PROPOSAL FOR A MODEL AND PROCEDURE FOR THE ALLOCATION OF FINANCIAL RESOURCES IN A COLLEGE OF EDUCATION WITHIN A COMPLEX UNIVERSITY SYSTEM

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
OLAF ISACHSEN

1970

THESIS

This is to certify that the

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Allocation of Financial Resources in a
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presented by

Olaf Isachsen

has been accepted towards fulfillment
of the requirements for

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Major professor

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ABSTRACT

PROPOSAL FOR A MODEL AND PROCEDURE FOR THE ALLOCATION OF FINANCIAL RESOURCES IN A COLLEGE OF EDUCATION WITHIN A COMPLEX UNIVERSITY SYSTEM

By

Olaf Isachsen

The purpose of the study was two-fold. First, it was assumed that bringing to the attention of the reader the apparent need for performance-oriented budgeting practices ultimately would result in recognition of the need for more comprehensive measures in program accomplishments. A model for allocating resources was proposed, and the approach employed to determine the parameters of the model was limited to an examination of (1) the present traditional format for resource allocation, (2) the identification of major programs, and (3) the establishment of a format which would allow comparison of relevant data within and across programs. It was emphasized that the study was of a descriptive nature. The population was limited to those human and physical resources demanding monetary support in order to function within the College. The sources of data for the study were comprised of annual reports, interviews with faculty and staff, annual budgets, accounting procedures, and various reports from the Registrar, Comptroller, and the Office of Institutional Research.

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The second purpose of the study was to propose an initial format by which the model could become operational without the aid of sophisticated electronic data-processing equipment. Account was taken of the formal requirements upon the College, as directed from the central administration, limiting its range of action. Some 68 identifiable program areas, while being committed to a uniform college-wide performance budget, specifically were encouraged to maintain educational philosophies unique to their educational environment. The procedure was not meant to substitute fiscal budgeting procedures, but rather to support and strengthen individual program efforts in their quest for resources. In the endeavor to make the model operational, some 12 different forms were designed and their use prescribed. Because model building is considered an art and not a science, it was recognized that the undertaking could only be regarded as an initial step and subjected to substantial modifications and improvements.

Statement of Conclusions

A number of conclusions could be derived from the study. Their validity must be questioned and not accepted at face value, due to the fact that they were derived from the building of a model, and not from an empirical study. Some of the conclusions (4,5,7) were in conflict with current opinions about the process of program budgeting, and although apparently appropriate in the present study, these may prove to be of dubious value in other situations when building

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performance budgets. The tentative conclusions were:

1. Dollar values, as organized into line items in fiscal budgets, can serve as indicators of program performance when related to some measure of output.
2. Generalized proposals for how to initiate program budgeting have only limited value in terms of the needs for unique considerations in specific situations.
3. In general, rather than developing additional procedures for how to "do" PPB, concepts concerning performance would allow for increased understanding of what a performance-oriented budget could potentially accomplish in specific situations, rather than providing a categorical mechanistic framework.
4. The use of a program budget appears to be justified within one segment of a large institution, even if performance budgeting is not required across all operational entities. The rationale for this conclusion is based upon the assumption that effective resource allocation in a subset within a complex system may provide proof of efficiency otherwise not attainable by the routines of the formal organization.
5. Many researchers propose that statement of institutional objectives is a prerogative for successful installation of a program budget. The present study seems to indicate that although it is desirable, institutional purpose need not necessarily be explicitly stated. Rather, it was concluded that the implied mission of the institution and its momentum over time constituted sufficient criteria for expanding upon how programs had emerged over time.

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The expected adequacy of a certain modus operandi could then be projected into future time intervals and be evaluated in perspective.

6. The implementation of the model would not preclude continued use of existing university fiscal budgeting procedures. It would, however, point out the need for arriving at annual budget figures in context with an extended year program mix.
7. The service and administrative programs were difficult to aggregate into major classes of resource-consuming activities, due to their heterogeneous outputs. Such activities, as well as overhead charges, should not be allocated to particular SCH-producing program elements, but remain in a present accounting format.

The nature of these conclusions seems to suggest that performance budgeting does not have to be generalized into an homogeneous mechanical procedure for resource allocation at the executive level, but is justified as a conceptual approach to reach economies in suboperational units.

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By

Olaf Isachsen

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

DOCTOR OF PHILOSOPHY

Department of Administration and Higher Education

1970

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For hours of unrelentless data gathering, I want to thank our secretary, Miss Kay F. Sawdy.

Although separated by distance and time, to you Mom, Dad, Ninne, and Ninna a word of special thanks for your interest, concern, and support which had meaning in more ways than one.

And thanks to Camilla, for providing all the sunshine a papa could ask for by being a "Gulle-basse," as well as freely providing unconventional theories about what professors ought to be doing.

To you, Christina - as always, no words can adequately describe my deep appreciation for your loyalty and support in my attempts to become.

ACKNOWLEDGME

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CHAPTER I

THE PROBLEM

Introduction

Student enrollment in American institutions of higher education 100 years ago was estimated to comprise some 50,000 individuals, drawn from a population of 40 million citizens. In other words, at that point in time, less than one-eighth of 1 per cent of the population pursued studies beyond high school.[1] By 1900, some 238,000 students were registered in colleges and universities. Hence, approximately .3 per cent of the 76 million population were working toward a university degree.[2] By the end of 1968, there were an estimated 2,400 degree-granting institutions of higher education in the United States with a student enrollment exceeding 7.5 million.[3] The expected student enrollment in these institutions in September, 1970, has been estimated to exceed 7.8 million.[4] Currently, more than 3.5 per cent of all Americans are seeking education beyond high school.[5] Moreover, the national average of high school students continuing their education has increased from 51 per cent in September, 1960, to an estimated 58 per cent in September, 1967.[6]

This unparalleled growth pattern in higher education in the United States, both in absolute and relative terms,

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has claimed vast financial support. For example, funds allocated to higher education have increased from $508 million expended during the 1929-30 academic year, to more than $12 billion invested during the similar period 1965-66.[7] The Department of Health, Education, and Welfare has projected that total expenditures in American institutions of higher education will exceed $34.0 billion during the 1977-78 academic year.[8] Becker predicts that by 1980, 12 million students will be registered in colleges and universities at an annual cost of more than $35 billion.[9]

The relevance of higher education is reflected in two areas of accepted gross economic measurement.[10] First, its share of the Gross National Product has expanded from slightly more than 1 per cent in 1957, when the G.N.P. was $432 billion, to more than 2 per cent in 1967, when the G.N.P. was $763 billion.[11] Second, its share of federal tax revenues has increased from approximately $1.2 billion in 1962, to more than $4.0 billion in 1970.[12] These developments may be further evaluated in light of the fact that expenditures per student from 1955 through 1965 increased by some 55 per cent.[13] In spite of attempts to provide lower cost education through enlargement of facilities, costs have spiraled, and Professor Harris explains the phenomenon in four parts:

1. Rising standards in the economy which spill over to higher education through competition for goods and services.

2. Difficulties confronting higher education in matching productivity gains in the economy.

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3. Rising proportion of students in the upper two years and graduate work, i.e. areas of more expensive instruction.

4. Changes in the product, i.e. use of expensive equipment, provision for health, social activities and research.[14]

Underlying reasons for this growth pattern in higher education are explained by Becker, who estimates that between 12.7 and 14.5 per cent is a realistic measure of a compounded rate of return on college education, after adjusting for costs and income foregone.[15] Similarly, Dennison found that more than 42 per cent of the increase in real output per person could be traced to his level of education.[16] These findings further substantiate the estimates that in the 1980's a larger majority of high school graduates will seek admission to colleges and universities than is presently the case. Chamber suggests:

> Indications are overwhelming that the percentage - of high school students seeking admission to universities - will approach 75, 80, perhaps more nationwide, as it has already done in California and a few other states by 1967. This will mean the decade 1967-77 will witness another doubling or near doubling of students above high school; a tripling or more of annual operating costs of the aggregate higher educational enterprise; and probable rise of more than fifty per cent in annual operating cost per student - year.[17]

Based on these observations, it appears that higher education in the United States has become a salient economic phenomenon. Levine argues:

> Accompanying these increases (in costs) have been new pressures brought to bear on university administrators for a more detailed justification of their requests for funds. Increasingly, such requests will have to be satisfied by detailed planning based on properly defined objectives and criteria for the allocation of educational resources. . . . The demands for improvement are becoming louder.[18]

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Pavese, too, suggests that by being in the focal point of public attention university administrators are increasingly challenged to employ managerial practices with a capacity to reflect benefits from increased costs. The problems connected with resource needs and their allocation are viewed in this manner by Pavese:

> The injection of new funds, from state and federal governments, expanded endowment funds, and other sources will be needed to keep pace with rapidly expanding staff salaries and costly research, library and computer facilities. In view of these forces, one of the perennial dilemmas facing higher education is how to obtain sufficient financial support. It is imperative that these educational institutions employ all available tools to allocate scarce resources efficiently for those present and future programs demanded by their rapidly growing and changing clientele.[19]

Allocation of funds to institutions of higher education is, in effect, an alternative commitment of available public and private resources. Regardless of whether funds are made available through private donations, or through state or federal appropriations, it appears reasonable to expect that these funds yield maximum benefits, The complexity of the managerial task facing university administrators is summed up by Keller:

> The problem of efficient resource allocation decision-making in higher education is compounded by the fact that educational institutions are essentially public sector enterprises. They do not have the usual institutional environmental aids to efficient choice-making which characterize private sector business enterprises. Also, there is little or no tradition in higher education of professional managerial approaches which include hard analysis of operations.[20]

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Statement of the Problem

By virtue of the fact that American universities currently are responsible for the managing of $16.6 billion annually, and furthermore are expected to allocate $30.3 billion in private and public institutions of higher education by 1978,[21] the all-embracing problem becomes one of ascertaining that economic, physical, and human resources are employed in such a manner that the greatest potential benefit is accrued. The System Research Group proposes:

> Our first conclusion, then, is that universities do need to manage their resources with the skill and professionalism which the magnitude of the resources and importance of the task demand. It is not to cast aspersions on university administrators to say that this skill and professionalism has been lacking in the past.[22]

Ideally, the development of a universally acceptable approach for solving the problem of resource allocation at a number of managerial levels in any institutional setting could potentially render ultimate utility. Attempts to create such an instrument are being made.[23] The complexities entailed in a global approach to resource allocation in higher education, however, are so formidable and still entail so many unknown quantities,[24] that the scope of the present paper was limited to an investigation of a finite fraction of the over-all problem area. Hence, this study was undertaken within a specifically defined resource-consuming region within the College of Education at Michigan State University. Annual reports submitted from the Dean of the College to the University Provost Office during the last five-year period pointed out four specific problems to which there appeared to be no immediate solutions. These were:

1. There is an acknowledged lack of reported and applied systems analyses at departmental and college levels in institutions of higher education.

2. The literature concerned with systems approaches predominantly deals with Program Budgeting at executive levels and has only limited applicability for a college within a large university community.

3. Pressured by actual and projected growth in student enrollment it was felt that the traditional dollar share received per student in the College was insufficient to maintain adequate standards. New alternatives were sought.

4. There are only limited and partly misleading criteria presently employed to indicate efficiency of College operations.[25]

The Acknowledged Lack of Systems Analysis

The term "systems analysis" can be considered a comprehensive approach to viewing alternatives in problem solving. Professor Lynn has given the term the following definition:

> Systems analysis/cost effectiveness is the process by which the costs and effectiveness of alternative courses of action are determined and compared for the purpose of assisting the decision maker in choosing the best course, or combination of courses, of action to accomplish his mission.[26]

Deliberate efforts to apply particular aspects of systems analysis on a comprehensive basis in institutions of higher education is reported only by a few organizations, such as WICHE, Ohio State University, and the University of Illinois.[27] One explanation for this apparent lack of emphasis on the use of sophisticated information is offered by van Dusen, who found:

> Analytical tools and techniques such as systems analysis, modeling, and simulation, generally developed by analytically trained people "outside" the area of educational administration have been suggested in recent years for

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> assisting educational administrators in decisions concerning the present and future direction of colleges and universities. At the present time, there is little evidence that educational administrators are becoming particularly adept at or evidencing thrust towards possible adoptions of these analytical techniques to educational problems.[28]

Similarly, Rourke and Brooks explain the same phenomenon by hypothesizing:

> Somehow university personnel, whose lives are devoted to expanding knowledge about the most elusive processes of their environment, nonetheless find it extremely difficult to accept the idea of looking into the campus itself. Yet this resistance to reform cannot simply be written off as lack of vision or a defense of vested interests, for it is founded upon the belief that higher education could easily be damaged by administrative innovations which might be perfectly acceptable in other types of organizations.[29]

In spite of these controversies in attitudes concerning a more systematic approach toward allocation of resources in colleges and universities, there can be little doubt about the increased demand for more efficiency in resource allocation decision making in higher education. Keller summarizes these needs by concluding:

> More sophisticated methods of maximizing the benefits obtained under the constraint of limited resources are, thus, badly needed. Redesign of the overall resource allocation decision making systems in higher education to include program budgets, cost-benefit analysis, and improved management information systems seeks to meet this need.[30]

Program Budgeting Designs

Because the initial program budgeting developments occurred in the Department of Defense during the early 1950's, PPB designs have usually been styled to facilitate the demands of chief administrators at executive levels. Insufficient attention has been paid to operational aspects.[31] The

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reason for these developments is explained by Arthur Smithies:

> Programs cannot be compared and related to each other except by a superior authority responsible for all of them. . . . At the highest executive level, there is no incompatibility.[32]

Novick further substantiates the argument by proposing a dual purpose for a PPB system:

> The new program-budget procedure has two primary aims: first, to permit analysis of total force structures for all of the services in terms of common missions or national objectives; second, to protect the resources (or financial requirements) of the proposed force structure over an extended period of years.[33]

Clearly, these statements by initiators of PPB systems in the Federal Government indicate the importance of a wholistic framework for a systems approach. Although the present study in no way was undertaken to question or challenge these viewpoints, it was assumed that by employing a performance-oriented budget at the college level, benefits accruing from the approximately five million dollar annual operating funds could be increased. Supporting this viewpoint, Exton argues that by presenting a program-oriented budget to a funding agency, a college within a complex university hierarchy will stand a better chance of receiving requested financial support--because budget decisions will be influenced by an opportunity to evaluate the cost and benefits of alternatives, and their consequences.[34] Moreover, a program budget at the college level, as proposed by Swanson,[35] is a replacement of traditional budgetary process inherently limited in providing viable operational alternatives. It was therefore assumed that by proposing a model for a PPB system

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at the program creation level a shift in emphasis from justification to analysis of performance over time would result in explicit recognition of college-wide objectives and efficiency of goal attainment.

The Need for Additional Financial Resources

Since the end of World War II the College of Education has experienced a rate of growth lacking any parallel in contemporary training of American school teachers. Professor Victor Noll explains:

> In number of elementary school teachers initially certificated between September, 1965, and September, 1966, Michigan State University stood first in the nation with 859. In terms of number of secondary school teachers initially certificated during the same twelve months, Michigan State University stood second in the nation with 1,030. In total graduate degrees in education 1965-66 the University ranked sixth.[36]

During this period the College of Education received substantial financial support, both for capital investments and expenditures for day-to-day operations. In fact, the general funds budget was increased from $1,214,000 in 1956-57, to $3,264,000 in 1966-67. Further ideological support was granted to the College by President Hannah, who proposed that the College ought to receive exceptional attention due to the outstanding services it rendered the state as a whole. He maintained that:

> Michigan State is a major source of supply of teachers for the school systems of Michigan and other states. It prepares some 1,800 teachers a year. Approximately 35 per cent of all those who receive baccalaureate degrees from MSU each year are certified for teaching. What we do will inevitably have an effect upon the school systems of Michigan. The quality of the graduates of the College

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> of Education is of first importance. Our technology is advancing so swiftly, and our society is changing so radically, that teachers must be trained to equip their students with concepts and knowledge which will serve them well throughout their lives. . . . Our College of Education is committed to this approach.[37]

However, since 1966-67, money allocated to the College from general funds suggests that it has not maintained its favored position. Whereas general fund expenditure per student credit hour in 1966-67 was computed at $15.25, it was reduced to $14.66 during 1968-69.[38] From examining annual reports and other documents, it appears that these financial restraints have substantially prevented the College from fulfilling its long-term objectives. In the College Annual Report 1968-69, Dean Ivey states:

> Our chief problem for the future is improving the financial support of the activities in teacher education. . . . Dramatic enrollment increases with no additional funds seem to leave us no alternative than limiting enrollment beginning 1970-71.[39]

Furthermore, general funds allocation for all colleges, excluding the College of Education, increased by some 24 per cent between the 1967-68 and 1968-69 budget years, as compared to only a 6.1 per cent increase for the College of Education, providing further evidence of the fact that the relative financial position of the College of Education also has deteriorated during this period.[40]

An examination of whether the reduction of financial resources to the College of Education ought to be considered desirable or not, from an all-university viewpoint, was, as noted earlier, not the purpose of the present study. Rather, it was undertaken to provide college administrators with an

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approach to develop a performance-oriented budget which would allow for multi-year planning and identification of a wider range for alternative ways of employing limited funds. It was assumed that definite resource requirements to attain specific objectives could be determined. These requirements, in turn, would explicitly manifest the scope of college operations.

The Presently Limited Criteria Employed to Determine College Efficiency

Frequently used criteria to measure efficiency among colleges within the university system are, by way of example, items such as:

1. Student-credit hours produced by department.
2. Student-teacher ratios.
3. General fund expenditure per student.
4. Faculty contact hours.
5. Student-credit hours produced per Full Time Equivalent Faculty.

