, the assessment of administrator informational needs was formally established prior to undertaking the design of a student follow-up information system.

The *System Characteristic Opinion Study* (*SCOS-DELPHI*) is another example of a project that included college decision makers in the process of selecting student follow-up data for collection (Cox, 1975). This study was designed to identify desirable characteristics for a comprehensive student follow-up system. High-priority data needs for community college and state-level administrators were identified as the student's educational goals, reasons for college withdrawal, reasons for not returning to college, skills attained in college, salary information, and opinion of college.

One systematic project to determine student follow-up information needs involved the review and analysis of fifty available follow-up questionnaires (Reed, 1975). This project resulted in a classification scheme that identified consistently used student follow-up data elements. Analysis of these questionnaires produced the following student follow-up information categories:

- Student's objective or reason for attendance
- Satisfaction of intent with original objective
- Withdrawal or discontinuation information
- Employment status
- Transfer status or information
- Present status (college enrollment, employment status, and so forth)
- Opinion of college services (counseling, financial aids, and so forth)
- Additional assistance needed (such as "desire appointment with counselor")
- Future plans or interests
- Employer questions
- Other related questions.

Additional follow-up data elements normally found in student questionnaires include the student's majors, suggestions for improve-

ment of college programs, sex and ethnic classification data, relationship of the completed college program to employment, name of transfer college, usefulness of education to job experience, salary, job availability, and number of college credits completed.

Such efforts to identify student follow-up information have resulted in an accepted pool of student outcome information needed in educational decision making. This pool of data elements is comprehensive enough to provide the research planner with the basic information needed to initiate the process to determine the follow-up data to be collected. Other systematic follow-up projects that could be examined for determining follow-up data needs are located in Illinois (Lach and Wellman, 1975), Maryland (Schechtelm, 1976), Minnesota (Pucel, 1973), Oregon (Vinarskai and others, 1976), and Virginia (Williams and Snyder, 1974).

Categories of Students Surveyed for Follow-up

Follow-up surveys have many uses. A follow-up system can be designed to assess a student's career, social, personal, and academic needs. Follow-up information systems can be implemented to assist the curriculum planner in developing adequate programs. A follow-up system also can be planned to provide information for ongoing institutional evaluation. Whatever the uses of a follow-up system, a comprehensive approach will require the collection of data from students at various times in their educational experiences. Contact with all segments of the student population is necessary. Information from full-time, part-time, day, evening, credit, and noncredit programs will assist in institutional improvement.

A particular follow-up system that provides instructional and student service program evaluation has been developed in Texas. The Texas Student Follow-up Information System (Tex-SIS) is a comprehensive student follow-up system that is built around the concept of a management information system (Reed, 1976, p. 3). The system includes fourteen student follow-up questionnaires. In designing the system, the assumption was made that student follow-up data would be coupled with other existing student and program information at the institution. In this way, follow-up information and student outcome measures become part of a broader management information system for use by the educational decision maker. Although the Texas system has been developed with the assistance of the Texas community and technical colleges, the student populations that can be surveyed

through the use of this system and the types of questions on the fourteen follow-up questionnaires have proven useful for secondary school and university use. Tex-SIS allows for the identification of students by academic and vocational program areas. Resultant follow-up data can be provided by individual program area and can be utilized by administrators and faculty. The Tex-SIS system provides a good overview of the categories of student populations that may be surveyed. A full description of these categories is included in this section.

Entering Students. Tex-SIS includes a survey instrument implemented at a student's point of entry to the college. The primary purpose of this survey is to assess the student's educational goals. In addition, the student's employment status, future enrollment plans, major, and type of program pursued are data elements collected in this survey. This survey is normally implemented during college registration, during college orientation sessions, or during the first class periods of a semester. This particular component has been expanded to include data on the student's special needs—that is, financial deficiencies, physical impairment, and so forth. The questionnaire can be used to assist a college in meeting vocational program enrollment reporting requirements for the Vocational Education Data System (VEDS) (*Federal Education Amendments of 1976*). Uses of this survey include: 1. contacting students with expressed special needs for remediation, 2. contacting students who have stated they do not plan to re-enroll as potential recruitment, 3. analyzing zip code data for mobility information, and 4. providing the data on students' educational goals in each course for faculty review.

Withdrawing Students. Three follow-up questionnaires also found in Tex-SIS are designed for the collection of information from students who withdraw from college during a given semester. The questionnaires are for students who formally withdraw from individual courses, who withdraw from college, or who leave the institution without formal notification (walk-off). These questionnaires not only assess the student's reasons for withdrawal but also collect information on the student's use of college services, future enrollment plans, opinion of educational experiences, and suggestions for improvement of courses or services. College and course withdrawal questionnaires are completed usually in the registrar's office or counseling center when a student formally withdraws from courses or college. A walk-off

surveys implemented as a mailout survey. A walk-off questionnaire is sent to those students who do not complete the withdrawal process during a given semester. Uses of these questionnaires include: 1. contacting students who indicated interest in discussions with college counselors; 2. course scheduling; 3. faculty evaluation; and 4. contacting walk-offs as potential recruitments.

Nonreturning Students. Questionnaires designed to survey nonreturning students exist in Tex-SIS as well as in the systems in Maryland, Oregon, Minnesota, and the newly developed NCHEMS Outcome Measurement Handbook (Rentkiewicz and Bowser, 1977). Nonreturning student questionnaires are primarily designed to be mailed to students who leave an institution and do not return from one long semester or term to the next. Other questionnaires have been devised to identify the students who may be discontinuing their educational experiences for a period of time (stopout) rather than permanently dropping out. One of the primary purposes of these questionnaires is to determine whether the students have met their educational objectives despite the length of time they were enrolled at the college. Additional data elements in a nonreturning student survey normally include the student's reason for enrolling, program choice, major, sex, ethnic data, college enrollment or employment status, and relationship of employment to course of study. Also included are prior employment in the field of study, opinion of courses, program completed, and student service[illegible] name of transfer college, future enrollment plans, problem areas in transferring, and usefulness of education to employment. Still other data elements include the relationship of courses to career plans, degree of completion of educational objective, number of college hours completed, opinion of educational experience, and suggestions for improvement of college courses and services.

In community and technical colleges, graduates account for a small percentage of the students who actually benefit from educational experiences. One of the greatest benefits in securing nonreturning student data is that it helps to determine the number of students who did not actually graduate from a program, but who did, in fact, complete the core requirements of their vocational objective. The nonreturning student survey provides the institution with specific information on whether the students completed their vocational educational objectives even though they did not graduate. This Tex-SIS component also collects information from students identified as

leavers by the VEDS system. Uses of the data include: 1. comparison of stated educational objective and nonreturning student status; 2. evaluation of student services; 3. recruitment; 4. reports on student matriculation; and 5. documentation on successes of nongraduates.

Graduating Students. Survey instruments for graduates of community colleges have been developed by many institutions and states. Tex-SIS includes a questionnaire for 1. recent graduates; 2. graduates who have been away from the institution for three years; and 3. graduates who have been away from the institution for five years. Graduate student questionnaires can be administered longitudinally on a one-, three-, and five-year basis. Data elements similar to those listed on the nonreturning student questionnaire are listed on these graduate questionnaires. Additional data elements on the graduate student questionnaires include requests for the student's present salary, job title, and name of employer; reasons for employment in areas unrelated to program completed; job outlook information; and mobility information. All three graduate surveys are implemented in a mailout survey. The recent graduate survey instrument collects information on "completers" as outlined in the VEDS system. Uses include: 1. information for news releases; 2. program evaluation; 3. community impact surveys; 4. information for occupational program brochures; 5. reports on the success of students; and 6. faculty evaluation.