Although these categories of measurement allow for certain quantitative comparisons, they inadequately express levels of efficiency within a college. Jamrich and Dressel argue that comparative measures such as these, evaluated without standards for performance, do not constitute a sufficient basis for decision making.

> In justifying rising budgets and deciding where to allocate scarce resources the administrator should be able to calculate the costs of various alternative courses of action and relate them to some measure of achievement of institutional objectives. Most institutions have made little progress toward such a capability.[41]

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The primary problem connected with determining to what degree scarce resources are efficiently allocated in a college, hinges upon what kinds of criteria are employed in assigning value to any one of an array of alternative actions.

The Purpose of the Study

The purpose of the study was to develop a Planning Programming Budgeting model, specifically designated for the College of Education at Michigan State University. It was realized that the approach insufficiently would reflect goals and objectives stated or implied by the university as a total entity by primarily being concerned with the operational environment of the College of Education. On the other hand, it was felt that the model would be justified on the basis of its potential capacity to reflect the performance of the college, relative to its annual expenditures. In order to accomplish the purpose of the study, three separate categories of resource utilization were interrelated in order to define the parameters of the model. These were:

1. To provide a format that could identify present resource allocation.
2. To identify existing program areas.
3. To establish a format which would allow for comparison of available data.

Fisher,[42] Hirsch,[43] Hartley,[44] and others argue that in order for a program budget to serve its ultimate function, that of supporting the realization of institutional purpose, it must be (1) related to long-term institutional objectives,

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and (2) directed by the institutional executives. In other words, a PPB system initiated at university level, in essence, would reflect efforts to reach institutional fulfillment by observing the impact of each college upon the total institution in perspective.

The desirability of an idealized approach such as the above was not overlooked in the present study. By virtue of the fact that the researcher could find no evidence of stated university long-term objectives, and much less felt adequate to undertake a complex study at university level, the investigation was confined to the College of Education. Although no long-term objectives had been adopted by the faculty of the College, it was assumed that the study potentially could identify areas of concentration reflecting current priorities in terms of committed funds, and allow for evaluation of their distribution. Both Tennant and Bertram,[45] and the Western New York School Study Council[46] advocate that a PPB system at a low level of aggregation significantly can contribute toward the establishment of stated goals and objectives at higher levels. Consequently, by initiating a performance budget at program-creation level, a systems approach to resource allocation could support initiation of a network of analysis at college level, with a capacity to be diffused upwards in the organizational hierarchy.[47] In support of the present exploration, Professors Heald and Smith[48] in the Department of Administration and Higher Education at Michigan State University have developed a proposal for "Planning and the Consumption of Resources" for the College of Education.

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The proposal focuses upon the process of comparison and coordination of scarce resources. It was that particular process to which the model for a PPB system for the College was oriented.

Scope and Limitations of the Study

The study was limited to an investigation and subsequent development of a theoretical model for initiating principles of program budgeting in the College of Education at Michigan State University. Hence, the findings and recommendations may not have universal utility. There was no one specific theory to be tested, but rather various concepts to be identified. Due to the fact that the study primarily was concerned with investigating new aspects of a systems approach, it was felt that it predominantly was of an exploratory nature.

The study was not intended to be experimental in design. No specific hypothesis was to be tested. Data generated from the study, however, could hopefully be classified into sections from which hypotheses may be developed over time.

Applied Theories

There appears to be a general consensus among those who have initiated systems approaches in organizations that the gap between conceptual understanding of a program budget and operational realities contains considerable ambiguities. Professors McKean and Anshen express the concern in this way:

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> After all, the main advantage claimed for the program budget over the present budget structure is that it is designed in relation to the decision process and helps to make it more effective by clearly defining the alternatives among which choices must be made, and creating an information system that permits analytical appraisal of costs in relation to expected results. To bring this about, one must come to grips with such conceptual issues as whether educational activities within an anti-poverty program (such as skill training) should be dealt with in the decision context of relief for the unemployed, or of the more familiar framework of most types of educational activities not tied to a special class of clients or a special kind of instruction. . . . When we pass from the conceptual phase to the operating phase of the program budget, we confront a new series of problems. One of these transition problems is suggested by the gap between identifying a group of activities as an appropriate cluster for a single program or program element and actually bringing together the information applicable to making a budget decision about the activity cluster.[49]

Although the particular combination or subconcepts and methodologies may vary, the distinctive characteristics of a PPB system, according to McGivney and Nelson are that it: (1) assures a choice of valid alternatives, (2) relates activities to purpose in quantifiable terms, (3) considers time dimensions, (4) considers cost and benefits, and (5) supports institutional change by continuing analysis.[50] Judy, Hartley, Williams, and Ward essentially divide theories of deriving program budgets into three categories.[51] The prime category is made up of short-period program elements which, in turn, fit into intermediate-range major programs. The latter constitute a basis for long-range purposes and objectives. Appendix A provides a schematic of the theory.

In assessing those activities claiming specific resources necessary to implement programs, one of the first tasks of the study, then, was to examine course structure.

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Calkins, in investigating the unit costs of programs in higher education, found that only over time could the cost of programs be realistically measured. He reports:

> The income and expenditures which may be given for a certain fiscal year are designated for activities which transpire over several years. Current financial data, therefore, are not instantaneously related to measures of institutional development, such as size, number of programs, and kinds of graduates produced. It may require three or more years for the planning, equipping and staffing of a new program to progress to the point where students may be invited to begin study.[52]

Williams refers to a theoretical "input-output" relationship, whereby an image of the institution emerges as a result of those resources which have been employed in a program structure. Admitting the lack of sophistication of the structure, he explains the approach:

> This conceptual framework, although oversimplified, promotes thinking in terms of alternatives, increments, and comparative payoffs. It facilitates the comparison of the "payoff" (in such terms as student class hours, student credit hours, and research hours) from increments of resources spent (input) in one major program sector with the payoff realized through applying those resources in all other program areas.[53]

The Bureau of the Budget, as a result of a study initiated by former President Kennedy, found that the application of the theoretical approach proposed by Williams was possible by pursuing a four-step analytical methodology.[54] These steps were: (1) overall appraisal of operations, (2) evaluation of information, (3) evaluation of action and events, and (4) evaluation of the budget. The ultimate result of the procedure would allow administrators to select courses of action with projected knowledge of total institutional impact. Similarly, the Heald-Smith proposal provides an

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analytical framework particularly developed for the College in evaluating resource allocation. The ultimate purpose of the approach, according to the authors, is:

> To permit decision makers to plan for new programs with the full knowledge of the resources which complementary or competing programs were currently consuming. If, for instance, a proposed program required X faculty, Y dollars, and Z space, the existing resources from which X, Y, and Z would come, could be examined in detail.[55]

Embracing the preceding theories and approaches to formulation of program budgeting at any level, is the notion of a systems approach to allocation of scarce resources. The all-inclusive theory, upon which attempts are made to structure PPB in higher education, is visualized by Koenig, Keeney, and Zemack in the "Structure of a System Model for Higher Education."[56]

A systems theory is explained by Optner as: "The idea of a system is addressed not to an individual phenomenon, but to the total pattern of phenomena that create an environment and a state of being for a given process."[57]

McKean and Anshen have pointed out that these related theories have only fragmented validity in specific situations where PPB concepts are being developed.[58] Consequently, attempts were made with some consistency throughout the present study to adopt a systems approach without rigorously following prescribed theories not directly applicable to the specifics of the situation.

In essence, then, an operational program budget model for the College of Education would be derived from:

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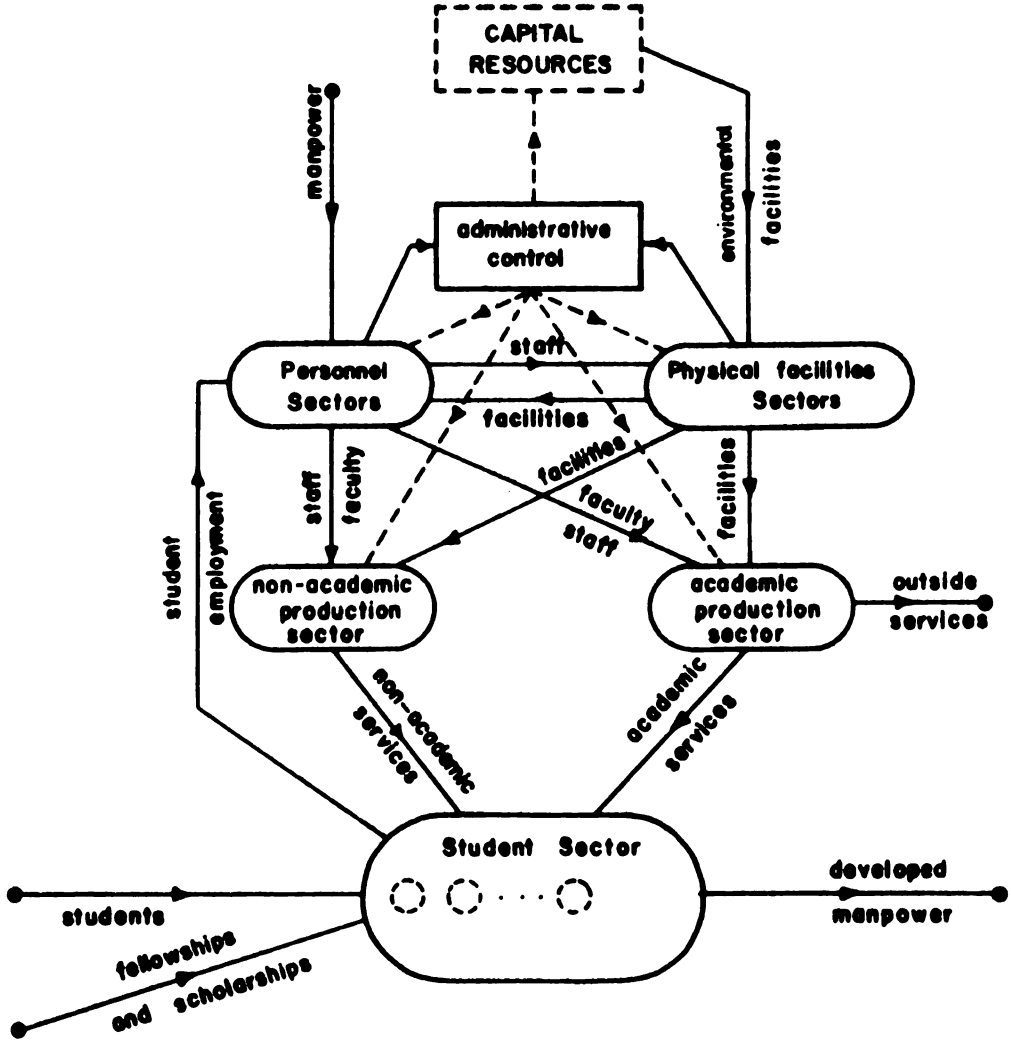
Basic Structure of a Typical Institution of Education as a Socio-Economic Process



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(1) summary of consumed resources over time, (2) program accomplishments, and (3) choosing from alternatives. In the absence of an acknowledged universal approach to program budgeting under the circumstances described, one secondary result of the study was that theories about an information system had to be formulated in designing the model.

Overview

In order to accomplish the objectives of the outlined study, Chapter II will review those aspects of the literature specifically containing information about program budgeting. Chapter III will describe the rationale and methodology of the study. Chapter IV will give observations from the model. Finally, Chapter V will present a summary and conclusions of the research.

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CHAPTER I--FOOTNOTES

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CHAPTER II

REVIEW OF THE LITERATURE AND RELATED STUDIES

The literature concerning program budgeting is quite limited. It is mainly of a predictive, explanatory nature, and few studies examining longitudinal impacts of program budgets are available. Major and initial contributions in the field have come from staff members in the RAND Corporation, and later from those who initiated and experimented with PPB system in the Department of Defense (D.o.D.). The few mainline books available contain series of edited papers and the most comprehensive collection of recent developments in program budgeting is generated in a compendium of papers of the Joint Economic Committee of the U. S. Congress.[1] Program budgeting in educational institutions is in its infancy, and the only comprehensive text available has received severe criticism.[2] Although institutions of higher education, through joint efforts,[3] legislative pressures,[4] or innovative explorations,[5] are involved with studies assessing the merits of program budgeting, little is known about the long-term impact of present practices.[6] Moreover, a few critics seriously question the justification for program budgeting. Wildavsky, for example, advocates that PPB system in the Federal Government is ". . . doomed to failure."[7]

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In order to ascertain the present status of program budgeting, this chapter will contain a review of the literature on PPB systems, particularly as they pertain to (1) agencies in the Federal Government, (2) primary and secondary school systems, (3) higher education, and (4) related analytical studies contributing to better knowledge about PPB systems.

Program Budgeting in the Federal Government

In one of the major textbooks on program budgeting, Anshen is concerned with how--if at all--the experience gained with PPB systems in the D.o.D. may be transferable into non-defense areas.[8] Fisher, on the other hand, proposes that any program budget approach may be modeled from the D.o.D. and he summarizes the approach under three main heads: (1) structural format, (2) analytical process, and (3) data information systems. In viewing the conceptual framework for the program budget, moreover, there appears to be substantial agreement among scholars who initiated the PPB approach within the Federal Government.[9] Smithies observes the need for "comprehensive" programs;[10] Grosse and Proshan view the "total cost implications";[11] and Enthoven finds the function of program budgeting in the D.o.D. a "systematic attempt to bring to bear on the problem of planning the defense program many relevant disciplines and to do so in an integrated way."[12]

Over time, specific components making the program budget approach into a viable instrument in the Federal Government have, according to Smithies, been widely accepted as

". . . focusing on a process of comparison and coordination."[13] Whereas program budgeting initially was installed in the D.o.D. in 1961, McCullough found it natural for other non-defense agencies in the Federal Government to benefit from the D.o.D. experience.[14] Perhaps the most significant concept to be derived from the program budget was the cost-benefit studies. Essentially, McCullough emphasizes that "Cost-benefit analysis helps us in choosing the most desirable among the alternative means to our ends."[15] However, Fisher, on the other hand, points out that direct economic consequences of proposed alternative future activities may not necessarily yield the highest benefit viewed over time.[16] Hence, the complexity of evaluating cost over benefit in the D.o.D. should, according to Alchian, have the capacity to ". . . analyze the costs of a whole program or function--not merely components or parts of a program."[17]

Another concept to come from the PPB studies in the D.o.D. was a procedure to attach specific dollar values to program elements over time. Grosse and Proschan propose that these program components, in turn, allowed for a wide range of comparisons.[18] Summarizing the fundamental aspects of program budgeting in the D.o.D., Quade proposes five basic elements which, when interrelated, constitute a wholistic approach. These are: (1) the need for objectives, (2) identification of alternatives, (3) cost to reach objectives, (4) a model situation, and (5) a criterion--a rule or standard.[19] Contrary to assumptions that stated objectives must precede action, it is important to realize that these may

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emerge from identifying priorities. Schultze found that: "We discover our objectives and the intensity that we assign to them only in the process of considering particular program policies."[20]

The success of the program budget in the D.o.D., according to Wiedenbaum,[21] led President Johnson to announce the introduction of a ". . . revolutionary new budgeting system throughout the Federal Government" in August, 1965.[22] According to Enthoven and Smith, the basic reason for the presidential decision can be attributed to the fact that "The PPB system has provided an effective framework for making and carrying out major program decision in an informed and orderly way."[23] Another contributing factor, in the opinion of Professor Hirsch, is attributed to a trend in which ". . . the budget became balanced with the programs."[24] Similarly, Grosse and Proschan noted that the ". . . discrepancy between requested and allocated funds diminished."[25] Since 1965, some 26 Federal agencies have come to employ PPB systems,[26] and Calm sees the program budget applied across organizational lines in the agencies as a contribution toward making the Federal Government a single entity.[27] In a recent publication, Hovey explains how program responsibility is essential in the Federal Government:

> Merely tieing program responsibility to analytical responsibility is not enough. Program responsibility itself must be clear. PPB in the U. S. Government recognizes this by explicitly establishing agency head responsibility.[28]

The program budgets currently operating throughout the Federal Government agencies have reached a point where,

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according to the United Nations, ". . . it [PPB] effectively has been serving a primary tool of management at each of the different levels of control in the U. S. Government."[29]

Program Budgeting in Primary and Secondary Education

In early 1963, the Federal Government was accused of "being involved in many parts of the educational system [where] there is little evidence of a well-coordinated program."[30] Moreover, the U. S. House Committee on Education found that "inconsistencies and even contradictions have arisen in our education activities." Although education per se is not under Federal jurisdiction,[31] funds made available to schools from some 42 Federal departments have increased from $2,173,700 in 1962, to $9,107,894 in 1970.[32]

The difficulty in coordinating these substantial resource efforts across the more than 26,000 school systems in the 50 states will, according to Hirsch, meet with so much opposition that reaching the goal of an integrated program budget in primary and secondary education is literally impossible. Hence, Hirsch expresses his concern:

> To facilitate the successful institution of program budgeting, it would be most important to create an environment in which the various Federal departments with education funds, as well as State education departments, would be induced to adopt comparable program budget and benefit-cost analysis procedures and effectively use them, when resource allocation decisions are made. Beyond this, the system should be such as to stimulate States to have local school districts adopt reasonable uniform program budgets and benefit-cost analyses, all closely integrated with the State and Federal procedures.[33]

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In a similar way, Knezevich proposes that State legislators need to ". . . do some multi-year planning to stimulate the implementation of this decision technology in schools."[34] Contrary to the above, the Western New York School Study Council points out that there is a general lack of understanding of PPB systems, partly based on the assumption that qualitative objectives may not be quantified, and partly it is argued that there is some confusion among administrators as to the meaning of standard terms.[35] Carpenter has, however, provided a guide for initiating program budgeting in a school district, without promoting a rigid procedure and yet providing a format which takes behavioral objectives into account.[36] Unfortunately, the literature does not report empirical findings, and Wildavsky warns: "The overriding concern of the literature on budgeting with normative theory and reform has tended to obscure the fact that we know very little about it."[37] The absence of empiricism, however, does not nullify the aims of program budgeting, and Karsch argues that "The need for PPBS exists, and its concepts are sound."[38] Moreover, Tennant and Bertram conclude that traditional budgeting provides no solution; rather it is a "fragmentation of forces for decision makers."[39] Mushkin and Cleaveland view the impact of a PPB approach in a school system in this manner:

> Implicit in a PPB system is a continuing process of review and analysis of all programs and activities of a school system. On-going programs are considered. This review of the total operation in line with the current objectives of the schools is perhaps the best defense against obsolescence. A PPB system can help to facilitate better public decisions on use of resources by providing policy makers, whether at the legislative or executive level,

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> with the information required to sort out choices and to help define the choices.[40]

Another argument for predicting increased emphasis upon PPB in school systems is attributed to the appearance of data processing equipment, developed for budgetary procedures. Johns and Morphet foresee program budgets as a logical evolution of both governmental and school budgeting practices.[41] A potentially stronger reason for the trend toward program budgeting, both within and across school systems, is explained by Levine as the increased need for budgetary justification in terms of student achievement.[42] Furthermore, Davis[43] suggests that because growth is limited by the availability of fiscal and trained human resources, it is the stewardship of these values which must be the ultimate concern within and across school systems.[44,45] The question of how the advantages foreseen in PPB theories may be reconciled with the often limited economic capabilities of a school system is seen by James as a possible conflict of interest and he warns:

> This [the implementation of program budgeting] would require substantial increases in accounting staff, developing a separate department of budget planning and systems analysis and appraisal. Such innovation would take us a long way in the direction of rational assessment of the effects of financial input into the system in terms of output services for which schools are operated.[46]

It is probably for similar reasons that Dror[47] is highly critical of one of the few comprehensive books on educational program budgeting, written by Hartley.[48] Dror submits that the text "is sure to dispel any optimism that educational administration has passed the stage of superficial

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manuals." Reports on implemented and operational program budgets in school systems are scarce, and according to the Educational Resources Information Center,[49] only one doctoral dissertation, written by Fitzsimmons,[50] is regarded as an empirical paper of how a program budget actually operates in one school. Although a number of states and public school systems have undertaken developmental studies for some time,[51] Hartly concludes that:

> As of 1968, it was probably accurate to state that there was insufficient evidence to predict the extent to which program budgeting and systems analysis would be installed successfully in school systems. Each of the projects described above was somewhat exploratory and is not yet a finished product.[52]

Only indirectly applicable to a school system, the U. S. Department of Health, Education, and Welfare has developed and implemented a comprehensive "Program and Financial Plan," designed to forecast resource needs in terms of relationships between "programs, purpose, activities and geneficiary groups."[53] However, Hirsch insists that in spite of shortcomings, pressure for program budgeting in school systems can help determine the best possible mix of different education programs.[54]

Program Budgeting in Institutions of Higher Education

The absence of comprehensive knowledge concerning program budgeting for institutions of higher education is quite apparent.[55] A number of state funding agencies, however, demand that colleges and universities submit budget proposals in accordance with some performance-oriented approach.[56] For

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example, in Wisconsin a coordinating Council for Higher Education has established an "Academic Plan" explicitly for the purpose of promoting "economy and efficiency in the operation and construction of higher educational facilities."[57] On a more generalized basis, the General Accounting Office sees the purpose of program budgeting in higher education this way:

> . Planning - the selection or identification of the overall, long-range objectives of the organization and the systematic analysis of various courses of action in terms of relative costs and benefits.
> . Programming - deciding on the specific courses of action to be followed in carrying out planning decisions.
> . Budgeting - translating planning and programming decision into specific financial plans.[58]

Similarly, Ward proposes that "The basic principle of program budgeting is to derive and structure an annual budget in such a way that it reflects the annual portion of all the major programs in the university. . . ."[59] Yet, Farmer,[60] in retrospect, observes that even ten years succeeding successful implementation of program budgeting in the D.o.D., and in spite of forecasting the potential applicability of performance budgeting in universities, as predicted by Hirsch,[61] "virtually no institution of higher education has viable program budgets."

Smith views program budgeting in higher education solely as an instrument for efficient use of limited resources.[62] Mushkin, on the other hand, points out important spill-over effects:

> University-government interaction in PPB implementation extends beyond the education-training role. The prestige of a local university can be brought to bear on communicating

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> to the public why its government undertakes to apply modern management techniques to public programs and to devote added resources to central and agency program planning staffs. And, perhaps even more importantly, some of its faculty "brainpower" will be directed to finding answers to public program problems. It is quite predictable now, when the questioning processes of program analysis come into more widespread use, data and answers will be sought by governments on effective social action ranging from problems associated with city tree care, on the one hand, to motivation of children to learn, on the other.[63]

One contributing reason for these variations in opinions about the effects of program budgeting is explained in general terms by Wildavsky as: "No one can do PPBS" and "Program budgeting cannot be stated in operational terms."[64] Dror recognizes the problem, but does not conclude that program budgeting necessarily lacks validity. He submits:

> It just is not clear what PPB is, and no single-dimensional and simple description can do adequate justice to the heterogeneous phenomena and ideas using the name. . . . PPB must be perceived and considered within a broad framework of efforts to improve the public policy making system.[65]

Gross goes even further; he views PPB as an attitude toward resource control and suggests:

> One observation is that the PPB spirit is more important than the letter. Some offices practice PPB without knowing it; others go through all the formal motions without coming anywhere near it. Moreover, there is really no one system. Rather, there are a large variety of PPB-type services; and organizations will differ greatly in the specific mix ["output mix"] provided during any one peiod. Above all, PPB is in an early state of growth - and more changes are probably taking place in it than anyone could possibly track down.[66]

Williams, in writing for the American Council on Education, realizes the ambiguities involved with any one specific definition of PPB. Hence, in institutions of higher education it is proposed that:

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> A program budget is a policy and planning document rather than an accounting data document. Its goal is to define program elements at as high a level of aggregation as possible while remaining consistent with a desirable level of homogeneity.[67]

At least three large university-systems have initiated some form of program budgeting. Dyer reports, however, that the experience gained from experimental approaches in these institutions--the University of California, Ohio State University, and the University of Pittsburgh--is not yet sufficient for evaluation of the program system. He tentatively proposes that public institutions of higher education appear to have a dual set of objectives: primary objectives denote the results which are expected to be achieved by the educational system. Secondary objectives relate to policy matters which are not actual functions of the educational system and which cannot be analyzed objectively in terms of their value. Relating primary and secondary objectives to a program budget, Dyer sees resources allocated to these general categories:

Primary objectives:

I. Student Development
   - A. Developing political maturity
   - B. Developing social maturity
     1. Basic intellectual skills
     2. Individual development
   - C. Developing the capacity for economic achievement
     1. Educators
     2. Industrial
     3. Public service
     4. Arts
     5. Other professional programs

II. Expansion of Knowledge
   - A. Applied research
   - B. Theoretical

III. Public Service

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Secondary objectives:

1. The system should not discriminate on the basis of race, sex, religion, social status, or wealth;
2. The system should avoid dehumanization;
3. The percentage of out-of-state students should remain above 20 per cent but below 35 per cent;
4. The system should maintain a "high" quality of education.[68]

In another study, Carpenter proposes a different approach to resources allocation, in which "upper limits" for financial support to programs constitute effective constraints.[69] The essential purpose of the proposal, however, is similar to the Dyer approach: identification of categories suitable for resource absorption.

While a number of scholars consider explicit statements of objectives as to organizational goals vital in order to establish a program budget,[70] Levine related objectives to analysis.[71] He proposes that university administrators need new tools to "answer questions pertinent to educator and administrator alike at various organizational levels within the institution." Ideally, Levine lables the analytical objectives: (1) a model representation of the institution, (2) an information system, (3) a program of statistical analysis, (4) a communications system, and (5) a strategy for using information.

The fundamental reason behind attempts to develop program budgets of different kinds in colleges and universities is explained by Kershaw and Mood:

> The suppliers of those resources - taxpayers, alumni, parents, foundations - who are called on each year to increase their generosity have a right to know that the resources they supply are being used effectively. It is incumbent upon higher education, which above all

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> institutions should be characterized by an insistence on a rational process, to provide assurance that it is consuming resources effectively.[72]

The Systems Research Group explains the phenomenon in terms of determining priorities:

> Higher education is expensive. Given a set of social objectives, the main strategic problem is to determine which kinds of higher education should be provided to which members of the population.[73]

In the absence of a universally acceptable approach to determining how financial resources ought to be allocated in institutions of higher education, a review of current proposals seems in order. Professor Williams views program budgeting as complementary and not in conflict with fiduciary budgeting practices. Via the planning process, objectives emerge. Programming is broken into elements, defined as an "homogeneous and interrelated combination of resources which enables a student to pursue a degree." The review of the program impact, according to Williams, would at the lowest administrative level be viewed by deans of schools. In this process Williams sees the functioning of program budgeting coming to bear as he explains: "When departments, schools, colleges, institutes, and libraries do their programming they almost unavoidably consider the cost of several alternative means of satisfying their requirements."[74] Pavese proposes a different procedure. Essentially, he ascertains that long-range objectives and measurement criteria provide a base for nine "program divisions." The divisions, in turn, will claim financial support, and these are viewed as "input-output" structures. In his concluding remarks Pavese predicts: "The

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program administrator must meet this resistance and prove to faculty and staff that the new system is a substantial improvement over the old system."[75]

Ward, in experimenting with a PPB system for the University of Kentucky, found that the University had three basic functions: (1) teaching, (2) research, and (3) service.[76] Related to these functions, President Oswald outlines the conceptual framework for program budgeting in the University in this way:

> The discussions of teaching, research, and service as the three major functions of the University are obviously too general to serve as guides for the development of a university. This section describes the specific "objectives" which appear necessary to achieve excellence in the principal areas of the University's program. Each of these objectives is followed by one or more "actions" to be taken during the coming academic year. Some actions will lead immediately to the stated objectives; others will be the first of a sequence of actions necessary to achieve the goals. Together they should launch a strong and balanced academic program for the first decade of the University of Kentucky's second century.[77]

In his concluding remarks, Ward writes:

> If a university devises more efficient use of its resources it could add new faculty to meet expanding enrollments, improve quality of instruction, pay existing faculty more, provide sabbaticals, and step up its services to its people and the state without generating an excessive drain upon the federal and state treasuries.[78]

Swanson has designed a mathematical model for "costing programs," based on the assumption that ". . . it is possible to consider a college as a particular facility within which the educational process or the production of knowledge occurs."[79] A system for costing programs was designed by Swanson, and related to expected student demand for courses. A linear programming format was used in calculating optimal

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allocation of funds. The author considered the fundamental value of the model to be one of providing administrators with supplementary information otherwise not available. In a study somewhat more limited in scope, Calkins was concerned with the unit cost of programs in higher education. He found that in some 94 colleges and universities average faculty salaries had the greatest net influence upon unit cost.[80] Perhaps the currently most comprehensive study on resource allocation in higher education has been made by Judy and Levine, who focus attention upon expected resource requirements resulting from projected levels of future student enrollment. The micro-analytic CAMPUS simulation model was designed to accept data on (1) enrollment formulation, (2) resource loading, (3) space requirements, and (4) budgeting calculations. The authors argue that employment of the model allows planning rather than response; and they conclude:

> Better knowledge of the cost consequences of alternatives should improve decisions and reduce the number of unfortunate surprises in university planning. The results of simulation can be presented either in traditional budgetary formats or in such a way as to juxtapose activity levels and associated costs. A particular advantage of the simulation model is its ability to compute the incremental costs of altering each activity level. This should facilitate more efficient allocation of university resources and public funds.[81]

In the United States the Western Interstate Commission for Higher Education (WICHE), a public agency, was established in 1951. Among other duties, the 13 western states work jointly through the organization to: "Help universities and colleges improve both their programs and their management."

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WICHE is particularly concerned with the development of a management information system which, in turn, would generate data to provide a base for the initiation of a PPB system within and across the some 24-member institutions of higher education. The ultimate result which the organization hopes will come from the project is:

> Stimulating, coordinating and conducting educational programs at various levels for all institutions and agencies who wish to develop their capability to cooperate in this project. This will include inter- and intra-campus utilization seminars in system analysis, operations research, program budgeting and cost-benefit analysis; the use of simulation models for high-level management training in the use of these decision-making tools under a variety of institutional circumstances; the publication and distribution of staff technical reports developed in the process of establishing data definitions, program elements, system applications, input-output indicators, and program budget categories.[82]

At present, program budgeting in colleges and universities cannot be adequately defined.[83] Conceptually, PPB system is perceived of at a number of levels.[84] Hence, scholars have not found it possible to consider program budgeting a normative approach to fiscal control.[85] The major deficiencies of PPB systems in higher education are summed up by Farmer:

> There are significant conceptual problems in implementing PPBS for institutions of higher education. First, it is difficult to identify the outputs of higher education. Some analysts have used degree winners, number of courses completed, or student credit hours as output proxies. Others, concerned with the economic value of an education, have used salary differentials between entrance and exit to the institution. None are fully satisfactory and most fail to consider the "quality" of education.
>
> It may be even more difficult to define research output, or the results of public service. The lack of quantitative measures of output is the most severe handicap for implementing PPBS in higher education.
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> Second, there is no single organizational unit which produces a unique output. The physics department, for

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> example, does not itself produce a physics degree. Other departments contribute to that output. Similarly, the physics department expends resources on non-physicl majors. Program budgeting techniques are applied with less difficulty when organizational units contribute to a single, measurable output.
>
> Third, production functions for higher education are not known. While there has been considerable research on the education process, there has been no accepted algorithm for determining the resource requirements for a unit of output. Thus, higher education is not fully amenable to the formal economic analysis applicable to business. Also, the output of higher education - research and instruction - are frequently joint outputs, and the resources are used jointly - as, for example, instructors and graduate students working on research - without a clear distinction between their contributions.[86]

These thoughts in no way appear to invalidate the search for finding better ways of distributing resources, however. When Koenig, Keeny, and Zemack developed a systems model for resource allocation at Michigan State University, they probably spoke for the majority of searching academicians involved with developing operational bases for PPB systems, when the authors proposed that the primary objective was not to define academic goals, but ". . . rather to provide a definitive description of the mechanism by which the resources are, or might be, transformed into the resulting products so that the subjective aspects of the educational process can be more accurately judged."[87]

Related Analytical Studies

According to Petruschell, literary work, which significantly contributes to increased knowledge in the field of program budgeting is predominantly limited to research in systems approaches to cost/utility and/or cost/benefit analysis.[88] McCullough views cost analysis as "a tool

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employed in the analytical process considerations of Program Budgeting, as opposed to the structural aspects of the information system considerations."[89]

In particular, cost analysis has been beneficial in the D.o.D., and Fisher attaches a number of characteristics to the term. Examples of these characteristics are: (1) systematic examination and comparison of alternatives, (2) assessment of cost and utility, (3) time context geared to the future, (4) evaluation of uncertainty, and (5) consideration of environmental factors.[90] From a pragmatic viewpoint it appears that operational cost ratios successfully were employed by the D.o.D. in determining optimum utility of Military Aid Program-supported forces overseas.[91] Moreover, McKean reports extensive use of cost analysis in determining long-range primary and spill-over effects in developing water resources.[92] Ward views the significance of cost analysis as it pertains to higher education in this manner:

> The linkage of resource categories to each program element provides the basic data for the cost and effectiveness analysis (however imperfect) of resource allocations to these program elements. The ability to identify the costs of any program element and any aggregate of program elements permits some analysis of the effectiveness with which any portion of a university's resources would be used under alternative programs.[93]

Contrary to the above, Helmer warns that ". . . no ready-made unit of measurement, comparable to the dollar in the case of cost is available."[94] Hence, the relative value of whatever is traded off is, according to Helmer, influenced by subjective preferences. Other types of analytical studies of potential usefulness to developing PPB systems are, by way

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of example, the "Undergraduate Educational Model"--enabling precise scheduling of course programs,[95] and the simulation model for "Projecting Higher Education Enrollment," developed by Baisuck.[96] Similarly, complex management information systems, as presently under study by WICHE,[97] potentially will expedite universal applicability and acceptance of PPB systems in institutions of higher education.

In view of the fact that PPB systems in institutions of higher education frequently are developed in collaboration with state legislative bodies, however, Mosher warns: "One tremendous problem area which has been largely overlooked in the PPBS literature is that of intergovernmental relations."[98] In other words, whereas scholars have been concerned with operationalizing program budgets at specific activity levels, the literature has overlooked the related problem of intermixing programs among higher education, welfare, poverty, and health on the state and federal levels. The substance and scope of studies in related fields, then, have contributed toward increased knowledge about components of program budgeting at mission-oriented levels. New knowledge about how PPB systems across state and federal resource-consuming agencies affect the total higher educational environment has not been generated.

Summary

While there is a relatively large number of recommended approaches for implementation of program budgeting in institutions of higher education,[99] it appears that considerable

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difference of opinion prevails concerning a common conception of what program budgeting is supposed to accomplish.[100] Moreover, it should be noted that the literature predomintly is predictive and lacks empiricism. The fact that variations of PPB are operational in federal agencies does not seem to imply that similar practices may be adaptable, indeed applicable, in any organizational setting. Moreover, it is evident that the absence of normative parameters in the field further complicates conceptual comprehension of the PPB systems.