Employers of Students. Although a survey of employers' opinions is not a direct student follow-up survey, many colleges find information from employers useful. Students from academic and occupational programs who are being employed and general skill attainment can be assessed through an employer survey. Employer surveys are quite often designed to collect information from the employers of graduates only; however, many nonreturning students have secured employment as a direct result of their college training. The Tex-SIS employer follow-up survey for graduates and nonreturning students includes data elements such as the employer's opinion of the training education received by the program graduate and the usefulness of that training to job performance. The employer follow-up questionnaire also provides for opinions of job performance and upward mobility, suggestions for needed training programs, placement sources, suggestions for improvement of the program, and job outlook information. Employers' names and addresses are obtained from the graduate or nonreturning student questionnaires returned in a mailout

survey. Uses include (1) satisfaction of employer data for VEDS reporting, (2) information for curriculum revision, (3) discussion items at program advisory committee meetings, (4) reports to boards of trustees, and (5) opportunities to broaden a college's contact with community employers.

Continuing Education Students. Also important to colleges are surveys of continuing education and community service students. Such surveys can assess the impact that course offerings have on these students. Data elements of these surveys include future enrollment plans, employment status, opinion of courses completed, and number of college credit hours completed. TexSIS includes three adult and continuing education questionnaires. The first is designed for follow-up of students who complete adult preparatory courses; the second is designed for follow-up of students who complete adult supplemental courses; and the third is for follow-up of students who complete all other adult and community education courses. Definitions of adult preparatory and supplemental courses are provided by departments of vocational education in each state. Information from these questionnaires can be used for (1) additional suggestions for program course offerings, (2) contacting students who do not plan to enroll, and (3) improvement of advertising of course availability.

Organizing for Student Information Research Suggestions

Questionnaire Design. Follow-up questionnaire design requires consideration of the ease in completing the questionnaire and predetermination of how the data will be processed once the survey is conducted. Questionnaire design must meet the specific information needs of the decision maker and increase the student response rates. Appropriate design characteristics and survey methods that have the highest impact on response rates include (1) a reasonable length of the questionnaire, (2) simple directions and clear wording of questions, (3) inclusion of a self-addressed, stamped envelope in mailout surveys, and (4) the appropriate signature by an institutional representative in the cover letter.

Much evidence indicates that response rates decrease when the questionnaire exceeds several pages in length. Although it is important to deal with the length of questionnaires as a primary issue, the length should only become an issue after critical data elements have been

included in the questionnaire. The design of the questionnaire that collects student responses can affect the type of information collected. Multiple choice and forced choice questions are easier to answer and to process. The ease of machine processing of multiple choice questions must be weighed against the possibility of obtaining handwritten but useful information that might need to be manually processed. Valuable information can be gleaned from handwritten comments by the students.

Success of the survey as a representative who signs the cover letter that accompanies the questionnaire has been demonstrated to affect student responses to a mailout survey. In many cases, the college president signs the cover letter; however, the person who has the highest visibility with students would likely have the greatest effect on student return. Self-addressed stamped envelopes should always be provided in the mailout survey package.

Use of a questionnaire designed by another institution prevents a college from having to develop a totally new instrument. Another matter to be considered in utilizing a questionnaire developed by another institution is that of comparability of results. The value of comparability of data results cannot be overemphasized. Student information is often collected in such a manner that there is no way to compare information with other institutions. Examples of three statewide coordinated student information systems in Texas, Michigan, and Mississippi support the concept of comparability. Throughout each state, the community colleges use the same set of questionnaires to survey community college students in order to ensure opportunities for composite information and local college comparisons. Decisions by colleges to use already developed survey instruments allows for this flexibility.

Types of Surveys. The college department that is responsible for conducting the in-house or mailout follow-up survey needs to begin discussions when the institution's follow-up plans have been outlined. In-house and mailout surveys require different treatments to increase survey validity and student response rates.

An in-house survey is facilitated if it utilizes ongoing college activities: orientation sessions, the registration process, classroom periods, and so forth. Realistic time tables, intelligent use of college resources, and positive involvement of college personnel will enhance the success of in-house student surveys. Well planned staff development for persons involved in administering in-house surveys will

reduce the number of errors reflected in the survey results. Such an effort is extremely important in increasing the validity of the data used in decision making.

The mailout survey requires not only that special attention be given to the administration of the questionnaire but also that additional efforts be made to encourage the student to return the questionnaire to the institution. Response rates on a mailout survey can be increased by some type of initial contact with the student prior to the mailing of the follow-up survey instrument. A study at San Antonio College demonstrated the importance of an initial student contact. The college found a significantly higher response rate (87 percent) from students who received prior notice of an upcoming survey than those without contact (62.5 percent) (Lewis 1976, p. 55). Examples of initial contacts included: (1) discussion during orientation sessions on follow-up information, (2) periodic classroom reminders from instructors that follow-up surveys would be forthcoming, (3) exit interviews with students leaving an institution, and (4) postgraduation letters heralding the arrival of a questionnaire. The initial contacts served to impress the students with the importance of returning completed mailout questionnaires.

Another strategy that tends to increase student response rates is the updating of student addresses while the student is still enrolled in the institution. During initial student contacts for mailout surveys, students should be encouraged to update their permanent addresses that are on file at the college. Alumni offices have devised elaborate communication systems to update alumni address files, and researchers should investigate the procedures used by these offices. An effective way to maintain a current address file is to request students to furnish the name and address of someone who will know their location within the next five to ten years.

Experienced educational researchers generally agree that at least three separate mailouts are required to ensure maximum effort to reach students. A comprehensive mailout survey falls within the following suggested pattern: (1) a cover letter, an initial questionnaire, and a self-addressed, stamped envelope; (2) a postcard reminder seven to ten days later; (3) a third mailout a week later, including a second cover letter, questionnaire, and self addressed, stamped envelope; and (4) a fourth attempted contact by mail, with the inclusion of another questionnaire or a contact by phone or personal interview. The fourth student contact can definitely increase the student response

rate but that rate depending upon the institution's priorities be generally regarded as cost effective. Response rates have been demonstrated to vary on a regional basis and by category of students surveyed. Experience has been found to indicate that more than four attempts should be undertaken to increase the student response rate.

Cycling of Surveys. Most institutions will not be able to engage in data aggregation of students surveyed on an annual basis. In some cases a cyclical plan is more feasible. Cyclical plans designed to survey specific student populations at predetermined intervals not only provide an institution with a comprehensive description of the student but also allow for student data to be collected on a longitudinal basis. As a result of using existing procedures for follow-up surveys comparative data can be generated and student outcome trends analyzed.

Data Processing. As soon as there is a determination of the types of information needed there should be formal involvement of the data processor. This will ensure that the student information system is designed to gather needed information and that the information is presented in a format usable to the decision maker. Early planning decisions will affect data processing procedures. Data processing procedures can affect the utilization of the data by the decision-maker. The institution's need for accurate and timely data must not exceed the data processing specialist's ability to provide usable information. The data processing specialist can provide knowledge of specialized data processing techniques that can enhance the design and implementation of the study, for example, computer generation of sets of student names and addresses on mailing labels for mailout surveys. The data processing technician can also provide input that will eliminate duplication of efforts. Both the educational decision maker and the data processing specialist need to be aware of the student data that have already been collected at the institution. The importance of joining existing data bases with new surveys cannot be overemphasized. The combining of follow-up survey data with student information in an institution's management information system provides maximum opportunities for data utilization.

Follow-up Information Promoting Data Utilization

The process used to establish the selection of specific follow-up data elements should ensure that there is a planned and orderly

relationship between educational decisions and the information needed to make decisions. The education planner, curriculum developer, counselor, and instructional leader are not necessarily skilled in the process of data utilization. The burden of data dissemination, promotion of data utilization, evaluation of utilization, and any revisions in collected data fall within the purview of the professional who produces the information.

Some of the most important strategies involving experienced institutional data producers in promoting data utilization are:

- Conducting workshops on data utilization
- Familiarizing educational decision makers with specific implications of the data
- Providing information that allows for comparison of programs
- Analyzing trends in data collection efforts
- Suggesting new areas of research based on collected data
- Evaluating the extent of data utilization by decision makers

In a publication entitled *The Next Step* (1981), Reed and Hall have documented a practical strategy for the producers of follow-up data to proactively link data with a broad base of potential college users. The strategy is based on the tailoring of the available data to meet the unique information needs and priorities of a college; the information can be reported, presented, formatted, and so forth, according to the needs of the college personnel involved. The strategy for the use of data begins with the potential user group receiving knowledge of a particular follow-up effort before the effort is begun.

The first active linking effort begins at a general information meeting with the following issues being discussed:

- Explanation of the college's use of a particular questionnaire
- Why the survey was conducted and who was involved
- Potential use of the information
- Survey methodology, who was surveyed, and the response rate
- Identification of special issues relating to the survey and any shortcomings
- Suggestions about what types of data the group is most interested in

This general information meeting would be attended by a wide variety of potential users. At the first meeting it would be announced that specific findings would be presented at the next meeting and

2 the word should be passed along to other colleagues who may be interested in the information

The purpose of the general findings meeting is to identify those college personnel who are most interested in the student information and to present general findings of the results of the study The presentation of the material is crucial to the use of the data This is the point at which most data promoters—as linkers—fall short of the goal of information utilization It is advisable to be well-prepared with charts graphs and so forth, to assist in communicating the message The general findings meeting could involve

- A short restatement of the type of survey conducted, why it was done and who was involved, and a description of the survey itself
- How the special issues have or will be illustrated if possible by the data
- General findings presentation
- Response to all questions
- Identification of specific priorities to pursue when analyzing the data further
- Listing of specific uses as identified by the meeting participants

At the end of this meeting, it should be announced that a utilization plan, which is based on the results of the two meetings, will be documented and disseminated to those in attendance This utilization plan should be drafted shortly thereafter and should include 1 the identified priorities of the type of information in which the group is most interested and 2 a listing of the specific intended uses of the data at this point

From the draft of the utilization plan should come a final version of the plan after input is received from the group This document should then dictate the selection of one or more of the strategies that will be used in terms of 1 responses to individual requests, 2 production of a report, 3 targeting on the enhancement of specific programs or services, and 4 presentation to other groups, committees, and so forth

It is at this point that the executive officer of the college can assist to a great extent If this person has not already been involved with the survey findings, it is important to solicit active involvement at this time Since student information systems have college-wide implications, they are in most cases not administratively "clean", therefore,

the involvement of the college-wide executive officer is crucial. This involvement should result in a clearer definition of the utilization plan. At this point, the various data users can be identified with the decision-making and enhancement process to begin shortly thereafter.

Outcomes of Utilization Promotion

Student follow-up information can be utilized in most institutional activities. One of the most important challenges to institutional leaders and research specialists is the stimulation of all educational decision makers to become familiar with and to utilize student related information. Follow-up data can be broadly applied to evaluate and improve college programs and services. Educational decision makers and research specialists should ensure that follow-up data are used to:

- Make year-to-year decisions about college course offerings
- Evaluate the results of college courses or curricula
- Revise the content or nature of individual courses or curricula
- Promote the college through community public relations
- Assist advisory committees in planning
- Recruit and place students
- Determine enrollment quotas for some curricula
- Provide students with up-to-date career information and counseling
- Communicate with accreditation visit teams
- Review the cost effectiveness of college offerings
- Analyze market demand for and market satisfaction with employable graduates
- Develop recommendations for college aims and broad policies for consideration by the governing board.

Research is currently underway that is designed to determine how student information is utilized, and by whom, in the manner just listed (Hall 1981). Uses and users have been categorized by type of user (Reed and Hall 1981). This categorization came about from a review of data dissemination products resulting from the implementation of the student information system in Texas and also in Michigan and Mississippi which presently have adaptations of Tex-SIS. Examples of how students, faculty, college administrators, research and development personnel, local governing boards, state and federal

administrations, the general public, and accreditation and approving agencies use the student information system data have been chronicled. These groups have been included in the list of those professionals and professional agencies attributed as stakeholders in the mission of the community college (Thorogood, 1980, p. 21).

Student information was found useful to students—for career choices, consumer information, student recruitment, and improving services to students; for faculty—in the review of suggestions for improvement, the understanding of course offerings needed, the improvement of instructional methodology, and for course content update and student profiles; for local administrators—in identification of areas needing attention, institutional management, curriculum update material determining institutional goals, increased communications and assessing student achievement; for research and development personnel—in profiles and characteristics, trend identification publications, and policy implications; for governing boards—in accountability and budgeting, meeting institutional goals, and policy decisions; for state administration—in meeting statewide needs, program coordination, increased awareness, communication links, state legislation, and support for local activities; for federal administration—in federal legislation, increased awareness, reporting requirements, level of funding, and accountability; for the general public—in advisory committees, assessing community impact, public relations/news releases, student recruitment, increased awareness, and marketing; and for accreditation and approval agencies—for program data, accountability and approval, and compliance reporting.

Promoting and monitoring the uses of student information is crucial to the continued success of surveys from a cost/benefit standpoint. Dissemination efforts could be carried out through the institution's users committee mentioned earlier in this chapter. For student information data to be widely used, the data must be broken down into meaningful categories that tie into college operations. For instance, if student information can be broken down by instructional programs offered at the institution, dissemination to department heads and faculty would be facilitated. In cases where information is needed for special categories of developmental students, student information data would need to be identified for each of these specific categories. Data elements such as sex, age, ethnic classification, number of credit hours earned, and so forth are of significant value in formatting the data for dissemination. The plan for dissemination

must deal with the question of what data go to which educator. Greater use of student information may be guaranteed if a community college has the capability of linking ongoing student information data collection with the increasing demands for accountability from college funding sources. Uses of student information system data can be related directly to data needs engendered by state and national legislation, of which the following federal laws are only a few:

- Career Education Incentive Act Public Law 95-207
- Career Education Information Public Law 94-482
- Comprehensive Employment and Training Act Public Law 95-524
- Control of Paperwork Public Law 95-561
- Educational Information Centers Public Law 94-482
- Lifelong Learning Public Law 94-482
- National Center for Research in Vocational Education Public Law 94-482
- National and State Occupational Information Coordinating Committees Public Law 94-482
- National Vocational Education Study Public Law 94-482
- State Vocational Education Programs Public Law 94-482
- State Planning Commissions for Postsecondary Education Public Law 94-482
- Student Consumer Information Public Law 94-482
- Supply/Demand systems National Occupational Information Coordinating Committee and State Occupational Information Coordinating Committees
- Vocational Education Data System Public Law 94-482
- Vocational Evaluations Federal Register October 3, 1977
- Veterans Administration Follow-up DVB Circular 20-77-48

Summary

In order to achieve successfully the full utilization of student information systems to improve educational planning and decision making, potential users must be involved in the development, implementation, and ongoing operation of the system. The approach to assessing students must be comprehensive in nature—touching all students at different points in their involvement with the community college. Barriers to the process include questionnaire design, survey

methodology, data production, personnel resistance, dissemination, and potential utilization. Barriers may be overcome through inclusion of decision makers in the survey implementation effort, a strategy for use, and the monitoring of uses, which will ensure full utilization and continued support for the activity.

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Joni M. Hall is director, and Jim E. Reed is director, Computer Services, Center for Information Services, Navarro College, Corsicana, Texas. The Center serves community colleges in Texas, Michigan, Mississippi, and throughout the country in work relating to student information systems and is dedicated in Texas as the location of the Texas Student Information System. Tex-SIS' Support Services and is the support services for similar systems: MoSIS and MoSISsippi being implemented in Michigan and Mississippi.