For obvious reasons, pioneering work done by researchers in the D.o.D. and by staff members in the RAND Corporation has had substantial impact upon practically all studies concerning a systems approach to allocation of financial resources. Critics of program budgeting forcefully argue that there is a substantial gap between an idealized efficient resource-allocation situation, and the realistic, politically-motivated environment in which universities and colleges have to operate.[101] The fact that no large-scale interstate PPB system is operational at this time further substantiates the above argument.

Finally, an exhaustive, comprehensive analysis examining aspects of PPB systems in one situation or in simultaneously-operating situations could not be found.

CHAPTER II--FOOTNOTES

[1]Subcommittee on Economy in Government of the Joint Economic Committee, Congress of the United States, The Analysis and Evaluation of Public Expenditures: The PPB System, A compendium of Papers, Vol. 1, Vol. 2, Vol. 3 (Washington, D. C.: U. S. Government Printing Office, 1969).

[2]Further discussion of how Yehezhel Dror criticizes the book, Educational Planning-Programming-Budgeting: A Systems Approach by Harry J. Hartley appears on page 31.

[3]A major development in the Western Interstate Commission for Higher Education (WICHE). State-supported universities and colleges in 13 Western states since 1967 are working toward an integrated PPB system.

[4]State legislators in a number of states require that particular types of institutions of higher education submit budget proposals according to a PPB system. For example, as of August 28, 1969, all community colleges in Michigan must submit budgets according to new directions determined by the Governor's office.

[5]Institutions presently exploring the feasibility of PPB system approach among others are: The University of California, Ohio State University, and University of Toronto. A limited discussion of these systems is available in Systems Research Group papers from Seminar on University Administration, technical session, Vol. II (Toronto, Ont., Canada, 1970), Figures VII, VIII, and IX.

[6]For a discussion on the topic see: Samuel M. Greenhouse, "Today's PPBS: The Fatal Triumph and Financial Management over Economics," The Analysis and Evaluation of Public Expenditures: The PPB System, Joint Economic Committee, U. S. Congress, Vol. 3 (Washington, D. C.: U. S. Government Printing Office, 1969), pp. 886-898.

[7]Aaron Wildavsky, "Rescuing Policy Analysis from PPBS," The Analysis and Evaluation of Public Expenditures: The PPB System, Joint Economic Committee, U. S. Congress, Vol. 3 (Washington, D. C.: U. S. Government Printing Office, 1969), pp. 838-842.

[8]Melvin Anshen, "The Federal Budget as an Instrument for Management and Analysis," in Program Budgeting Program Analysis and the Federal Budget, ed. by David Novick (Cambridge, Mass.: Harvard University Press, 1965), pp. 17-18.

[9]G. H. Fisher, The World of Program Budgeting (Santa Monica, Calif.: The Rand Corp., 1966), document P-3361.

[10]Arthur Smithies, "Conceptual Framework for the Program Budget," in Program Budgeting Program Analysis and the Federal Budget, ed. by D. Novick (Cambridge, Mass.: Harvard University Press, 1965), p. 24.

[11]Robert N. Grosse and Arnold Proschan, "The Annual Cycle: Planning-Programming-Budgeting," in Defence Management, ed. by Stephen Enke (New Jersey: Prentice-Hall, Inc., 1967), p. 35.

[12]Alain Enthoven, "Systems Analysis in the Navy," Naval Review, 1965.

[13]Keith E. Marvin and Andrew M. Rouse, "The Status of PPB in Federal Agencies: A Comparative Perspective," Subcommittee on Economy in Government of the Joint Economic Committee, op. cit., p. 802.

[14]J. D. McCullough, Cost Analysis for Planning-Programming-Budgeting Cost-Benefit Studies (Santa Monica, Calif.: The RAND Corp., 1966), Document P-3479.

[15]Ibid.

[16]Gene H. Fisher, "The Role of Cost-Utility Analysis in Program Budgeting," in Program Budgeting Program Analysis and the Federal Budget, ed. by D. Novick (Cambridge, Mass.: Harvard University Press, 1965), pp. 61-78.

[17]Armin A. Alchian, "Cost Effectiveness of Cost Effectiveness," Defence Management, ed. by Stephen Enke (New Jersey: Prentice Hall, Inc., 1967), p. 79.

[18]Grosse and Proschan, op. cit., p. 32.

[19]E. S. Qaude, Systems Analysis Techniques for Planning-Programming-Budgeting (Santa Monica, Calif.: The RAND Corp., 1966).

[20]Charles L. Schultze, The Politics and Economics of Public Spending (Washington, D. C.: The Brookings Institution, 1968), p. 38.

[21]Murray L. Wiedenbaum, "Program Budgeting and the Space Program," in Systems, Organizations, Analysis, Management: A Book of Readings, ed. by D. Cleland and W. R. King (New York: McGraw-Hill Book Co., 1969), p. 183.

[22]President Lyndon B. Johnson, news conference in Washington, D. C., August 25, 1965.

[23]Alain C. Enthoven and K. Wayne Smith, "The Planning, Programming and Budgeting System in the Department of Defense: Current Status and Next Steps," Subcommittee on Economy in Government of the Joint Economic Committee, op. cit., Vol. 3, p. 962.

[24]C. J. Hirsch, Decision-Making for Defence (Berkeley, Calif.: University of California Press, 1965).

[25]Grosse and Proschan, op. cit., p. 36.

[26]Subcommittee on Economy in Government of the Joint Economic Committee, op. cit., Vol. 2, p. 637.

[27]Gerhard Calm, Integration of National Planning and Budgeting (Washington, D. C.: National Planning Association, 1968), p. 13.

[28]Herold A. Hovey, The Planning-Programming-Budgeting Approach to Government Decision-Making (New York: Fredrick A. Praeger, Publishers, 1968), p. 12.

[29]United Nations, A Manual for Programme and Performance Budgeting (New York: Department of Economic and Social Affairs, United Nations, 1965), p. 65.

[30]U. S. House Committee on Education and Labor, The Federal Government and Education (Washington, D. C.: U. S. Government Printing Office, 1963), p. iii.

[31]George M. Johnson, Education Law (East Lansing, Mich.: Michigan State University Press, 1969), p. 1.

[32]Kenneth A. Simon and W. Vance Grant, Digest of Educational Statistics, 1969 (Washington, D. C.: U. S. Government Printing Office, 1969), Table 133, p. 97.

[33]W. Z. Hirsch, Education in the Program Budget (Santa Monica, Calif.: The RAND Corporation, 1965), Document RM-4333-RC, p. 36.

[34]S. J. Knezevich, The Meaning and Substance of the Acronym PPBS, in a compendium of papers prepared by National Academy for School Educators, Washington, D. C., 1970, p.c. 1.1.

[35]Western New York School Study Council, Development of an Operational Model for the Application of Planning-Programming-Budgeting Systems in Local School Districts (Buffalo, N. Y.: Western New York School Study Council, 1969).

[36]Margaret B. Carpenter, Program Budgeting as a Way to Focus on Objectives in Education (Santa Monica, Calif.: The RAND Corporation, 1969), Document P-4162.

[37]Aaron Wildavsky, "Political Implications of Budgetary Reform," Public Administration Review 21 (Autumn, 1961), pp. 183-190.

[38]Norman Karsch, "PPBS: For Better or for Worse," Budgeting, Vol. 16, No. 6 (May/June, 1968), p. 11.

[39]W. Jack Tennant and Charles L. Bertram, Planning for Educational Change: PPBS (Bailey's Crossroads, Va.: The Center for Effecting Educational Change, 1970), p. 2.

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[49]Eric Clearinghouse, Program Budgeting for the School Administrator: A Review of Dissertations and Annotated Bibliography (Eugene, Oregon: University of Oregon, 1969).

[50]Warren B. Fitzsimmons, A Model for a Public School Program Budget (Ann Arbor, Mich.: University Microfilms, 1967), Order No. 67-1110.

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[56]State legislators in a number of states require that particular types of institutions of higher education submit budget proposals according to a PPB system. For example, as of August 28, 1969, all community colleges in Michigan must submit budgets according to new directions determined by the Governor's office.

Institutions presently exploring the feasibility of PPB system approach are, among others: The University of California, Ohio State University and the University of Toronto. A limited discussion of these systems is available in: Systems Research Group, papers from Seminar on University Administration, technical session, Vol. II (Toronto, Ontario, Canada, 1970), Figures VII, VIII, and IX.

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Tennant and Bertram, op. cit., p. 4.

[71]Jack B. Levine, "A University Planning and Budgeting System Incorporating a Microanalytical Model of the Institution" (unpublished Doctoral dissertation, University of Toronto, 1969), pp. 15-16.

[72]Joseph A. Kershaw and Alex M. Mood, "Resource Allocation in Higher Education," The American Economic Review, LX, 2 (May, 1970), p. 341.

[73]Institute for Quantitative Analysis of Social and Economic Policy, A Research Progress Report on Systems Analysis for Effective Resource Allocation in Higher Education (Toronto, Canada: University of Toronto, 1970), p. 3.

[74]Williams, op. cit., pp. 31-42.

[75]Robert Pavese, "Program Budgeting in Higher Education," in Educational Planning-Programming-Budgeting: A Systems Approach by Harry J. Hartley (New Jersey: Prentice-Hall, Inc., 1968), pp. 211-229.

[76]Ward, op. cit., pp. 21-22.

[77]Extracted from a report entitled Beginning a Second Century, by President John W. Oswald, University of Kentucky, June, 1964, pp. 43-45.

[78]Ward, op. cit., p. 64.

[79]Paul J. Swanson, "Program Budgeting for a College of Business Administration" (unpublished Doctoral dissertation, University of Illinois, 1966), pp. 12 and 101.

[80]Ralph Calkins, "The Unit Cost of Programs in Higher Education" (unpublished Doctoral dissertation, Columbia University, 1963).

[81]Richard W. Judy and Jack B. Levine, "A New Tool for Educational Administrators," A Report to the Commission on Financing of Higher Education (Toronto, Ontario, Canada: University of Toronto Press, 1965).

[82]The Western Interstate Commission for Higher Education, "A Regional Cooperative Project among Higher Education Institutions and Coordinating Agencies to Design, Develop, and Implement Management Information Systems and Data Bases Including Common Uniform Data Elements;" An unpublished paper on the initiation of the project, Boulder, Colorado, 1968.

[83]Francis E. Rourke and Glenn E. Brooks, The Managerial Revolution in Higher Education (Baltimore, Md.: The Johns Hopkins Press, 1967), pp. 68-87.

[84]W. Jack Tennant and Charles L. Bertram, Planning for Educational Change: PPBS (Bailey's Crossroads, Va.: The Center for Effecting Educational Change, 1970), pp. 20-21.

[85]Joseph H. McGivney and William C. Nelson, Program, Planning Budgeting Systems for Educators, Vol. I: An Instructional Outline (Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, 1969), p. 20.

[86]Farmer, op. cit., pp. 9-10.

[87]Herman E. Koenig, Martin G. Keeney, and Robert Zemach, A Systems Model for Management, Planning, and Resource Allocation in Institutions of Higher Education (East Lansing, Michigan: Michigan State University, 1968), p. 7.

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[89]J. D. McCullough, Cost Analysis for Planning-Programming-Budgeting Cost-Benefit Studies (Santa Monica, Calif.: The RAND Corp., 1966), Document P 3479, p. 2.

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[92]Roland N. McKean, Efficiency in Government through Systems Analysis (New York: John Wiley and Sons, Inc., 1958).

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[94]Olaf Helmer, The Application of Cost-Effectiveness to Non-Military Government Problems (Santa Monica, Calif.: The RAND Corp., 1966), Document P 3449.

[95]Health Sciences Functional Planning Unit, The Undergraduate Educational Model (Toronto, Ont., Canada: The University of Toronto, 1970).

[96]Allen Baisuck, "Construction and Evaluation of a Simulation Model for Projecting Higher Education Enrollment" (unpublished Doctoral dissertation, Rensselaer Research Corporation, 1970).

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[98]Fredrick C. Mosher, "Limitations and Problems of PPBS in the States," Public Administration Review, XXIX, 2 (March/April, 1969), p. 166.

[99]Subcommittee on Economy in Government of the Joint Economic Committee, Congress of the United States, The Analysis and Evaluation of Public Expenditures: The PPB System. A compendium of papers, Vol. 1, Vol. 2, and Vol. 3 (Washington, D. C.: U. S. Government Printing Office, 1969).

A major development in the Western Interstate Commission for Higher Education (WICHE). State-supported universities and colleges in 13 Western states since 1967 are working toward an integrated PPB system.

State legislators in a number of states require that particular types of institutions of higher education submit budget proposals according to a PPB system. For example, as of August 28, 1969, all community colleges in Michigan must submit budgets according to new directions determined by the Governor's office.

[100]Further discussion of how Yehezhel Dror criticizes the book Educational Planning-Programming-Budgeting: A Systems Approach by Harry J. Hartley appears on page 31.

For a discussion on the topic see: Samuel M. Greenhouse, loc. cit.

Anshen, op. cit., pp. 17-18.

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CHAPTER III

METHODS AND PROCEDURES

The purpose of this chapter is to describe the methods and procedures employed within the study. It provides information about the population, sources of data, the Heald-Smith procedure for allocating resources within the College of Education, and the manner in which data were compiled. To accomplish the primary purpose of the study, that of developing a PPB model for the College, three groups of supportive objectives and nine underlying classification categories were developed for determining the specific relationship to the problem posed. Finally, the scope, assumptions, and limitations of the study are described.

Procedures

No hypotheses were generated for this study, due to its exploratory nature and the fact that no cause and effect relationships were expected to be discovered.[1] As seen in the previous chapter, the current literature concerning PPB is predominantly of a generalized "how to do it" nature,[2] with little or no evidence that there is a relationship between present practices and theories at this early stage of development.[3] Hence, no experimental inquiry could

defensibly be undertaken. This study includes a description of the operational resource structure in the College of Education; therefore sampling techniques were not used, nor were tests of hypotheses required.[4] Generalizations to a population other than that of the present research may not be inferred.

The study utilizes the technique referred to as direct content analysis,[5] which requires the establishment of precise classifications, and is in keeping with the intent of the study, which was to establish categories of resource commitment related to outputs or performance. This technique is reported to be beneficial in descriptive studies for use by administrators, and of particular value in educational situations.[6] The format of the study and reference notations follow those recommended by Turabian,[7] as advised by the Michigan State University School for Advanced Studies.

Population of the Study and Sources of Data

The population in this research was confined to those human and physical resources in the College of Education demanding financial support to maintain given levels of performance. The distribution of limited funds to maintain these levels of performance was not considered an end in itself, but only a means to an end; that end being a preferred allocation of resources such as those which monetary values represent at given points in time. Hence, by virtue of scarcity, associating budget dollars to elements in the population under conditions of constrained choice was viewed

as the administrative process of selecting ways for channeling limited resources into alternative areas of utilizing elements in the population.[9] The population in the study may be thought of as the consumer of what ought to be equal marginal value for resource commitment in any program area.[10]

The sources of data for the study were comprised of annual reports from departments, deans of schools, and the Dean of the College of Education. Further qualitative information was collected through pamphlets and mimeographed material describing courses of study available for students at undergraduate and graduate levels. Inquiry into specific areas of concern was made by personal interviews with faculty members and administrators. Contact was made with staff members in the Provost and Comptroller's offices in order to clarify specific budgetary procedures. Finally, the Office of Institutional Research made available 18 different classes of information, providing absolute and comparative information about activities in the College. The compilation of data over a seven-year period, according to Dressel, was done to "provide a long-term picture of the development of the institution (MSU) and its several units (the Colleges)."[11] Appendix B provides examples of the types of data available.

On August 18, 1969, the Provost of the University approved a request from the Dean of the College of Education to undertake an "Analysis of the College."[12] In the final report, it is stated: ". . . There is no evidence to suggest that internal budgetary allocations have, in the past ten

years, resulted in inequities in the College of Education as compared with the University or other units therein." Although the statement reflects a traditional attitude toward fiscal budgeting, assuming acceptability of comparing resource allocation on a linear basis, the information used to reach this conclusion was useful to the present study.[13] The Registrar's Office made available a number of computerized tables, such as "Student Name Card List," "Total Students By Students College," and "Curricula Enrollment By Term," among others.

Several letters written to the Provost from the Dean's office during the last five years provided historical evidence of concern for funding existing and projected activities. Since 1960 the College has not employed an internal departmental budgeting procedure. Therefore, it was only possible to reconstruct the actual dollar allocations in the College by gross expenditure categories. An exception to the above statement was the financing of some six Institutes and funds directed to the Student Teaching Office, where actual dollar amounts had been allocated over a period of five years.

Objectives of the Study

To attain the primary purpose of this study, that of developing a program budget model for the College of Education at Michigan State University, the objectives of the investigation as outlined in Chapter One were threefold. First, parameters had to be established which could allow for

identification of how resources traditionally were allocated to entities within the College. The procedure was related to traditional divisions of formal responsibility. Five basic administrative units were identified as primary administrators of funds. These were: (1) the Dean's Office, (2) Institute for International Programs, (3) School for Teacher Education, (4) School for Advanced Studies, and (5) Special Projects. Administrators in these units redistributed money to departments and other operational categories within the College.

The second purpose of the study was to determine program areas, in part based on information generated from the first objective, and in part based on a definition of "programs." A major difference between these two first investigations was that whereas the first was predominantly concerned with dollar inputs, the second concentrated upon outputs reflecting educational accomplishments. Inherent in the second objective was some measure of efficiency. By reconstructing "Iterations in the PPB Process" from the last two fiscal years the relative importance attached by the College to major activities in terms of performance, implicit objectives emerged as explicit by the actual pattern of priorities resulting by recognizing the uses of funds over a limited time period.