Financial Decision Making in a Period of Retrenchment

Mike R Stevenson
R Dan Walleri

This chapter provides nine guidelines for dealing with financial decision making in a period of retrenchment. The guidelines were developed from a search of the literature on community college resource allocation budgeting and from the authors' experiences in institutional research at a community college.

Before describing the guidelines, the scope of this chapter is defined and previous institutional responses to retrenchment are reviewed. Unresolved issues are discussed separately following the presentation of the guidelines.

Retrenchment involves "any one of a number of economy measures designed to reduce college expenditures" (Morgan 1979, p. 22). The causes for retrenchment have already been well documented and include declining enrollment, state budget cuts, and inflation. Financial decision making includes resource allocation, utilization, and accountability. This also includes the processes of planning, budgeting, spending, and accounting or evaluation. The

focus here is on resource allocation decisions within the budgeting process. However, the importance of keeping the broader perspective for financial decisions is stressed here and in detail within the guidelines.

The guidelines are intended for developing an effective environment for dealing with significant retrenchment problems. They do not offer a blueprint. The uniqueness of each college, plus the mix of factors producing retrenchment, require a response tailored to specific conditions and situations. However, to avoid repeating past mistakes and to be cognizant of the implications of the chosen alternative, it is critical that a college be prepared to deal with retrenchment rather than simply to react to it.

Institutional Responses to Retrenchment

A survey by McGuire (1978) brought responses from thirty-nine states with regard to the financial condition and retrenchment strategies of community colleges. The survey found twenty-one states with stabilized funding, seven states with decreasing funding, and eleven states with increased funding during the 1976-1977 period. It should be noted that a stabilized condition often involves retrenchment. With no significant increase in appropriations, states with stabilized resources face the same problems as those with declining resources: increasing enrollments, inflation, rising costs, and other factors that constrict growth. (McGuire, 1978, p. 18.)

McGuire's survey found that the most common responses to declining or stabilized funding were reduction of noninstructional expenses, increase in the use of part-time faculty, and higher student-teacher ratios. Other actions, although used less frequently, included restricting new program development, eliminating programs, and limiting enrollment.

Jackson (1979), among others, has analyzed the preliminary response of California community colleges to the impact of Proposition 13. His study identifies four retrenchment strategies: 1) a reduction in activities, program elimination; 2) across-the-board cuts; 3) an increase in revenue (tuition); and 4) reallocation, deferred maintenance, and so forth. (Jackson, 1979, pp. 7-9.) Selecting among these options involves trade-offs. For example, deferred maintenance may relieve short-term problems but can lead to even greater financial dislocations in the future. Decision-makers must also weigh the impact of retrenchment on various constituencies. Reducing night

courses will have a greater impact on part-time students than on full-time students.

In light of the trade-offs and the consequences of different retrenchment strategies, it should be obvious that a systematic approach is needed. This is especially true if retrenchment continues over several years. Klapstein (1978), Sussman (1978, pp. 44-45), and Lahti (1979, pp. 86-87) provide excellent guidelines for responding to retrenchment from the perspective of the community college. They are not exclusive. These suggestions are incorporated with some of the guidelines described later.

Much of the research dealing with retrenchment has focused on the budgeting process. Not surprisingly, zero-based budgeting has attracted the most interest (Hardin and Lee, 1979; Fischer and Stadler, 1978; Ingelson, 1979; Alexander and Anderson, 1978; Mansinger, 1978). The zero-based system requires justifying decision packages for the total budget where a zero-base is assumed rather than the historical budget amount plus a justified increment. The zero-based system is more work than the incremental system used at most colleges. Retrenchment justifies the extra work by placing a college in a crisis management mode.

Although developing an appropriate budget process to cope with retrenchment is important, it does not provide enough information for financial decision making. If the budget is to reflect an institution's mission, goals, and priorities, it must be integrated into the planning system (Bess, 1978; Harvey, 1976; Alfred, 1978). Decisions made during the planning-budgeting process must be supported by cost analysis and outcome measures. Cost analysis is especially important in justifying decisions to those affected.

For medium-size to large institutions the above requirements for sound financial decision making will often require computer support. Baldwin (1978) describes a Goals Programming System that uses linear programming software to determine the optimal budget given the rankings and weights for each goal as well as the budget constraints. There are several computer software packages available at reasonable cost that can help in financial analysis, such as EDUCOM's EFPM package and EXECUCOM's Interactive Financial Planning System (Austin, Texas).

Guidelines for Dealing with Retrenchment Problems

The design of an effective environment for dealing with retrenchment is a problem that many community colleges have faced

[illegible]

Action Not Reaction [illegible]

Participatory Budget Process Participation in budgeting must be [illegible]

Mission and Priorities Reexamination Bess [illegible]

Consistently Derived Comparisons Financial decisions should be [illegible]

[illegible] Act of 1972 [illegible] personnel [illegible] decisions (Grossman, 1975). [illegible] decision [illegible] used [illegible] information [illegible] decisions [illegible] reason for the [illegible] allocation decisions [illegible] alternatives. A data base [illegible] comparisons for all budget [illegible] Mt. Hood [illegible] Oregon [illegible] Stevenson and Walleri [illegible].

Revenues and Expenditures. [illegible] data [illegible] revenue and expenditures are necessary [illegible] budget [illegible] Information Exchange Procedures (IEP) [illegible] developed by the National Center for Higher Education Management Systems (NCHEMS) (Stevenson, 1977) [illegible] the IEP [illegible] revenue [illegible] measure [illegible] IEP [illegible] as input for the budget [illegible] instead of historical expenditures in order [illegible] Stevenson and Walleri, 1979).

[illegible] supported by historically accurate data [illegible] terms of cost per student [illegible] unrealistic costing. Historically [illegible] data [illegible] occurrence.

[illegible] college personnel must [illegible] revenue and expenditures [illegible] the right to understand [illegible] and careers. [illegible] based upon [illegible] planning [illegible] Bartlett and Burke (1975) suggest that [illegible] will improve resource allocation decisions.

Outcome Measurements. Another important information item [illegible] program outcome [illegible] data. Again, the need is for [illegible] Harvey (1976) suggests that internal and external [illegible] imperative that community colleges [illegible] document and articulate outcomes.

and impacts of their programs. Bers (1978) describes outcome-oriented budgeting, and outcome measurement projects have been initiated at El Paso Community College in Texas and at Kalamazoo Valley Community College in Michigan (Harvey 1976).

Planning Process Connection. A planning process that is not connected directly to the college's budgeting process is not relevant during a period of retrenchment. During periods of affluence, it is possible to have planning for extra growth and separate budgeting for continuing operations. Obviously, this is not the case during a period of retrenchment. Planning [illegible] must be tied into the actual financial allocation and reallocation decisions of the college. Further, planning is essential in order to be able to act positively and in a goal-oriented mode during a retrenchment problem.

Meeks (1980, p. 1) states that "year-to-year budget allocations are frequently incremental and unrelated to long range plans, leading to inefficiency and confusion among programs at all levels within the institution." Bassett (1980, p. 7) suggests that in the past budgeting had a traditional focus of being based almost entirely on the number of students served. This straightforward approach was effective during the period of growth. Bers (1980, p. 16) suggests that traditional budgeting practices such as incremental budgeting and across-the-board cuts are becoming counterproductive during periods of retrenchment. Further, Bers (p. 17) suggests that the annual reversion of unencumbered funds eliminates incentives to save current-year funds. Thus, Bers (pp. 21-26) suggests a multi-year planning budgeting perspective consisting of the following phases:

- Phase 1: Formulate institutional planning and budgeting guidelines
- Phase 2: Prepare program plans and budgets
- Phase 3: Review, consolidate, and approve program plans and budgets

Compilation of Data. Data are not information until they are used for a purpose. There is a tremendous amount of data that is relevant to financial decision making. These data must be relevant, accurate, and timely in nature in order to be usable in financial decisions affecting personnel. Some type of data processing system (not necessarily computerized) is necessary to report the consistently derived comparisons. This data processing system should define each data element and its relative importance before compiling and simplifying. For example, at Mt. Hood Community College (Stevenson and Walleri

Figure 1. Ratings of Data Items Relevant to Keeping or Cutting Discipline or Service

[illegible]

1980, p. 3) identified ten data items as relevant to the decision to keep or cut a discipline or service. Each of these data items was defined in terms of a rating scale from one to five and a relative importance weighting from one to five.

Figure 1 describes these ratings, their weighting, and their source. The ratings are cross-discipline derived comparisons derived from program costs, various student enrollments, state employment agencies, student follow-ups, and the budget unit manager's knowledge of each discipline or service. To ensure consistently derived ratings all subjective measures were reviewed and finalized by the deans on a consensus basis. A composite weighted average was calculated. The data was computed by sorting and reporting for each rating.

Effective Communication. Aggressive leadership is required to cope with declining resources (Alfred, 1978, p. 86). Fiscal stability is related to the college's ability to respond. The college's organizational structure in preparing for and, when necessary, responding to strategic problems is of the highest importance. Each administrator in a college must take a leadership role in:

1. Classifying, measuring, and describing the many outcomes and benefits that are derived from every program.
2. Restating and clarifying the role each program, activity, and budget item plays within the context of the college's mission and long range goals.

[illegible] Working with community advisory groups, students and others to develop the powerful partnerships necessary for [illegible] support

[illegible] Identify [illegible] the college and its programs.

This [illegible] through leadership [illegible] is a necessity [illegible] and for the degree [illegible]

Issues

[illegible] However [illegible] statements [illegible] positions rather than people [illegible] (1980, p. 1[illegible])

[illegible] of performance or outcome measures is always [illegible]. However [illegible] vested interests [illegible] probable [illegible] relevant variables. [illegible] modifying these data by using a standardized [illegible] system is more acceptable than leaving the data [illegible] or perhaps worse, letting each decision maker [illegible]

Perhaps the [illegible] issue [illegible] given this chapter's proposed guidelines [illegible] the use and value of cost analysis and outcomes information. Such [illegible] do not provide a deterministic formula for resolving [illegible] dilemmas. The hard choices will still have to be made. This is so for two reasons.

First, and regardless of how systematic the approach, it is virtually impossible to quantify every factor influencing a financial or educational decision. There will be gaps in the data. Even if there were no gaps, strict cost-benefit analysis procedures cannot be applied to educational outcomes (Bers 1978, p. 18). The value of different educational outcomes cannot be measured and is relative.

Second, the verbal and written input from college staff and students gathered during the planning and budgeting process will have to be considered and weighted. The established traditions of the college and the perceived environmental needs of the future will have to be considered. With such an array, financial decision making for an

educational enterprise is more an art than a science. However, cost analysis and outcomes information can help in making better decisions and in justifying the decisions to all involved.

The value of cost analysis and outcomes information is not just in providing insight to confirm or shift intuitively and nonsystematically derived impressions of a program's value. Nor is the value just in providing the best empirical evidence available for making such judgments. The value of data is in their use as an aggressive communication tool to confront, not react to, the financial environment in a mission-related, well-thought-out manner. As Spencer (1979, p. 63) argues, "institutional renewal, unless it links directly to data, will be almost impossible."

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Michael R. Stevenson is the director of research and computing at Mt. Hood Community College in Gresham, Oregon.

R. Dan Walleri is institutional researcher at Mt. Hood College.

The future of institutional research is focused on management planning and evaluation for administrative decision making.

Improving Decision Making Through Institutional Research

Mantha V. Mehallis

"The fact that rigorous research design and methodology are impossible to use or are considered irrelevant for most educational decision making is no excuse for retreat to a pooling of ignorance by uninformed majority vote or to an enforced acceptance of the judgments and decisions of authority, however great the claimed or recognized expertise" (Dressel, 1976, p. 2). Even though theoreticians have dissected the decision-making process into models and diagrams, the actual process itself is very complex and multifaceted. The impact of decisions has not been well-defined, nor has the impact of extraneous pressures and constraints (fiscal, political, social, and temporal) upon the decision itself been explicated.

Decisions based solely upon objective research are not always necessarily the best decisions. The institutional researcher can utilize planning and evaluation techniques to explore alternatives, to project ramifications of various decisions, and to prioritize the best decisions. Both the evaluation and the decision should be tested for validity (especially internal), reliability, and objectivity. There must be con-

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tinual information gathering, review, and recycling of information regarding the decision to ascertain its full impact. Institutional research is defined here as the collection, synthesis, analysis, interpretation, and dissemination of data and information for the purpose of administrative decision making within the community college context.

Evolution of the Institutional Research Function

Historically, the institutional research function was conducted in a disjointed, haphazard fashion whereby various personnel were given the responsibility of completing external reports, evaluating specific programs, and occasionally conducting surveys to gather public or student opinion, usually in preparation for accreditation. No single individual or office coordinated the efforts or knew the status of the activities. The result was the creation of many different data sources with no consistency or necessarily accuracy. An institution could very easily report its enrollment differently each time a query was made. Such actions only led to confusion about and gross mistrust of the accuracy of institutional data.

The advent of additional external reporting requirements mandated by law, for example, civil rights legislation, the Vocational Education Act of 1963 and the Amendments of 1968, the Higher Education Act, and the Vocational Education Data System, quickly made presidents realize that the reporting function had to be centralized, controlled, and monitored by a single office or individual in order to be effective and comply with the law. The institutional research office appeared to be most appropriate for this reporting function, and, therefore, that area was designated as such and entrusted with the external reporting function. A study has indicated that the release of data to the public through one office, institutional research, enhanced the image of the college with the public (Chick, 1974). Even with such consolidation, the changing student population and information demands of state and federal agencies have resulted in contradictory demands upon the office of institutional research (Cohen, 1975).

Since the reporting focused on statistics, many presidents selected mathematics instructors with an interest in statistics to fulfill their need. However, no matter how excellent they may be at pedagogy, most community college teaching faculty are untrained in

research methodology. Around the same time, in the sixties, teacher education institutions began to educate persons obtaining Ph.D.'s in the area of higher education administration with an emphasis on institutional research as a specialty.

Individuals with doctorates in the education research/institutional research area were educated in the intricacies of higher education administration, including governance, policy decision-making, staffing, personnel negotiations, finances, resource allocation, facility construction, and student/academic affairs, as well as in research methodology. The caliber of such a highly skilled individual is far beyond that of a "number-counter." However, the traditional community college administration has often failed to distinguish the difference and still continues to underutilize the potential of the institutional researcher. Alfred and others (1977) found in a study of community college institutional researchers that substantially more are involved in routine data-gathering and reporting activities than in management, planning, or evaluation activities. Part of the reason may be that when most of the current presidents were in college themselves, institutional research as a program did not exist at the Ph.D. level. Therefore, the presidents tend to be unfamiliar and, hence, uncomfortable with the area. It is now the responsibility of the researcher to educate the president and the executive administration about the role that institutional research should play in the college decision-making process.

Professional Development

Professional development opportunities are important in order to upgrade persons in the institutional research function who are not adequately prepared with the proper skills and to update the skills of those who have been educated so that they can utilize the most efficient, tested methods to assist with decision making and planning. Gross (1977) found that the typical institutional researcher still exists at the lowest level of the administrative staff and generally possesses few research skills. The institutional research function tends to be highly dependent upon the individual researcher's personality and skills.