The third objective, establishing a format allowing for comparison of available data, basically comprised two variables, one which was absolute dollar amounts allocated to given activities. The other, a measurement of

accomplishment, had to be based on value judgements, and as pointed out by Helmer, necessarily influenced by subjective preference.[14] The fact that no normative measures have universally been agreed upon for determining performance in higher education at this time, according to Levine,[15] McKean,[16] and others,[17] does not invalidate the use of ratios and reliance upon absolute dollar amounts as a guide in a decision-making process. It was only possible to express a limited number of quantitative measures in this dissertation, and a penetrating exploration of the relative importance of ongoing activities was beyond the scope of the research. Comprised in the final objective was a grouping of activities into "program elements,"[18] which accommodated the learning process for the student. These elements, in turn, when accumulated and viewed in groups or as a total system by the administrators, provide a wholistic framework of the planning-programming and budgeting process for the College. According to Hartley, an approach to PPB as proposed constitutes an adequate conceptual basis for installing this type of budgeting, and he argues:

> Systems analysis is the general conceptual basis for program budgeting and program budgeting is the detailed expression of the methodology of systems analysis. The programs of a school cannot be adequately designed and supported financially without an understanding of the total system that they support.[19]

Although beyond the scope of this study, it was recognized, as pointed out by McKean and Anshen,[20] that conceptual, operational, and institutional problems in the implementation phase of the proposed approach may be significant in specific contexts.

After having determined the traditional format for resource allocation in the College, as implied by the first objective, a further breakdown of costs would be necessary in order to evaluate programs and their elements. Essentially, a procedure had to be devised which could accept dollar inputs into programs. Instead of dividing costs into fixed and variable portions, cost centers, or "nodes" as suggested by the Systems Research Group,[21] were proposed at departmental levels. Associated with student flow, accumulated credit hours, and full time faculty equivalent, committed resources could be related to the process of educating manpower.[22] Specifically, this portion of the study was designated to answer the following three questions:

I - 1. What are costs and resulting outputs when related to the traditional budget format?

I - 2. What are the resources consumed in terms of: time, money, and personnel by department in terms of direct and allocated costs?

I - 3. What are total departmental contributions to a) student credit hours generated, and b) students graduated?

The degree to which these questions could be answered would, in turn, provide a base for determining resource-consuming program areas based on a range of activities within the College.[23] Due to the complexity of allocating particular expenditures usually not charged to departments, items such as supplies, certain services, telephones, and consumed secretarial time, were by way of example charged according

to SCH production. Given this kind of situation, a procedure as suggested, according to Anthony,[24] was acceptable.

Securing data pertaining to the last two subobjectives will follow the conceptual procedure as suggested by Williams.[25] As noted, determining major program areas was to be the least precise process, due to the lack of objective measuring. Partly based on information generated from allocating dollar costs into traditional departments, and partly from defining the parameters of a program, answers to the following questions were sought:

II - 1. What would appear to be a functional definition of programs in the College of Education?

II - 2. What kinds of data will be required to provide an Analysis Report for each program?

II - 3. What can reasonably be the expected outputs of each program at given levels of resource consumption?

It was felt that the above three questions, when answered, to a large degree were subjected to value judgements.

The final phase of the exercise leads to more specific questions, such as evaluating those activities which are homogeneous and may be fused into program elements.

In order to accomplish the third objective, establishing a format which allows for comparison of available data, the basic types of questions which needed to be answered, according to Williams,[26] were:

III - 1. What are proper subelements within designated program elements which should be contained in major programs?

III - 2. How do program elements relate to the decision-making process within the College?

III - 3. How well do programs fit with long-range planning for the College?

To the extent that answers were generated to these questions, a base for a program budget model suitable for the College could be designed. The Heald-Smith proposal was felt to provide parameters for such a model. In summary, these categories of information seeking, according to Williams, are essential to establish a base for a program budget, and he suggests: "Not very many colleges and universities appear to subject themselves to this soul-searching at present, but it would seem to be a pre-requisite for establishing a program system."[27] The classification and observation of the data proceeded in accordance with the objectives stated above and in answer to the specific questions posed in the study.

Classification of Data

Compiling data for classification purposes, when related to traditional budgeting procedures, presents few conceptual problems. According to Anthony, the task becomes one of determining how funds are distributed according to a formal organizational hierarchy.[28]

I - 1. To secure adequate information in order to determine cost structures, as related to the traditional budget format, it was found that data could be classified into five categories:

a) Division of cost items into faculty salaries.
b) Division of cost items into assistant instructor salaries.
c) Division of cost items into graduate assistant salaries.
d) Division of cost items into contingency funds.
e) Division of cost items into classified salaries.
f) Division of cost items into labour costs.
g) Division of cost items into supply and service costs.
h) Division of cost items into equipment rentals.

I - 2. Further breakdown of cost at departmental levels could provide an opportunity to observe expenditure patterns in greater detail. It was not possible to assess accurately all the different factors which appeared to have importance in determining departmental share of available funds, or with what emphasis they appeared to have importance, as these varied over time. Although actual dollar amounts provided for departments historically could be determined to some degree, the reasoning behind the allocations could not be identified. However, knowledge of where portions of available resources had been employed provided a provisional conception of the application of funds.[29]

Major classes were:

a) Faculty salaries.
b) Support staff salaries.
c) Equipment charges.
d) Cost of supplies and services.
e) Travel allowances.
f) Allocated overhead.

I - 3. As noted earlier, no quantitative expression can adequately measure the accumulated efforts of the activities in a department. However, Dr. Dressel, Director of the Office for Institutional Research at Michigan State University, has provided the following absolute quantities expressing total departmental contribution over time:

a) Student credit-hours generated at undergraduate level.
b) Student credit-hours generated at graduate level.
c) Students graduated from the undergraduate school.
d) Students graduated from the graduate school.
e) Students graduated as specialists.
f) Students graduated as doctoral fellows.[30]

The information made available through this initial, exploratory procedure in no way should be considered adequate for fiscal or accounting deliberations. It was established for the sole purposes of providing a basic understanding of the process by which money was distributed, and of deductively identifying priorities as these have appeared over time.

II - 1. Determining those activities which constitute a viable "program" in the College was complex, because a value judgement had to be made by the researcher. After examining the literature pertaining to this particular concept, a definition for a program in the College was developed. It was found that in order to classify a resource-consuming program in the College, the following concepts appeared to be important:

a) Purpose of the activity, stated or implied.
b) Activity cost structure.
c) Resource inputs.
d) Program accomplishments.

III - 2. Presuming that viable programs could be determined, a continuous review of resource requirements will require analysis of existing activities and result in change of emphasis with varying demands.[31] The basis for such an analysis is a flow of communication between those who administer and those who evaluate programs. The data which provided meaningful information for determining the format of the Analysis Report, according to Tennant and Bertram, were classified as:

a) Student behavioral change.
b) Evaluation of curriculum.
c) Cost-effectiveness.
d) Recommendations for changes.

II - 3. Total program outputs in education cannot be measured in absolute terms.[32] Therefore, a criterion of reasonability needs to be determined in each program area. Enthoven explains, the underlying reason for the incapacity to provide absolute measures may be attributed to the fact that no norms have been established for what constitutes acceptable results from given levels of resource employment.[33] Categories indicating efficiency in programs were classified as:

a) Student credit hours generated.
b) Research and publications.
c) Special projects.
d) Contribution to professional societies.

In this final section, the basis for a program budget is established. Essentially, the investigation is initiated by taking a micro-analytical view of the elements in programs; and is concluded by relating programs to a macro view of the College and its operational environment. The

approach is meant to provide for observing the institution as an integrated system over time intervals.

III - 1. According to Novick, each program element serves a primary purpose, that of supporting a particular program structure. Only general traits of a subelement have been identified by Frankel;[34] these in turn contribute toward a wholistic program budget. The following concepts were anticipated to be relevant in determining elements in a subprogram:

a) Past practices.
b) Program intent.
c) Ease of justification.
d) Least conflict.

III - 2. Departing from traditional budgeting procedures by probing into specific decision-making situations, as suggested by McGivney and Nelson,[35] it could be estab lished that program elements were related to complex interdepartmental formal and informal agreements. The program elements could in part be identified by course offerings in departments, and in part by student patterns of study. Concepts which were useful in classifying program elements were:

a) Structure of major programs.
b) Required resources.
c) Expected results.
d) Interrelationship with other elements.

III - 3. In the absence of stated long-range goals for the College, programs historically have contributed to shaping the image of the institution. It was possible to describe how programs contributed to the present status of the College in terms of its activities. It was only

possible to assume their future impact upon the institution, however, and no guidelines for explorations beyond what exist could be determined.

The goal for classifying data, as proposed in this chapter, was done to provide decision makers, when working under uncertainty, a larger range of available alternatives with greater flexibility in determining future procedures. Heald and Smith express the nature of PPB systems in this manner:

> Decisions will be made concerning goals, objectives, programs, and about the assignment and subsequent consumption of resources. As new goals are sought, as new objectives are determined, as new programs are planned, or as old organizational features are modified, information concerning the current status of assignment and consumption can only be contributory data to the development of more relevant program decisions through which our College can become more responsive to the needs of a rapidly changing society.[36]

The format for distributing funds, suggested by Heald and Smith, is based upon three categories of information: (1) statement of objectives for some 68 identifiable programs, (2) identification of particular input data, and (3) identification of particular output data. Inasmuch as the procedure is desirous for the College, the first category was not applicable and hence a modification of the proposal was necessary.

Scope, Assumptions and Limitations

Although a fairly comprehensive body of data was collected and classified, the scope of the study was essentially limited to an exploration of how the Heald-Smith procedure for resource allocation could support a program budget model

developed for the College of Education. It was further assumed that the original Heald-Smith process to some degree could be modified to better facilitate the PPB system model. The study was also based on the assumption that it was possible to describe existing distribution of funds in the College. No attempt was made to prescribe the implementation of a possible program budget. It was further hoped that the procedure would differ from prescriptive "how to do it" approaches in which objectives are considered a prerogative to program budgeting.[37] Rather, it was felt that by identifying resource-demanding program areas, it would be possible to determine actual priorities, and hence make implicit objectives explicit by recognizing those goals the College had attained over time.

It was recognized that the proposed program budget at best could be a complement to the required, fiscal budgeting process and not replace a line-item procedure. Rather, as explained by Pavese, "The program is a comprehensive, output-oriented policy and planning budget."[38] Finally, as has been noted in a number of earlier studies,[39] it was assumed that by employing a systems approach to both monetary and program management, the efficiency of available resources could measurably increase.

The study was limited by two insufficient conditions. As noted in Chapter Two, program budgeting has not been defined in behavioral terms;[40] hence, no attempt was made to refine further the term PPBS. Rather, the present study was limited to observing resource allocation in the College of

Education. Moreover, it was recognized that a program budget approach in the College at best could provide information about how effectively resources are employed according to predetermined norms. The approach did not explore its impact upon the learning process, but was, as explained by Piele and Bunting, exclusively limited to monetary concerns:

> Unfortunately, elaborate discussions among educators have not yet yielded agreement as to what to measure and how to measure it. What is education? How can different aspects of it be compared? How can learning be tested? The inability to answer these and similar questions leads to one of the major complaints concerning program budgeting, that it considers only the monetary aspects of education. Much of education is non-monetary, that is, sociological or cultural, and cannot be measured in dollars. Quality, location, neighborhood, and so on, are all important aspects of education; all are usually ignored by program budgeting.[41]

The research was limited to a description of a conceptual framework for a PPB in the College of Education, and it was felt that by purposely avoiding a detailed description of how to approach the technical aspects of a PPB system, emphasis could be placed solely upon the management of resources. A number of already existing computerized programs could be utilized in an implementation phase.[42]

Summary

This chapter has presented the methods and procedures used within the study. The procedures used included classification of data to provide an empirical base of information in the description and exploration for a program budget approach in the College of Education at Michigan State University. The population in the study was limited to those human and physical resources demanding monetary support in

order to function within the College. The sources of data for the study were comprised of annual reports, interviews with faculty and staff, annual budgets, accounting procedures, and various reports available from the Registrar, Comptroller, and the Office of Institutional Research.

To accomplish the purpose of the study, that of developing a program budget model for the College of Education, the interrelationships among three subobjectives were observed: (1) the format of traditional resource allocation in the College, (2) the present operational program areas, and (3) the relationship of the Heald-Smith procedure for resource allocation to the program budget model. The study was of a descriptive, exploratory nature and tested no hypothesis or cause-effect relationship. Beacuse the incorporation of the Heald-Smith resource allocation procedure in a model for PPB in the College was an integrated part of the major purpose of the study, particular emphasis was placed upon the third subobjective. The accuracy of the data compiled is not commensurate with the exactness required for accepted fiduciary accounting. The reason for this departure from accounting procedures can be explained by the fact that the classification of quantitative data was done only to secure a data base for a program budget.[43] It allowed for quantitative measures, sufficient to employ the Heald-Smith procedure in a program budget model. The approach was not intended to evaluate an educational process; at best, it was intended to describe monetary aspects of education.

Chapter Four presents the findings from the present study.

CHAPTER III--FOOTNOTES

[1]George J. Mauly, The Science of Educational Research (New York: American Book Company, 1963), p. 88.

[2]Aaron Wildavsky, "Political Implications of Budgetary Reform," Public Administration Review, 21 (Autumn, 1961), pp. 183-190.

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CHAPTER IV

CURRENT PROCEDURES IN RESOURCE ALLOCATION AND A PPB MODEL FOR THE COLLEGE OF EDUCATION

Introduction

This chapter has a dual purpose. It will present limited quantitative information about how monetary resources have been allocated to line and staff functions within the traditional organizational structure in the College of Education, and it will describe a model for a program budget particularly developed for the College.

In late 1962 the administrative hierarchy of the College of Education was changed, and as a result internal budgeting procedures at departmental levels were abolished.[1] Hence, in reconstructing patterns of past applications of funds, it was not possible to adhere to accepted cost accounting procedures at departmental levels. Because the primary purpose of the study was to design a PPB model for the College, however, the reconstruction of actual expenditures did not need to conform to normative accounting practices.[2] The model was only intended to serve as a base for understanding performance budgeting. It could be used as a complement to traditional budgeting and accommodate financial accounting.[3] Finally, its capacity could substantially be increased by utilizing electronic data processing equipment.[4]

Present Division of Expenditures into Administrative Units

Budget allocation into major areas of expenditures during the last five years is reported in Table 1. In addition to the "General Funds" (G.F.) account available for the broad category "Education," six Institutes receive long-term financial support for their activities; their share of the annual budgets is included in the table. These allocations to the traditional divisions of resource consumption are based on 12 months' regular operations in terms of their contribution toward producing or servicing educated manpower.[5] No account of longitudinal ramifications upon the institution was made of short-term financial support received for special projects, nor was account taken of short-term research money made available from external sources to individual faculty members or departments. According to Walker, these non-repetitive expenditures should not be considered, when establishing financial parameters for the main thrust of long-term regular operations.[6] The division of expenditures from G.F. into the four traditional cost categories is reported in Table 2.

In comparison to nine other colleges offering graduate degrees within the Michigan State University system, the fiscal budgeting format in the College of Education could be compared on an equal basis and provide the following information: (1) a comparative general decline in funds received per produced student credit hour, (2) a comparative increase in student credit hours produced per faculty member, and

(3) a relative decrease in faculty salaries when compared to academic salaries in other colleges. These trends are reported in Tables 3A, 3B, and 3C. In essence, the College produced more student credit hours with less relative financial support than any other college with a graduate program in the University, as can be observed in Table 4.

Because detailed information on dollar commitment prior to the fall term of 1968 could not be made available, no specific cost could be attached to particular activities prior to that time. In order to establish some understanding of cost trends within the College of Education, however, only limited comparisons could be estimated for the last ten-year period. In Table 5 the following comparative gross and actual expenditures are compiled:

- Faculty salaries in general areas of concentration
- Labour cost
- Service and supplies (including travel expenditures)
- Equipment rentals
- Special education
- Other expenditure

The return from these incremental expenditures was in part an increase in production of student credit hours, ultimately resulting in an increased number of graduates from both schools within the College, the School for Teacher Preparation and the School for Advanced Studies, as reflected in Table 6. Another result not measured in quantitative terms was the general increase in faculty research efforts. The actual dollar amount paid out to special projects and

research activities in the College expanded from $1,405,452 in 1965-66 to $2,291,864 in 1969-70, as noted in Table 5. No direct relationship between the increased expenditures and the resulting production of SCH was determined, due to unavailability of information about faculty work load and stated learning standards in various programs.

It was possible, however, to observe a general growth trend, as recorded in Table 7. The areas quantitatively indicating growth were confined to:

- Increase in FTE faculty
- Increase in student credit hours generated at the undergraduate level
- Increase in student credit hours generated at the graduate level
- Increase in fall term enrollment

The information generated through these traditional accounting procedures provided some understanding of how the scope of operations in the College of Education had developed over time. This general growth pattern inadequately expresses specific program accomplishments, and until further knowledge about actual resources committed to particular activities within the College is made available, traditional budgeting procedure, as explained by Rourke and Brooks, can only be limited to "a useful record of outlays of the institution but indicates virtually nothing about the way in which money is being spent to achieve the major goals of the institution."[7]

An examination of the actual commitment of funds in the College of Education was made to provide some perspective growth and development without particular reference to quality. Moreover, the investigation provided for some identification of past priorities in the College, which appeared to result in:

- Deliberate attempts not to associate expanded activities at departmental levels with actual cost increases.
- A faster rate of growth in graduate enrollment when compared to the expansion at the undergraduate level.
- Practically no expansion in the financial support of the activities of four Institutes since their initiation.