Professional development activities, available on a regional basis, would give personnel the opportunity to upgrade themselves without too great a financial burden. The activities, though, should be

monitored for their quality and to ensure that they are of a specific enough nature to have actual, direct application within the institution

Administrative Applications

The emphasis on compilation of raw data must be checked and refocused toward data analysis by institutional researchers who are competent in the methodologies of research Lasher, 1976 Hartnett 1975 expressed the need for realistic expectations, information as opposed to raw data, and institutional research as institutional provocation The researcher should focus on meaningful academic units, relate goals to outcomes, involve faculty, regard measures as indicators and not definers, and evaluate outcomes information

Hamberg 1978 maintains that most administrative literature still conceptualizes institutional research as a cybernetic, neutral, data collection function initiated in response to the decision-making process He believes that the institutional research professionals must be free to participate directly in the policy-making process and to suggest administrative implications of research data for that purpose Implementation of policy should be left to line officers responsible for the function so that the institutional research personnel can subsequently evaluate it. Hamberg strongly feels that the research office should be placed in the executive administration reporting directly to the president and be charged with initiating research and evaluation activities, planning institutional mission and goals development, and conducting cost/benefit and market analyses The research personnel should also serve as a linkage between the college and external information sources

A synthesis of the literature by Knapp 1979 reveals that institutional research offices have been established in increasing proportions, although most have been relegated to operating on very meager proportions of the institutional resources Most report directly to the president in whatever governance structure exists within the college. The organizational structure may be a bureaucratic, systems, collegial, or political one Ridge, 1978, and requires the institutional researcher to function within the resultant environment

The ideal community college governance system, according to Harlacher 1976 , is one in which the board of trustees, the chancellor or president, and the immediate staff are concerned primarily with goal setting and evaluation—not with management activities The middle management is responsible for execution of the activities to

achieve the desired goals. In Harlacher's model, institutional research is responsible for the evaluation of goals achievement and for providing data for subsequent decision making. However, in reality, the president and the executive administration must make decisions encompassing management, planning, and evaluation.

Management

Decisions are made at all levels of the college as well as by the administration. Katz and Kahn (1966, p. 260) categorize decision making, in terms of policy making, as the formulation of substantive goals, objectives, procedures, and devices for achieving goals and evaluating performances; routine administration, the application of existing policies to ongoing operations; and residual, ad hoc decisions affecting organizational specifics without temporal implications beyond the immediate event. The importance of a decision is determined by the extent to which it affects the entire institution, external relations as well as internal functioning, and the length of time over which it endures.

Policy making, defined as the development of the major overall goals of the institution, is differentiated by Wenrich and Wenrich (1974, p. 105) from management decision making or the development of intermediate objectives and means for achieving long-range goals. Management is the responsibility of the faculty and the administration. It applies to instruction, the budget, and facilities.

"Management of instruction involves supervision and evaluation of the instructional process, coordination of scheduling, development of course sequences, incorporation of appropriate educational technology in courses and programs, coordination of outside experiences, and the use of community resources." (Wenrich and Wenrich, 1974, p. 172). Faculty constitute the program managers of the learning environment and could well utilize institutional research for management decisions. Matlock and Hogg (1978) describe the continuing need for institutional research staff to become more involved in the management decision-making process.

Similarly, fiscal and physical management must be delineated so that the budgeting process results in the optimum use of resources to achieve institutional objectives. Budgets have to be planned, controlled, and evaluated. Facilities must be managed in order to maintain the physical plant, security, and equipment. Institutional research can provide faculty inventories to use for facility utilization

studies and cost analyses to establish the average unit cost per full-time equivalent student. Most recently, energy management has become a major concern of the administration in an attempt to save energy and cut the costs of electricity and other energy sources used in facilities. Results of such studies can be used by the president and the board of trustees to justify requests for expanded resources in order to fulfill the goals of the institution.

Planning

Planning is a process whereby once an intended or projected outcome is determined, procedures and activities are established in order to bring about successful attainment of the objective. Survival in the current educational climate is tantamount to good planning. Boulden (1975, p. 5) contends that planning is anticipatory decision making directed toward the design of a desired future. This definition implies that somebody has determined what should be the desired future. Institutional studies can be utilized for such a purpose.

Research methodology such as Bayesian Decision Theory, multivariate analysis, simulation, and other modeling techniques can be used for projective efforts. Very few institutions actually utilize these techniques other than for enrollment projections. As institutions move toward integrated data bases and management information systems, institutional research will play a more prominent role in the planning process.

Besides enrollment forecasting, research can assist with facility planning, curriculum and program development, budget preparation, job market analysis, and other areas of planning. Techniques, such as the modified Delphi, opinionnaires, and pre- and post-evaluations, can be instrumental in the examination of mission, goals, and objectives. Long-term strategic planning can then be initiated with a clear focus of direction.

Institutional research can reenergize the planning management systems of higher education (Perry, 1979). The academic community and the support base appear to be opposing factors. Institutional research can function as an intermediary and articular to enable the educational community to obtain the appropriate resources in order to fulfill its mission.

Evaluation

Pure, objective research is unrealistic in the educational environment. Not only is it virtually impossible to establish an unbiased,

experimental design in such a setting, but if it were possible the results would most probably have little or no application to the real world. Evaluation however which takes into account the environmental factors values and other intangibles, appears to be better suited to the educational field Evaluation should be a primary function of every educational institution According to Dressel 1976 p 1 An evaluation is both a judgment on the worth or impact of a program procedure or individual and the process whereby that judgment is made He further states that to evaluate in fact means to place a value on or to draw a value out of an action, decision or experience p 4 His philosophical approach to evaluation implies the necessity of values clarification as a prerequisite to educational evaluation Rational decision making can only occur if there is full identification and examination of the institution's values The educational evaluator becomes responsible for this action

Values Clarification

Values are inherent in all aspects of human life, whether implicit or explicit The community college itself is richly endowed with the value that higher education is an opportunity that should be accessible to the masses Fulfillment of local community needs through services directed both internally and externally is another value implied in the concept of a community college However, most college administrations do not consciously identify and clarify their institutional values The result is that mission and goal statements are often quite ambiguous and meaningless to the personnel who are charged with implementing activities to bring about their fruition Personal values may be in harmony or in conflict with institutional values however, if values are not clarified, individuals do not know their positions, and anomie will permeate the environment

The institutional researcher should possess the skills and be given the responsibility to identify and clarify values and subsequently the mission, goals, and objectives of the institution Once that action is taken, the program, project, service, procedure, or policy to be evaluated must be clearly defined The purpose of the evaluation should be stated explicitly in writing with a clarification of the purpose, goals, and objectives of whatever is being evaluated Standards of criteria of success must be established for the purpose of measurement Procedures for data collection and analysis can then be designed

Collection and analysis of data should include the investigation

and interpretation of both process (means) and outcomes (ends). Planned and unplanned by-products (either positive or negative) need to be identified. The impact of the program, service, or policy being evaluated should be determined in terms of the college (internal) and the community (external). Finally, recommendations can be made with regard to continuance, revision, or deletion of components as they were evaluated. The benefits and usefulness of applications of the evaluation itself must be weighed to determine if it should be continued on a regular, systematic basis.

The late sixties and early seventies focused attention on instructor and course evaluation. Most evaluation in the community college today focuses upon program evaluation. Stevenson and Wallen (1978) identified three basic program evaluation approaches: 1) the market evaluation model (student-driven as defined by decision to enroll), 2) the instructor-administrator model (expert-driven through advice and planning to formalize the institution's response to changing student needs), and 3) the state coordination evaluation model (state-driven for accountability). They suggest an institutional data base system to determine the most appropriate data based criteria for program evaluation decisions and to collect and communicate the decision-relevant data.

Very little attention has been given to formal evaluation of policies, procedures, services and plans. It seems as though once an item is planned or a policy established, it rarely is evaluated for its adequacy and its continued appropriateness and effectiveness. In addition, although presidents and boards of trustees regularly use data to make decisions, they have rarely integrated the institutional research function into the actual decision-making process. McIntosh (1977) contrasts the use of information for decision making in industry with the traditional, educational approach of test and measurement. Her conclusions point out that the analysis of the problem being investigated and the decisions to be made should determine the most appropriate evaluation strategy to be utilized.

Summary

Decision making in the community college regarding policies and procedures still occurs primarily by consensus of the administration and board of trustees. The conditions that exist now in the external environment (economy, reporting mandates, social factors,

and so forth and the internal environment changing student populations nontraditional programs necessitate a more formalized approach to decision making with input from all levels of the college. The institutional research function has evolved to the point where it should be incorporated directly into the decision-making structure. It should be utilized by the president and the executive administration for the management, planning and evaluation of the development and attainment of the community college's mission and goals. A proactive approach to administrative decision making will result in the revitalization of the community college as an institution that can offer opportunities for personal growth and advancement to individuals and enhance the quality of life in the community.

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Martha V. Mehallis is director of institutional research at Broward Community College, Fort Lauderdale, Florida, and immediate past president of the National Council for Research and Planning.

Further resources from the ERIC system can provide additional information about issues regarding decision making

Sources and Information: Research and Planning

Donna Dzierlenga

This concluding chapter highlights references from the Educational Resources Information Center (ERIC) regarding the role of institutional research in the planning and management process. Current fiscal constraints, public dissatisfaction with the decline in basic skills, the increasing number of nontraditional students, and the growth of vocational program enrollments have required institutional researchers to take on management-related tasks (Cherdack, [1979]). Institutional researchers are studying institutional cost effectiveness, establishing marketing strategies, using program needs assessments to determine program cost effectiveness, conducting program evaluations, and analyzing and providing solutions to problems in faculty contract negotiations.

Alfred and Ivens (1978) provide a conceptual model for institutional research. Each of the model subsystems relates to the planning of decision making.

The relationship of institutional research and planning and evaluation is explored in fifteen conference presentations (*Community College Research* , 1977).

Individual community colleges are examining the position of

M. Mehallis, Ed., *New Directions for Community Colleges: Improving Decision Making*, no. 35. San Francisco: Jossey-Bass, September 1981.

institutional research in planning and management. A survey of faculty and administrative personnel was conducted at Vancouver Community College to learn what information was considered of the greatest value in decision making and what areas of existing data collection and analysis efforts needed improvement (*Vancouver Community College*, 1979).

The relationship of research at Delaware County Community College (DCCC) to college goals, program evaluation, outcome measurement, and community needs assessment is explored in a document consisting of materials used in the DCCC planning process (Spencer and others, 1978).

Comprehensive Planning

Comprehensive institutional planning that incorporates goal setting, data collection, management, and evaluation is a process used to assure the college's continued effectiveness in responding to societal needs and goals. In his first monograph, Van Ausdle (1979a) provides an overview of the comprehensive planning process for officials of two-year colleges and discusses planning as an essential administrative function for the 1980s. Also included are a review and synthesis of the literature on planning theory, a conceptual framework of the planning system, a discussion of the Planning, Management, and Evaluation Model, and a presentation of an open system view of planning.

Van Ausdle's second monograph dealing with institutional planning (1979b) contains a step-by-step approach to developing and implementing a comprehensive planning process, and a case study of the planning process at Walla Walla Community College.

Determining the goals to be met, how to accomplish them, and how to evaluate their attainment are important parts of the planning process. The components and objectives of North Central Technical College's Planning, Management, and Evaluation System include an extensive goal-setting process, the development of department-level objectives related to the goal statement, and an evaluation phase (Groff, 1980).

South Oklahoma City Junior College developed a systematic structure for soliciting, organizing, and prioritizing concerns and developing them into goal statements (Shirazi, [1979]). Students, faculty, staff, administration, outside accrediting agencies, and the Board of Regents were allowed input into the goals development process, mainly through questionnaire responses.

A two-day planning workshop was held by Greenfield Community College, during which faculty and staff identified and assigned priorities to institutional goals and objectives DiCarlo, 1979

Capoor 1980 presents the findings of a study of using the Community College Goals Inventory to assess priorities assigned to institutional goals and to estimate priority changes needed to reach intended outcomes The finding was that the instrument is more useful in setting long-term and broad-based priorities than in making routine decisions

Long-range master planning is being implemented at the college and state levels A model for developing master educational plans in community-based colleges is presented by Vernon 1978 The model details various methodologies for gathering data about the college and the community, including information about college governance constraints, organizational structure, student characteristics, educational programs, the resources inventory, community demographic and socioeconomic characteristics, labor force requirements, educational opportunities, and community needs

Cumberland County College, with the aid of a team of consultants, developed a long-range plan along with a continuing planning process to assure the college's continued effectiveness Martorana and others, 1978 Aspects of the planning process include the review of available reports relevant to the college's long-range planning, the identification of preliminary goals and objectives, the assessment of county needs for postsecondary educational services, the review of available educational programs in the county, the assessment of community influence on planning, and the projection of fiscal and other resource needs

A model procedure for community-based, continuous, long-range planning implemented at Thomas Nelson Community College involves extensive participation by all community segments Bounds, 1978 The data base necessary for planning includes information on demographic characteristics, manpower and labor needs, public school enrollments, public school graduation projections, community educational needs, and the history, philosophy, goals, educational programs, and fiscal organization of the college

The major steps in the planning process at Caldwell Community College and Technical Institute were identifying the planning areas, developing a plan of action, reviewing the prior long-range plan, reviewing the planning model, gathering data and assessing needs, involving students, faculty, staff, trustees, community members,

businesses and industry representatives, developing quantified objectives in the planning areas, reviewing and refining the objectives, and gaining approval of the plan from the Board of Trustees (*Institutional Long-Range Planning*, 1977). Once the plan was adopted, it was divided into annual components that formed the framework for a management-by-objectives system.

The master plan for the Illinois Public Community College System outlines the history and scope of the system, deals with enrollment trends and projections, and discusses economic conditions (*Statewide Master Plan*, 1979). The plan calls for increases in cooperative educational arrangements, training programs for new and existing industries, educational services to the academically disadvantaged, and continuing education programs for adults.

The Maryland State Board for Community Colleges' state plan analyzes the success of the Maryland community colleges and discusses problems to be faced in the future (*State Plan*, 1980). Objectives and goals for the Board and the colleges are enumerated, and the three major policy directions for 1981 are described. Profiles of each of the colleges are given in terms of programs, facilities, and attainment of Board objectives.

Budgeting

A number of budgeting techniques are reviewed by Baldwin (1978) in relation to their application to higher education. Zero-Based Budgeting, the Planning and Programming Budgeting system, the Objectives, Strategies, and Tactics System, and analytic system models are discussed. As a best alternative for college budgeting, goal programming, a linear mathematical modeling technique which handles multiple conflicting objectives, is examined and compared to standard linear programming.

Harvey (1978) discusses the concept of zero-based budgeting in terms of its application, advantages, disadvantages, and implementation in a planning, management, and evaluation system.

The community colleges of Washington state use computerized, formula-driven budget models to define resource needs for legislative budget requests and to distribute appropriations among the twenty-two community college districts (*Budget Model*, 1978). This manual outlines the sources of information needed to operate the model and the principles on which the formulas work.

An institutionwide budget unit analysis involved developing financial projections by applying a modified version of the Information Exchange Procedures Model and deriving evaluation data from the system developed to meet the requirements of the 1976 Vocational Education Act (Stevenson and Wallen, 1980). A composite rating was created for each program and service for use by college decision-makers forced to reduce the college's budget by more than 35 percent.

Program Planning and Evaluation

Declining enrollments and reduced financing require ensuring that a program is needed and will have an adequate enrollment before the decision is made to offer it. After the program is established, continuous and comparative evaluation assures its continued effectiveness.