By far, the largest increase in fund allocation during the period appeared to be directed to the line-item "supplies and services."

As may be noted from the above observations, these gross budgetary procedures disallowed for a breakdown of dollar allocations allowing for more detailed knowledge about major efforts in the College.

Division of Expenditures into Proposed Program Areas

A program is defined by Webster's Dictionary as a "plan for future procedures."[8] A programming system, according to Swanson, is: "A systematic methodology used in the development of a plan where both dollar and non dollar units

are involved."[9] The procedure by which these units are combined for comparative purposes is called "system analysis." The term is specifically defined by Kershaw and McKean as: "Comparison of alternative means of carrying out some function."[10]

Starting fall term 1968 and terminating spring term 1970, it was possible to secure accurate financial information about particular program activities in the College of Education. Heald and Smith identified two groups of activities in the College: (1) the student credit hour-producing efforts and (2) the service activities. These were further divided into: 10 undergraduate programs, 21 M.A. programs, 17 Ed.S. programs, 6 "Institutes," and 1 "General Factor" program. As noted, the purpose of each activity had not been uniformly stated and the formulation of quantitative measures by which aggregations of the activities could be gauged was determined in accordance with procedures recommended by Ward.[11] Contrary to traditional cost accounting practices, no initial attempt was made to compute total overhead charges into program activities. The reason for this decision was based on the opinion that by distributing an arbitrary level of indirect cost into, for example, student credit hour-producing areas, false assumptions about productivity could conceivably be made.[12] The major program areas, as proposed by Heald and Smith, could be retained and the only overhead charge distributed to these on a pro-rated basis was the average cost of supplies. For comparative reasons,

however, the average costs of services, equipment rentals, and maintenance were allocated to particular program elements only to suggest their total cost. By compiling actual dollar values directly applicable to groups of activities, administrators, in turn, could associate direct costs with actual programs and their elements. However, it was not possible to separate dollar inputs into all the 58 graduate programs due to lack of specific information; hence the major division in SCH production by faculty was made at undergraduate and graduate levels, as reported in Table 8. In Table 9 examples of quantitative analyses of direct instructional costs of all programs in the four major departments of the College are provided. The purpose of these allocations, as noted, was <u>not</u> to evaluate or justify expenditures, but only to identify resource-consuming activities which, in turn, with certain modifications, could comprise elements in a future program budget.[13] Furthermore, the figures cannot be considered absolute; but according to Heald and Smith, the process allows for adequate comparative evaluation between resource inputs and the output of educated manpower.[14]

These selected examples taken from traditional program areas clearly contrast the variations in actual resource demands required to maintain given levels of operations. Whether or not these examinations of the application of funds adequately could allow for a qualitative evaluation of ongoing activities was not of primary importance in the study. What was intended, was to demonstrate that by quantitative

manipulation, measures of actual activities would allow for a better understanding of the College as a going concern.

Programs obviously operate under constraints. Uncontrollable variables such as fixed costs have time as a dimension. Also, the interdependence among resource variables and outputs could not be isolated. It was not possible, for example, to fix activity levels and resource inputs and then alter the systems parameters, such as the staff-student ratios, without affecting the quality of some of the activities.[15] Because each one of these quantitative measures only in part provides some indication of the cost associated with levels of activities, evaluation of the proper major program emphasis can only be made by those who manage the College. The actual value of extra-curricular involvement by faculty members, such as research, publishing, and community services, was not and cannot be taken into account in these limited quantitative comparisons. The actual dollar values attached to major program areas were related either to the actual direct cost of SCH produced or to institutional needs for services. Efforts to measure the long-term impact of committed dollar values in the College were beyond the scope of the present study, but may be related to:

- Measurement of student behavioral change
- Evaluation of curriculum
- Cost-effectiveness analysis
- Recommended change in emphasis.[16]

Measurement of Output-Student Flow

As stated in Table 9, it was possible to determine the number of student credit hours generated within four departments at the undergraduate and graduate levels. Traditionally, a number of course offerings in the College of Education are considered to be "service courses,"[17] and hence available to students in both undergraduate and graduate schools in all colleges within the University. The number of non-education students participating in these and other courses in a minor capacity disallowed a measure of accomplishment to be the actual number of graduates produced annually by the College, as referred to in Table 6. Excluding health and physical education, it could be established that total enrollment of students participating in education courses with major emphasis from disciplines outside the College of Education increased from 4,135 to 4,944 during the last seven terms, as reported in Table 10. Moreover, a relatively large group of students was registered in the "non-degree" category and it was not possible to determine the eventual major area of emphasis for this category, which increased from 485 in the fall of 1965, to 892 in the fall of 1969, as reflected in Table 11. Hence, in view of the fact that the College of Education provides a service function to a large number of students across the university, it was felt that SCH generated in the instructor's major field of concentration adequately comprised some measure of productivity in the non-service program areas. Therefore, quantitative measures for productivity in SCH-producing programs

could be accumulated without particular concern for the actual number of students graduated from year to year. This view appeared consistent with the findings of the NEA Committee on Educational Finance.[18]

Having determined SCH accumulated in some specific program areas over particular time periods, it was possible to calculate the cost of each student credit hour in terms of: (1) direct faculty costs, (2) allocated program overhead cost, and (3) allocated departmental overhead cost. These examples of actual expenditures, reported in Table 12, reveal substantial variations. The direct costs connected with areas of particular educational emphasis were further defined into program elements and their lower levels of cost aggregations, providing for a more detailed examination of how funds were employed, as suggested by way of an example in Table 13. The data accumulated by these separations of cost provide for an identification of those activities which appear to constitute sub-programs in the College.

Activities Constituting a Major Program in the College of Education

It appears that scholars involved with the design of performance budgets have implicitly assumed given levels of activities would constitute sufficient measures for their subsequent classification into major programs.[19] Similarly, determining those components which potentially could constitute proper program elements supporting major programs in the College of Education supposedly would provide for an

association of performance with resources. Those activities which were classified in the Heald-Smith procedure as major-programs allowed for a comparison between performance and costs in the undergraduate and graduate SCH programs, and for a comparison of ratios in the service program areas. Examples of how these comparisons may be made are available in Table 14. As previously stated in Chapter Three, a value judgement was necessary in order to define a major program in the College. The below-stated criterion should be considered an initial attempt to define a program and can only be tentative. For the purpose of designing a PPB model for the College of Education, a major program will be defined as: "A cluster of coordinated activities designated to provide a possible set of finite results."

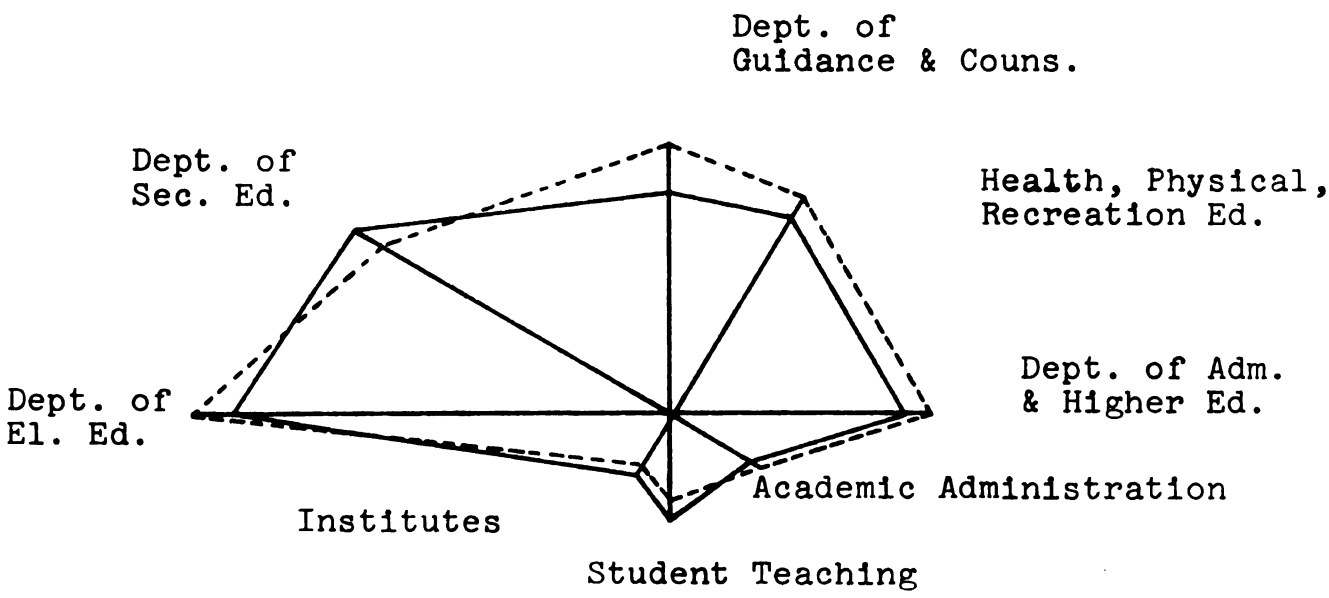
The preceding observations and examples of actual expenditures in the College of Education should not be considered as a comprehensive effort to explain total commitment of funds in the institution. Rather, they serve to demonstrate how, in accordance with Heald and Smith, it is possible to associate some notion of productivity with actual dollar commitments to specified activities.

Elements in a Program Budget

For all practical purposes, the elements in a program budget can be considered synonymous with the major programs.[20] According to Williams, the impact of the elements upon the environment can be expressed in a visualized profile. A somewhat simplified progression of "Iterations in the Program

Budgeting Process" pertaining to the College of Education during the last two years may be expressed by the following schematics:[21]

Total Dollar Value Allocated to Academic Salary by Area



----- 1969-70
_____ 1968-69

By examining these profiles the following could be established:

- Over a two-year period there appeared to be relatively limited fluctuation in dollar consumption by departments.
- Programs in elementary education receive the largest percentage: 18 per cent of distributed funds, whereas
- the full-time academic administration of the College receives only 5 per cent of total funds.

These observations may be regarded as an indication of how administrators have attempted to utilize the value of the last increment of any resource expended, in every direction where funds have been committed. The lines connecting points on the program vectors are called equi-value cost-utility lines, denoting a preferred equilibrium in the distribution of College resources at given points in time. The assumed impact of these programs is highlighted in the 1969-70 Annual Report, in which Dean Ivey states:

> During the year 1968-69 the College of Education has put a great deal of emphasis on perfecting our internal operations in a number of directions. The several departmental programs have been going through a period of analysis to determine appropriate ways of improving quality. The teaching institutes and research institutes are working very closely with departmental staffs in a number of programs, for example, the USOE-funded behavioral science-teacher education activities and the project on the Training of Teacher Trainers. In both projects, the College has worked closely with several other colleges of the University.
>
> The College of Education continues to work in the area of the "inner city" educational problems and the encouragement of more faculty members and students becoming so involved. The Mott Institute for Community Improvement continues to be an asset in this connection. The new Center for Urban Affairs is also providing resources for this purpose.[22]

The PPB Model for the College of Education

In light of the preceding observations, the PPB model for the College of Education will be explained along two dimensions. First, its conceptual parameters will be demonstrated by a schematic. Second, a sequential procedure for its employment will be suggested, accompanied by the necessary forms aiding in the allocation of funds on a multi-year prognosis for performance-oriented budgeting.

The conceptual framework of the model has the capability of accepting a wide range of data parameters. The model may become operational with or without the support of data processing equipment. Its usefulness will presumably increase with both the amount and number of different recall orders in which information can be made available. Based on present restrictions on allocated funds for the actual management of the College of Education, the parameters of the model are such that practically no additional manpower ought to be required for its implementation on an initial, unsophisticated premise.

In determining its conceptual framework, account was taken of the present state of applied knowledge in college program budgeting. Two organizations, in particular, have contributed toward a systems approach for the management of institutions of higher education: The System Research Group (SRG) in Toronto, Canada, and The Western Interstate Commission for Higher Education (WICHE) in Boulder, Colorado.

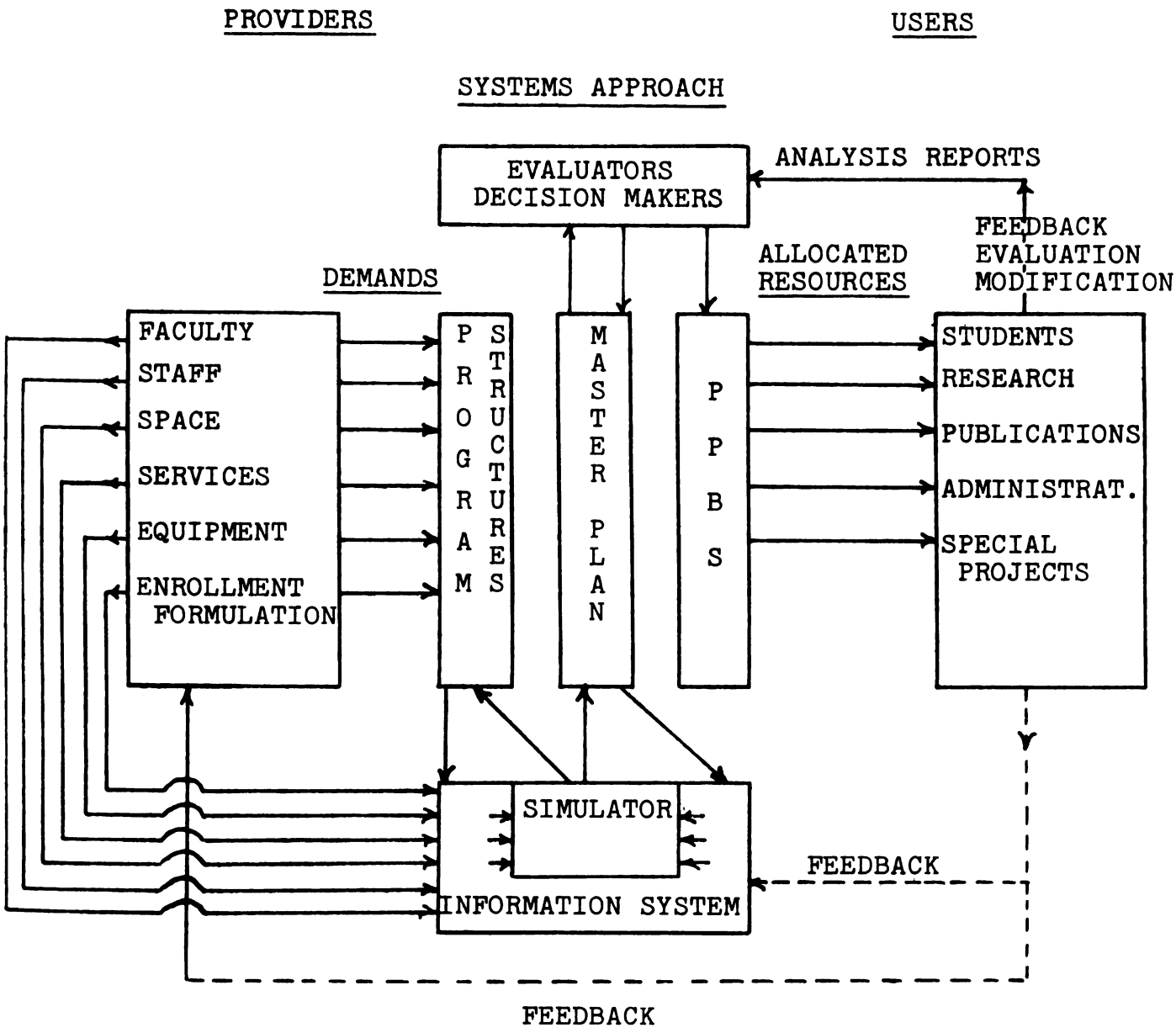
The computerized micro-analytical model CAMPUS, developed by SRG, has the capacity to forecast resource needs based on a simulation of activity levels where a large number of variables may be considered. The model is divided into four sections: (1) enrollment formulation, (2) resource loading, (3) space requirements, and (4) budgetary calculations. It is argued, increased knowledge of the cost consequences of future alternatives, in turn, ought to allow for planning rather than responding to pressures.[23]

Similarly, the WICHE group, in attempting to develop uniform budgeting procedures, hopes to provide:

- An information system which will improve the capability of universities to allocate resources more effectively.
- Identification of institutional input-output indicators for instructional, research and external service programs.
- Seminars in systems analysis for universities.[24]

By virtue of the fact that these and other efforts to improve efficiency in the use of funds in universities are still considered experimental, the present PPB model for resource allocation in the College of Education attempted to benefit from the limited knowledge about systems analyses. The model is unique only to the extent that it was created for one specific college in a large university environment. It may conceptually be viewed as a structure consisting of "providers" and "users" in this manner:

A CONCEPTUAL PLANNING PROGRAMMING BUDGET MODEL FOR THE COLLEGE OF EDUCATION, MICHIGAN STATE UNIVERSITY



The Functioning of the Model

As noted, the model comprises two main structures, the providers and the users. The underlying purpose of a systems approach for allocating resources in the College of Education was to optimize benefits made available from the providers to the users. The model could be dynamic by utilizing its capacity to accept sophisticated, analytical aids as these develop over time. Its functioning was based upon an information system into which detailed classification of information was made available. The Master Plan entailed estimations of future student enrollment formulation, research, and community services projected on a multi-year basis. By altering the hierarchy of priorities in the simulator, aspects of the master plan could be changed until evaluators were satisfied with a particular level of activities in exchange for projected costs at given points in time. When acceptance of a style of operations was found, the simulation was translated into a program budget and executed. During and after periods of implementation, program activities could be reported, evaluated, and changed to the extent desirable. The validity of the model will be in its use. If not continuously employed, moderated, and updated it will become antiquated, unreliable, and of questionable service to college administrators. In supporting its capacity to serve the College of Education, a review of current recommended procedures in performance budgeting for institutions of higher education was undertaken, and ideas developed by Pavese, Ward,

Williams, and Heald and Smith were utilized.[25] The recommended procedure for implementing the model is outlined in the following ten steps:

. Analyze the traditional budget.

. Identify program structures and enrollment.

. Estimate faculty effort.

. Estimate manpower needs.

. Establish measures for achievement.

. Estimate costs.

. Estimate benefits.

. Simulate.

. Determine a multi-year master plan.

. Develop and evaluate PPBS format.

Tentative uniform support sheets for these activities are reproduced in Appendix C. The remainder of this chapter will outline sequential procedure for the employment of the model.

The Traditional Budget

An examination of the traditional budget allowed identification of general resource-demanding activities, associated with their cost. Priorities in terms of funding particular activities provided some understanding of past objectives and institutional direction. By subdividing dollar values into 68 student credit hour programs and some nine service programs, a profile of the College's modus operandi would emerge, making it possible to relate "providers" with the "users" of resources. No attempt was made to justify

the procedure by accounting standards, as this would have been superfluous. Nor was any attempt made to evaluate the qualitative aspects of the budget, as that feature is a concern of fiscal managers, not college administrators.

Identification of Program Structures

The major programs, as developed by Heald and Smith, could essentially be maintained. As indicated earlier in this chapter, no attempt should be made to superimpose the cost of administration and overhead charges outside specific program areas. The theory behind this decision was based on the argument formulated by Professor John Dearden at Harvard Business School, that loading of indirect expenditures distorts actual productivity at program level. Programs not directly involved with SCH production could remain separate, service-oriented operating entities. No averaging of costs should be undertaken; rather the direct, identifiable outlays as related to programs were recorded. In a recent doctoral dissertation, Austin developed a costing procedure specifically for the College of Education at Michigan State University.[26] That study, based on the average cost of granting degrees in different degree-granting programs, could not significantly aid in the present PPB approach. Expected enrollment formulation as related to program structures could be estimated, based on forecasted student flow into areas of concentration. Recommendations for how this provider-segment could be considered are proposed by way of an example in Appendix D.

Estimate of Faculty Effort

The estimation of faculty effort is made via the Analysis Report, as proposed in Appendix E. The significance of the Analysis Report is reflected in its purpose. In essence, it serves as a link between intended and actual program accomplishments. According to Tennant and Bertram, it may be viewed as a "feedback" mechanism, and is designed to provide information about:

- Intended and actual program structure.
- Required resources for program accomplishment.
- Measures of expected results.
- Projections of interrelationships with other elements.[27]

According to the Heald-Smith approach, it was proposed that an Analysis Report for the College should contain: (1) program objectives, (2) a summary of consumed resources, and (3) program accomplishments. In light of the fact that objectives have not explicitly been stated for all programs in the College of Education,[28] only the latter two elements of the Report appeared relevant. The report was designed to provide decision makers with updated information about the performance of major programs, thus allowing adjustments and changes in activity areas on a continuing basis. The information in the Report, according to Heald and Smith, was to be narrowed down to a comparison between expected and actual returns on allocated resources into programs.

The realization of major programs is dependent upon faculty effort. During the last half of 1970, some 360

faculty members were asked to fill out a comprehensive questionnaire designed in cooperation with the University Office of Institutional Research. The information sought would provide a base for faculty data and allow initiation of a College Management Information System, MIS. The dual purpose of a MIS is explained by Koenig, who proposes:

> (1) A data acquisition and storage system to maintain orderly records on variables important to the decision-making process and a convenient recall system to make information derived from the file accessible to the decision maker; (2) a logical structure to identify what variables are to be maintained in the file, the computations to be made on these variables and how the results of these computations are to be used in the decision process.[29]

In order to keep data current on faculty effort, additional information needs to be compiled at least annually, and ideally upon the completion of each of the four terms. Data compiled from a frequently submitted "Faculty Load Sheet" will serve as an incremental source of information and allow for better management over time. The relative importance of knowledge about academic effort is amplified by the fact that the faculty in the College of Education currently consumes some 80.8 per cent of available general funds, as reflected in Table 15. A format for a "Faculty Load Sheet" is proposed in Appendix F.

Estimated Manpower Needs

In assessing manpower needs, two information categories were required: (1) projections of enrollment formulations (Appendix D), and (2) projected faculty load. Along with the "Faculty Load Sheet," Appendix F, a "Narrative

Support Sheet," Appendix G, was designed to explain expected changes and shifts in emphasis on program element levels. The "Narrative Support Sheet" would specifically identify resource requirements in conjunction with change in activities from, for example, teaching to research within particular areas, or vice versa. To the extent possible, expected outcomes resulting from the proposed changes would be recorded in the sheet. In order to keep the "Faculty Data Bank" current, Appendix H provides a form for continuous faculty load updating information. No absolute standard determining individual productivity could be proposed. Evaluation of individual faculty effort could reasonably be done only within program areas, and in accordance with established norms at program creation level. This view is further supported by Wilson, who undertook a study of faculty effort at the University of Toronto during 1968-69.[30]

Establishment of Measures of Achievement

By definition, a program budget's primary function is to establish measures of achievement in return for resource-consuming efforts.[31] Inherent in the process is a selection of those alternatives which potentially would result in a mix of activities adequately serving institutional purposes on a multi-year basis. In Appendix I, the form "Cost of Alternatives" provides a format for listing alternatives and projected benefits. An opportunity to evaluate the actual dollar cost of alternatives does not suggest that quantitative measures alone adequately can justify expenditures. Rather, as proposed

by Levine, quantitative projections may be viewed as an important complement to determining the cost of qualitative considerations.[32]

Estimate of Costs

The purpose of measuring costs of alternative methods of accomplishing projected achievements is to express the quantitative value associated with particular procedures. The format for recording costs of alternatives is proposed in Appendix J.

Estimate of Benefits

Forms in the "Accumulated Benefit" category (Appendix K) were proposed to allow estimation of the monetary and non-monetary benefits from elements within major program areas. By comparing alternatives, a basis for net benefits in particular activity areas presumably could be identifiable. The evaluation of Benefit/Cost opportunities entailed considerations of both quantitative and non-quantitative aspects. The value attached to different types of Benefit/Cost analysis would be subjected to criteria determined by administrators, as applied in specific situations. Because the College of Education has limited liberty in deciding upon the flow of undergraduate students through programs, Benefit/Cost analysis would have limited impact upon policy decision in particular program areas.[33] Only to the extent that college administrators would have the freedom to decide program content, could they also decisively determine the criteria for measurement.

Simulation

Assuming that comprehensive information concerning the preceding areas of concentration could be accumulated, the College administrators would face two problems: (1) a method for storing the information made available, and (2) a way of recalling it in such a manner that meaningful projections could be made available both at program and program-element levels. As indicated, it was possible to compile certain types of information mechanically, but when impact upon total operations is caused by an increase or decrease in activities in one program area, a computer could provide forecasting about alternative changes in total resource employment faster and more accurately than manual analyses.[34] Simulation of how major changes may take place in the fiscal budgetary procedure, new research activities, and expansion or retraction of programs could substantially be aided by the use of data processing equipment. Currently the capability of an IBM 1130 model computer is available, and its capabilities in conjunction with the PPB model are outlined in Appendix L.

The Multi-Year Master Plan

The purpose of the master plan was to provide decision makers with a perspective view of total operations over time. The plan may be considered a representation of how total funds are to be allocated on a long-term basis. It is, in effect, a futuristic overview of the planning effort of the combined programs over time. A proposed format

for the College of Education's multi-year master plan is available in Appendix M. The importance of the plan in the program budget is conceptualized in the orientation of the College of Education. Without it a PPB system cannot function.[35]

The PPBS Format and Evaluation

The final document operationalizing the model is the essence of program budgeting. Appendix N contains a procedure for developing the format "PPB Evaluation," which, when employed, potentially would allow administrators of the College of Education to employ the PPB in conjunction with required fiscal budgetary practices. The format was designed to provide administrators with an opportunity to evaluate attainable long-range concrete alternatives, and avoid abstract verbalization of aspirations. Moreover, the format was provided to couple short-range activities into repetitive multi-year programs in such a fashion that long-run purposes of accumulated effort could be identified. The use of the "PPB Support Sheets" should not remain remote, once-a-year events, but should continuously be evaluated by those who carry the responsibility for the direction in which the College moves. Changes in the planning process would initiate reevaluation of all activity levels and selection of courses of action through a systematic consideration of new alternatives.

The Model and Long-Range Planning

The purpose of proposing a programming budget model for the College of Education was twofold. In addition to complementing traditional procedures as these may be related to a performance budget, the purpose of the approach was to provide a pragmatic framework particularly suited to the environment of the College. Ideally, the model should allow decision makers to view total College effort over time in a perspective related to the educational needs of the people in the State of Michigan, and employ funds accordingly. Because model-building in program budgeting, according to Fisher, is considered an art and not a science,[36] the process, although descriptive in format, would be experimental in its application. In formulating the model, a deliberate attempt was made to highlight those factors which were judged to be relevant to the performance of the College and to suppress those which were considered to be relatively unimportant. An underlying purpose of the design was to develop a meaningful set of relationships among relevant alternatives.

The model, by definition, may be viewed as an abstraction from reality and it was recognized that it primarily dealt with the adequacy of the existing facilities to deal with the uncertainty of the future. The explicit purpose of the model, in essence, was to provide College administrators with a vehicle which, when applied, would project a relationship between long-range achievements associated with future costs. It was recognized that the College was required to

fulfill a service function at undergraduate and non-degree levels, and in these areas of activities College administrators had only limited opportunity to formulate policies which would result in significant enrollment changes. Nevertheless, the potential long-range impact of the model in program areas where College administrators exercise sovereign control may, according to Dyer, also have carry-over effect into the domain of the central university administration.[37]

Summary

In the first half of this chapter the findings of an investigation into actual resource commitments in the College of Education were presented. Due to the unavailability of exact data prior to the fall term of 1968, only generalized information from before that period could be utilized in observing the employment of fiscal and human resources. Expended dollar values were first associated with the formal organizational hierarchy, and could thereupon be allocated into 68 student credit hour-producing, and nine service-oriented programs. Two "Iteration Profiles in the PPB Process" were constructed, one for each of the last two fiscal years. The profiles identified past activities with implied objectives. By directing actual expenditures to individual efforts without charging overhead costs, norms for faculty productivity in program areas emerged and allowed for evaluation against qualitative parameters deemed appropriate for each program area.

In the second half of the chapter a PPB model for the College of Education was conceived of as an abstraction from reality, taking into account those formal requirements directed from outside the College and limiting its range of action. Each of the 68 program areas, while committing itself to a uniform college-wide performance budget, specifically was encouraged to maintain its own educational philosophy unique to its function in this particular environment. The model was not meant to substitute fiscal budgeting procedures, but rather to support and strengthen individual program efforts in their quest for resources. In a proposed effort to make the model operational, some 12 forms were designed and their use prescribed. The model was designed to be operational without the aid of computers. It was felt, however, that the range of conceivable alternatives would be substantially increased by the employment of electronic data processing equipment. Finally, because model building essentially is considered an art and not a science,[38] it was recognized that the effort could only be regarded as an initial step subjected to substantial modifications and improvements in an attempt to apply a systems approach to the allocation of scarce resources in the College of Education at Michigan State University.

The last chapter presents the summary, conclusions, and recommendations of the study.

CHAPTER IV--FOOTNOTES

[1]College of Education, Michigan State University, "Reorganization of the College of Education, 1960," an unpublished compendium of papers in the Dean's Office.

[2]For support of this opinion see: Robert C. Ward, Academic Management of Scarce Resources (Lexington, Ky.: College of Education, University of Kentucky, pp. 18-19).

[3]An important aspect of a PPB system is that it provides a complementary service to traditional budgeting; see: Murray L. Wiedenbaum, "Program Budgeting-Applying Economic Analysis to Government Expenditure Decisions," Business and Government Review, 7, 4 (July/August, 1966), pp. 22-31.

[4]John Coffrey and Charles J. Masman, Computers on Campus (Washington, D. C.: American Council on Education, 1967).

[5]See: Memorandum to Deans, Directors, Chairmen from the Assistant Provost Office, dated June 2, 1970 (East Lansing, Michigan: Michigan State University).

[6]Ernest W. Walker, Financial Planning and Policy (New York: Harper & Bros., 1961), pp. 87-150.

[7]Francis E. Rourke and Glenn E. Brooks, The Managerial Revolution in Higher Education (Baltimore, Md.: The Johns Hopkins Press, 1967), p. 69.

[8]Webster's New World Dictionary of the American Language, College Edition, ed. by David B. Guralink (New York: Popular Library, Inc., 1957).

[9]Paul J. Swanson, "Program Budgeting for a College of Business Administration" (unpublished Doctoral dissertation, University of Illinois, 1966), p. 5.

[10]Joseph A. Kershaw and Roland N. McKean, Systems Analysis and Education (Santa Monica, Cal.: RAND Corporation, 1959), document RM-2473-FF, October 30, 1959, p. 1.

[11]For support of this opinion see: Ward, op. cit., pp. 20-47.

[12]Robert C. Anthony, John Dearden, Richard F. Vancil, Management Control Systems (Homewood, Ill.: Richard D. Irwin, Inc., 1965).

[13]James E. Heald and David E. Smith, Planning and the Consumption of Resources: A Proposal (East Lansing, Michigan: Office for Planning and Development, College of Education, Michigan State University, 1968).

[14]Ibid.

[15]For further discussion on this topic see: Richard Judy and Jack B. Levine, A New Tool for Educational Administrators (Toronto, Ontario, Canada: The University of Toronto Press, 1965).

[16]Feasibility Study Behavioral Science Teacher Education Program, Michigan State University, prepared for the U. S. Office of Education, Bureau of Research (Washington, D. C.: U. S. Government Printing Office, 1970), pp. 360-400.

[17]Although no formal document on service courses could be found, the Michigan State University Catalogue 1970, Vol. 64, No. 6 on page A-32 to A-38 lists several service courses. Examples are: 327, 411, 436, and 800.

[18]The NEA Committee on Educational Finance, Planning for Educational Development in a Planning, Programming Budgeting System (Washington, D. C.: National Education Association, 1968), pp. 17-18.

[19]Abt C. Clark, A Cost-Effectiveness Model for the Analyses of Title I ESEA Project Proposals, part I-VII (Cambridge, Mass.: ABT Associates, Inc., 1966).

Harry J. Hartley, "PPBS - Current Research and Programmatic Implications for Collective Negotiations," a paper presented to the American Educational Research Association (Chicago, Ill., 1968).

Philip K. Piele and David G. Bunting, Program Budgeting and the School Administrator: A Review of Dissertations and Annotated Bibliography (Eugene, Oregon: ERIC Clearinghouse on Educational Administration, 1969).

[20]Harry Williams, Planning for Effective Resource Allocation in Universities (Washington, D. C.: American Council on Education, 1969), p. 37.

[21]Ibid., p. 5.

[22]Annual Report Summary, Departmental and Institute Reports, 1968-69 (College of Education, Michigan State University), File Copy.

[23]Judy and Levine, op. cit.

[24]The Western Interstate Commission for Higher Education, "A Regional Cooperative Project among Higher Education Institutions and Coordinating Agencies to Design, Develop, and Implement Management Information Systems and Data Bases including Common Uniform Data Elements," an unpublished paper on the initiation of the project, Boulder, Colorado, 1968.

[25]Robert Pavese, "Program Budgeting in Higher Education," Educational Planning-Programming-Budgeting: A Systems Approach by Harry J. Hartley (New Jersey: Prentice-Hall, Inc., 1968), pp. 211-230.
Ward, loc. cit.
Williams, op. cit., p. 37.
Heald and Smith, op. cit.

[26]Philip E. Austin, "Resource Allocation in Higher Education: A Study of University Cost" (unpublished Doctoral dissertation, Michigan State University, 1969).

[27]W. Jack Tennant and Charles L. Bertram, Planning for Educational Change: PPBS (Bailey's Crossroads, Va.: The Center for Effecting Educational Change, 1969), p. 33.

[28]There appear to be no commonly agreed upon objectives stated for all major activities within the College. In 1968 Dean Ivey published a brochure, "Professional Education, A Mission of Michigan State University," which provides guidelines for the long-term purposes for the College of Education.

[29]Herman E. Koenig, "A Systems Model for Management," Management Information Systems: Their Development and Use in the Administration of Higher Education (Boulder, Col.: Western Interstate Commission on Higher Education, 1969), p. 29.

[30]Richard W. Wilson, The Undergraduate Educational Model, Health Sciences Functional Planning Unit (Toronto, Ontario, Canada: The University of Toronto, 1970).

[31]Joseph H. McGivney and William C. Nelson, Program Planning Budgeting Systems for Educators, Vol. I., An Instructional Outline (Columbus, Ohio: The Center for Vocational and Technical Education, Ohio State University), pp. 20-21.

[32]Judy and Levine, op. cit.

[33]According to university regulations all undergraduate students are admitted by the Registrar's Office at an all-university level. Graduate students, however, are admitted or rejected by the administrators of the College.

[34]The most recent developments are reflected in: Systems Research Group; Connect/CAMPUS, A Report from June, 1970, Toronto, Ontario, Canada.

[35]Williams, op. cit., pp. 34-35.

[36]Gene H. Fisher, The World of Program Budgeting (Santa Monica, Calif.: The Rand Corporation, 1969), Document P-3361, p. 15.

[37]James S. Dyer, The Use of PPBS in a Public System of Higher Education: Is It "Cost-Effective?" (Santa Monica, Calif.: The Rand Corporation, 1969), Document P-4273, pp. 16-18.