Tatham (1978) examines the importance and difficulty of accurately forecasting enrollment. To accurately monitor and maintain enrollment, colleges must use existing college and community data to assess population trends. Institutional researchers should work closely with persons responsible for student recruitment and changes in curricula, delivery systems, and college services.

A manual for assessing the current and anticipated training needs of local business and industry is presented by Busha (1979) for two-year colleges with an occupational orientation. The requirements for raw and relative data, the kinds of information that can be obtained from various groups, and the planning and implementation of employer needs assessments are discussed.

A two-part report examining vocational education needs within Connecticut and assessing the degree to which community colleges are meeting those needs was developed by Swartz (1980). The study is based on a review of Connecticut State Labor Department studies, community college enrollment and graduate statistics, and the State Master Plan for Vocational Education. The characteristics and educational objectives of students, the findings of a 1978-1979 graduate follow-up survey, and statistics comparing the average annual employment needs for [redacted] market areas with the number of degrees awarded by community colleges in programs serving those areas are presented to reveal employment trends.

As more emphasis is placed upon institutional research that provides information relating to long-term strategic planning, as well

as to short-term operational considerations, program evaluation techniques that merely analyze past or current budget and enrollment statistics will become increasingly inadequate (Kennedy, 1980). Institutional researchers should incorporate measures now evident in enrollment projection formulas to provide a prognosis model whereby programs are judged in the light of institutional missions.

Triton Community College's proposed method of conducting periodic, comprehensive program evaluations involves a self-study by faculty and administrators of the program, an external consultant's evaluation and report, the academic dean's reaction to the self-study and consultant reports, a study and report by the Program Review Committee, and a review and action report by the vice-president for academic affairs to be reviewed by the Academic Council and submitted to the president (*Program Review*, 1979).

Charting is a simple tool for program evaluation based on the assumptions that relevant curricula will attract and maintain student interest and that continued poor enrollment is indicative of weaknesses in instruction, curriculum, or environment (Charles, 1978). At De Anza College, decisions to offer or cancel classes and programs are based on charting enrollment figures for the pre-enrollment period, the first class meeting, the first census period, and the second census period.

Student Follow-up

Student follow-up surveys are conducted by institutions and state coordinating agencies to evaluate the usefulness of educational offerings and to satisfy reporting requirements.

A system for assessing transfer program outcomes developed at Oakton Community College was originally designed to provide timely information on senior institutions as experienced by transfer students (Kirby, 1978). The system actually allowed more accurate advising of potential transfers and the generation of more accurate data for college planning, accountability, and monitoring of transfer students in senior institutions.

Gadsden State Junior College designed and implemented a student follow-up system that revealed several administrative problems in integrating student follow-up into the planning process (Bers, 1980). The development of the system involved tailoring prepackaged follow-up methodologies to meet the college's needs. Interim study

results revealed four major problems—low response rate, inappropriateness of goal and performance indicators to nontraditional students, lack of commitment on the part of college personnel, and the resultant small impact of the project on institutional planning.

Statewide student follow-up studies are conducted in a number of states. The Illinois Community Colleges conducted a graduate follow-up to be used by community colleges to respond to federal and state inquiries regarding occupational programs, to compare local results to state norms, and as career planning data for current and future students (Lach and others, 1978). The survey included items intended to meet the needs of the colleges, the Board of Trustees, the Division of Adult Vocational and Technical Education, the Veterans' Administration, and other federal agencies. Primary responsibility for the study was at the local level, with the Board supplying central coordination and computerized data analysis.

The California Community Colleges Student Accountability Model (SAM), a set of procedures for the follow-up of occupational students, has been adapted to fourteen exemplary usages (*SAM* 1980). The most important criteria for selecting the exemplary adaptations was the effective use of data generated through SAM to make needed modifications in programs or courses. The goals of the model adaptation include achieving inter-college consensus on coding conventions in a multicollege district, classifying new courses and reviewing course classifications, effectively identifying a student's major and objectives, effectively collecting and using data concerning disadvantaged and handicapped students, providing for the manual operation of SAM when computer time is not available, effectively collecting employment information on nonreturning students, identifying potential dropouts, conducting follow-up studies and evaluating data collection practices, and using SAM data for curriculum evaluation.

The Texas Student Follow-up Information System (Tex-SIS) was originally developed by Project FOLLOW-UP to provide a statewide management information system for follow-up of Texas public junior and community college students (Reed and Cox, 1976).

Hall (1978) presents the linkage of Tex-SIS data to the supply/demand analysis work of the Texas 1202 Commission as a prototype for state and national systems of data collection and analysis. Tex-SIS data on graduates and nonpersisting students, employed students' job titles, and the availability of jobs for program completers are being

used to produce the occupational supply/demand analyses of the Texas 1202 Commission

Management Information Systems

Management Information Systems (MIS), originally developed to aid decision making in business, are being applied to decision making in education (Ruch and Munro, 1978). Management systems should be designed to promote real-time management, incorporate computer support, and aid in the decision-making process.

Program Effectiveness and Related Costs (PERC) is a comprehensive data mangement plan developed at Empire State College to provide information for decision making (Palola and others, 1977). PERC incorporates a variety of questionnaires, interview schedules, and rating forms to collect data on outcomes, costs, programs, students, and faculty.

Statewide MIS programs are in use in a number of states to provide data needed for planning. In Illinois, the MIS program includes subsystems covering student enrollment, faculty and staff inventory, room inventory, student completion, and student follow-up (Camp and others, 1980). The Community College Information Classification Structure organizes data from Florida community colleges (*Community College Management* . . , 1980). The required reports cover the college operating budget, annual finance, cost studies, student fees and waivers, facilities inventories, space utilization, personnel and salaries, full-time equivalent enrollemnt, opening fall headcount, fall headcount by age groups, annual enrollment headcount, teacher-staff utilization, placement and follow-up of graduates and leavers, community instructional services, annual credit outputs, and staff and program development.

Computer Support

The increasing need for information to fulfill reporting requirements and planning imperatives has led to the growing use of computers as both record-keeping and advanced research tools. A guide for community college boards facing the acquisition and implementation of a data processing system breaks the decision-making process into seven steps (*A Guide to Making* . . , [1980]). The process is designed to assess current computing services and future

needs, plan the data processing system, choose the needed hardware, and determine the system's cost effectiveness

Arth 1979 examines the problems associated with computer use in higher education and provides an overview of the planning and development of computer usage at Cuyahoga Community College

A task force at Amarillo College investigated the use of the computer at the college and future data processing needs in the areas of instructional and administrative support *Computer Support Needs* 1978 The study revealed a fairly heavy reliance upon computer support for administrative operations, reports, and planning and management systems

The San Diego Community College District conducted a two-part study to assess the impact that automating the Student Information System SIS had had on the cost of providing student services *Impact of Computerized* , 1980 The study determined the savings potential of automation in the service areas most affected by the SIS and established baseline indicators to assess postautomation productivity for student services

The member colleges of the Massachusetts Board of Regional Community Colleges formed a software cooperative to provide each institution with a cost-effective computer records system Traicoff and others, 1980 The report examines the planning and installation process, the functional specifications of the system, and the hardware components and software packages making up the system The implications for institutions considering the installation of cooperative software applications are summarized both from the perspective of the colleges and that of the private consulting firm that worked with them

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Donna D [illegible] is [illegible] specialist at the ERIC Clearinghouse for Junior Colleges

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From the Editor's Notes

Effective decision making is dependent upon the utilization of accurate and timely information. Such information is best obtained from an ongoing, systematic institutional research effort. In order for that effort to be meaningful in the community college, it must be closely aligned with the president and the executive administration. As illustrated in this volume of New Directions for Community Colleges, *focus on management, planning, and evaluation will provide the information necessary for administrative decision making to develop and monitor policies and procedures.*