[38]Fisher, op. cit., p. 15.

CHAPTER V

SUMMARY OF THE STUDY

The intended purpose of Chapter One was to bring to the reader's attention the apparent need for a performance-oriented budget in one college within a complex university environment. The rationale for proposing a PPB approach for the College of Education at Michigan State University was motivated by an awareness of the generally spiraling costs in higher education, coupled with the hope that initiation of a performance-oriented budget in the College potentially could provide a more comprehensive measure of program accomplishment. It was further assumed that by focusing attention upon the consumption of resources within one college among some 15 colleges in a large university, benefits accruing from a systems approach to internal college budgeting could, over time, result in a larger, university-wide adoption of a program budget. Briefly, the chapter contained information about the basic philosophies of program budgeting. It proceeded to explain the purpose of the study, which was confined to the designing of a program budget model, given the operational restrictions imposed upon the management of the College of Education at Michigan State University. The model derived

from a resources allocation procedure proposed by Professors Heald and Smith was intended to support required regular fiscal budgeting procedures. The approach employed to determine the parameters of the model was limited to an examination of: (1) the present traditional format for resource allocation, (2) the identification of major programs, and (3) the establishment of a format which would allow comparison of relevant data within and across program areas. It was emphasized that the study was of a descriptive nature.

Chapter Two contained a review of the related literature. It was concluded that available scholarly works in the field appeared to be quite limited, both in quantity and quality. Moreover, the only major text on performance budgeting in education was severely criticized.[1] Renowned contributors predominantly provided information about PPB, either at the Federal Government level or at presidential and executive levels. The chapter was concluded by emphasizing that contributors in the field appeared to confine their contributions to predictive proposals, and no generally accepted parameters for a program budget in higher education had been properly established. Hence, it was realized that no uniform approach to the initiation of a normative, performance-oriented budget in the College was available.

Chapter Three offered a description of the methods and procedures employed within the study. The objectives were outlined, and the methodology for examining areas of monetary resource consumption was determined. The scope and limitations of the study were stated, and it was noted that

the Heald-Smith procedures would provide a guideline for the formulation of the PPB model. It was repetitiously pointed out that portions of the data compiled were inaccurate, but that they sufficed for comparing costs of specific activities. No cause-effect relationships were to be tested.

The findings of the study were presented in Chapter Four. In the first half of the chapter, current costs were identified and related to traditional departmental structures. Overhead charges were identified, but not taken into account in determining the cost of particular activities. Prior to the fall term of 1968, no direct dollar value could be associated with specific activities. After that time it was possible to relate major programs to their demand for financial resources, and a number of observations concerning the comparative cost of programs were possible.[2] It was pointed out that programs operated under a number of uncontrollable constraints, and that interdependence among program areas prevented quantification of efforts in terms of attaching terminal value on the actual number of students graduating in different programs. Production of SCH appeared to be the only common measure for activities in programs offering courses. In the last half of Chapter Four, a proposed PPB model for the College of Education was outlined. It was designed so that it could be operationalized by the employment of both mechanical and electronic equipment. A set of accompanying forms was designed for its operational phase.[3] The shortcomings of the model were stated, and the need for its further development was outlined. The study was concluded

by emphasizing that a commitment to a performance budget would not jeopardize the opportunity for each program area to pursue its own educational philosophy.

Statement of Conclusions

A number of conclusions could be derived from the study. Their validity must be questioned and not accepted at face value, due to the fact that they were derived from the building of a model, and not from an empirical study. Some of the conclusions (4,5,7) are in conflict with current opinions about the process of program budgeting, and although apparently appropriate in the present study, these may prove to be of dubious value in other situations when building performance budgets. The tentative conclusions were:

1. Dollar values, as organized into line items in fiscal budgets, can serve as indicators of program performance when related to some measure of output.
2. Generalized proposals for how to initiate program budgeting have only limited value in terms of the needs for unique considerations in specific situations.
3. In general, rather than developing additional procedures for how to "do" PPB, concepts concerning performance would allow for increased understanding of what a performance-oriented budget could potentially accomplish in specific situations, rather than providing a categorical mechanistic framework.
4. The use of a program budget appears to be justified within one segment of a large institution, even if performance

budgeting is not required across all operational entities. The rationale for this conclusion is based upon the assumption that effective resource allocation in a subset within a complex system may provide proof of efficiency otherwise not attainable by the routines of the formal organization.

5. Many researchers propose that statement of institutional objectives is a prerogative for successful installation of a program budget. The present study seems to indicate that although it is desirable, institutional purpose need not necessarily be explicitly stated. Rather, it was concluded that the implied mission of the institution and its momentum over time constituted sufficient criteria for expanding upon how programs had emerged over time. The expected adequacy of a certain modus operandi could then be projected into future time intervals and be evaluated in perspective.
6. The implementation of the model would not preclude continued use of existing university fiscal budgeting procedures. It would, however, point out the need for arriving at annual budget figures in context with an extended year program mix.
7. The service and administrative programs were difficult to aggregate into major classes of resource-consuming activities, due to their heterogeneous outputs. Such activities, as well as overhead charges, should not be allocated to particular SCH-producing program elements, but remain in a present accounting format.

The nature of these conclusions seems to suggest that performance budgeting does not have to be generalized into an homogeneous mechanical procedure for resource allocation at the executive level, but is justified as a conceptual approach to reach economies in suboperational units.

Implications

Implications of the investigation can only be predictive at this point in time. In its conception, the present study differs from other proposed approaches to PPBS: it makes no attempt to suggest a universal applicability. Rather, it was hoped to be of some use to one particular college. Consequently, generalizations could be avoided and specific procedures outlined for its implementation. By not attempting to derive new formulas for financing or new mathematical derivatives for resource allocation, the model was essentially open to utilize any number of sophisticated procedures. If employed, it was hoped that the model would reflect two immediate implications: (1) the "true" cost of present operations would be identified, and (2) the required fiscal budget process would substantially be supported by the PPB approach in the College of Education's competition for General Funds support.

The Limitations of PPB for the College of Education

The College of Education operates under a set of imposed constraints which prevent the use of the model to the extent that all resources -- monies, physical facilities, and

human capacity -- could be incorporated, without reservations, into a systems approach. The dominant restrictions to which conformity was required were the following:

- The College exercises no control in determining undergraduate enrollment formulation.
- The College cannot discriminate in acceptance of students in major and non-major categories into course offerings.
- The College has no option to determine the use of physical space, with the exception of office allocation and the utilization of the Industrial Arts facilities. All classroom scheduling is done by the Office for Space Allocation at an all-university level.

In spite of these uncontrollable handicaps, it was felt that the model was justified by its attempt to allow benefits to accrue in a number of activities controlled by the College of Education.

Although the major concern of the present study was limited to quantitative budgetary performance considerations, the potential for human conflict was not disregarded. However, it was not considered to be within the scope of the present study. Cappozola has proposed that the implementation of a PPB system sets in motion a number of forces which, in turn, may create severe internal conflicts. He states:

> Measuring organizational performance quantitatively irritates those who are value-oriented, emotionally oriented, politically oriented, or just do not understand. . . . Bureaucratic inertia, vested interests, old prides, honest differences of opinion, and politics do not suddenly disappear.[4]

Furthermore, it was recognized that the idealized model did not take into account political barriers, the traditional centralized organizational hierarchy, nor the insufficient measurement applied to register outputs. In fact, the model suggests potential values accruing from a systems approach but in no way does or can it validate these by virtue of its exploratory base. By proposing a number of support sheets to be evaluated continuously, initial parameters of the performance budget were established. Over time, these need to be further refined and quantified in eight specific categories of resource-consuming activities:

- The flow of students by programs and major/minor emphasis.
- Staff needs by department, time and price.
- Space and capital costs by required square footage in departments over semesters.
- Operational costs by programs, department, and aggregations pertaining to specific outputs.
- Student flow reports by program, curricula, activity and major/minors over short and intermediary time periods.
- Academic staff load, required inputs by rank, activity, contact hours, and other criteria.
- Equipment needs by unit cost distributed into departments, curricula, and programs.
- Detailed formulation of required teaching space by activity, department, and program.

The restrictions of the present model are to a large extent implicitly recognized by the above outline for controlling procedures in the program budget. Due to the fact that these assume substantial changes in the actual operational College environment, however, they could not realistically be included in this initial approach to performance budgeting.

Another limitation may be seen in the lack of one specific approach to determining the optimal mix of resources at given points in time. As was indicated throughout the study, however, it was felt that confining the decision-making process to the adoption of a new quantifiable formula approach would insufficiently allow for changes and qualitative adjustments of the model to fit better the faculty's conceptions of how the College of Education ought to operate in its environment over time. By leaving options to employ analytical procedures such as the UGEDUC, the PHEE, CAMPUS, and others,[5] it was assumed that by purposely limiting the initial format of the model to conceptual parameters, the operational aspects of the model would in the long run be derived from specific quantitative approaches to resource allocation in particular program categories. Because the model primarily was designed to function as a vehicle to predict the future, it should be realized that regardless of how sophisticated the predictive approach may be, it is inevitably subjected to miscalculation. Trends are insufficient indicators of the future and can only serve as a set of proposals for what may happen, assuming the College of Education

continues to function in the future as it has in the past. Finally, there is no conclusive evidence as yet indicating that PPB is overwhelmingly successful.[6] At best, it constitutes initiation of a process to secure more efficient use of scarce resources.

The Limitations within the Study

A few comments concerning the limitations within the study seem in order. Although it was possible to collect quantifiable information from a number of different sources, and analyze these data in a variety of ways, three particular inadequacies became apparent during the study. First, because the data made available had been secured for widely different reasons and obviously not to accommodate a PPB system, much of the information could only be secured in aggregations not particularly well suited for a program budget. Moreover, information which would have led to better program knowledge was not available at all. Second, it seems that administrators have a propensity to initiate certain classifications of information at a given point in time for particular needs, and when managerial requirements no longer demand these types of data they appear to lose exactness and routine availability. Hence, some of the information used to approximate the cost of programs and their elements did not accurately reflect an updated state of affairs. Third, by comparing the cost of SCH generated at different levels of activity, the author did not mean to imply that the cost of all programs on undergraduate or graduate level ought to be equal. Rather, comparisons

primarily were made in order to demonstrate an evolution of cost as related to specific programs and their elements. A secondary and explicitly stated reason for comparing cost per SCH was done to demonstrate that there are relatively large variations in program cost. The appropriateness of these differences was not subjected to value judgements; they were merely stated.

It is recognized that the relatively low cost of producing SCH in the College could be interpreted as a measure of high efficiency and hence be subject to praise rather than disparagement. That argument is invalid for two reasons; first, assuming that college administrators who strongly recommended increased financial support acted within both their professional capabilities and managerial capacity when requesting additional monies. Second, had the College of Education set a mandate for the rate of consuming fiscal resources, other colleges logically ought to show a trend toward increase in productivity and decrease in cost. The opposite was the case, thus invalidating any argument that the college set a universal example for efficiency.

The fact that the proposed approach to resource allocation mainly was concerned with the production of SCH in no way is an indication of invalidation of the PPB principles in other areas of endeavor, such as administration and basic research. As noted in Appendices C1 and C2, uniform program element sheets were applicable to these activities as well. Admittedly, the only criterion for efficiency in these areas could only be related to pre-determined goals and aspirations

by those individuals responsible for particular service or research functions over time.

Perhaps the most significant limitation recognized during the study, and not within the scope of further explorations in this dissertation, was the author's growing conviction that unless perceived, accepted, and allowed to function by those individuals who actually are involved with the everyday operations of program elements, a PPB system would have little, if any, chance of successful implementation if directed through the formal organizational hierarchy. It appears, then, that a PPB system is only as effective as its least productive program element.

For that reason, decision making in the process of allocation of resources ought to consider the organizational "lowerarchy" in the identification and evaluation of alternatives. In the final analysis greater efficiencies in the administration of a college are a reflection of human determination to provide more for less.

Recommendations for Future Efforts

Currently, substantial effort goes into almost every phase of financial planning and programming,[7] and yet researchers and critics alike admit nebulous results.[8] An acceptable definition of program categories and their related elements has not been found. Hence, PPB remains the victim of battled, fragmented, and inconclusive attempts to collect more verifiable knowledge about efficient employment of resources. Future efforts, particularly pertaining to a systems approach

to the management of colleges and universities, would appear to offer meaningful challenges in these areas of research:

- A decision matrix for use by college administrators in a (1) planning, (2) programming, and (3) budgeting situation.
- A systematic approach to the use of computer applications in specific areas of a program budget.
- An approach to determine the compatibility of a PPB with traditional account procedures.
- A concept about the kinds of organizational environments which would provide a conducive climate for implementation of a PPB.
- A formulation of program structures which would be appropriate to a PPB system.

The above areas of research can only be considered indicative of the vast opportunities for research. Lippitt, in proposing examination of organizational "lowerarchy" in exchange for the "hierarchy," implies a whole new field of investigation - that of looking at components in an element which, in turn, is considered only a fragment of a sub-program.[9] It is only through more knowledge and study of the components comprising a PPB system that the instrument, over time, may become what systems analysts intend it to be: a way of optimizing the limited resources available for increased demands in higher education.

Conclusion

In retrospect, it appears as if the study has raised more questions than it has generated answers. The effort has been of an exploratory nature, by virtue of the fact that no known similar or comparable effort had been undertaken under similar circumstances. Although the parameters of a program budget model were constructed as a core upon which a number of improvements and adjustments could be made over time, it was realized that it could only be considered an initial step in a chain of sequences which potentially could lead to a change in allocating scarce resources in one particular institution.

That additional studies are required, to understand the impact of a program budget upon an already existing organizational hierarchy, seems obvious. A number of separate questions, to which only general allusions were made in the present study, would shed light upon areas in which insufficient knowledge currently exists. Enlarged understanding of how program budgeting may support the administrators of institutions of higher education may ultimately result in more productive and efficient use of those scarce monetary resources allocated to yield vital services to the new generations of our challenged society.

CHAPTER V--FOOTNOTES

[1]Yehezhel Dror, Book-Review section, Administrative Science Quarterly, 15, 1 (March, 1970), pp. 123-124.

[2]See Table 9.

[3]See Appendices B to M.

[4]John M. Cappozola, "PPBS: Systemization or Revolution in Government Management," Governmental Research Association Reporter, XVIII, 1 (First Quarter, 1966), p. 4.

[5]W. Jack Tennant and Charles L. Bertram, Planning for Educational Change: PPBS (Bailey's Crossroads, Va.: The Center for Effecting Educational Change, 1970), p. 31.

Allen Baisuck, "Construction and Evaluation of a Simulation Model for Projecting Higher Education Enrollment," a Doctoral dissertation (Troy, N.Y.: Rensselaer Research Corporation, 1970).

Jack B. Levine, "A University Planning and Budgeting System Incorporating a Microanalytical Model of the Institution" (unpublished Doctoral dissertation, The University of Toronto, 1969), pp. 15-16.

Paul J. Swanson, "Program Budgeting for a College of Business Administration" (unpublished Doctoral dissertation, University of Illinois, 1966), pp. 12 and 101.

Herman E. Koenig, Martin C. Keeney, and Robert Zemach, A Systems Model for Management, Planning, and Resource Allocation in Institutions of Higher Education (East Lansing, Michigan: Michigan State University, 1968), p. 7.

[6]Harry J. Hartley, Educational Planning-Programming-Budgeting: A Systems Approach (New Jersey: Prentice-Hall, Inc., 1968), p. 251.

[7]For the current status of cost analysis in higher education, see: ERIC Abstracts; A Collection of ERIC Document Resumes on Program Budgeting and Cost Analysis, Eric Clearinghouse on Educational Administration (Eugene, Oregon, Jan., 1970).

[8]Aaron Wildavsky, "Rescuing Policy Analysis from PPBS," The Analysis and Evaluation of Public Expenditures: The PPB System, Joint Economic Committee, U. S. Congress, Vol. 3 (Washington, D. C.: U. S. Government Printing Office, 1969), pp. 841-842.

Yehezhel Dror, "PPB and the Public Policy Making System: Some Reflections on the Papers by Bertram M. Gross and Allen Schick," Public Administration Review, XXIX, 2 (March/April, 1969), pp. 152-153.

S. J. Knezevich, "The Meaning and Substance of the Acronym PPBS," in a compendium of papers prepared by National Academy for School Educators, Washington, D. C., 1970, p.c. 1.1.

[9]Gordon Lippitt, "Don't Be a Prisoner of Your Organization," Nation's Cities, V, 8 (August, 1967), p. 23.

GLOSSARY

GLOSSARY

ADMINISTRATIVE AREAS: Subdivisions of College management. Currently divided into three major divisions: the Schools, the Institutes, the Central Administration.

ALTERNATIVE: Sets of approximately equal activities for a proposed program which presumably will permit attainment of program objectives with certain variations in cost and subsequent degrees of success in reaching objectives.

ANALYSIS: A fragmentation of a wholistic perception into components, allowing a determination of how parts may be related in various patterns within a given problem situation.

BUDGET: An appreciation of forthcoming expenditures for a pre-determined time interval and the means of financing these.

COST/BENEFIT ANALYSIS: The cost of a particular activity related to assumed benefits to be achieved if objectives are attained. Cost/Benefit Analysis is usually determined prior to implementation of a program.

COST/EFFECTIVENESS ANALYSIS: The cost of alternative ways of achieving an objective in a search for finding the alternative which appears to yield the highest effectiveness.

COST/UTILITY ANALYSIS: The cost of a particular activity compared to actual, measurable results in terms of the degree to which the utility of incurred costs was achieved.

D.o.D.: The United States Department of Defense.

EFFECTIVENESS: The performance or output accruing from a particular program. Ideally, effectiveness in the program budget should be expressed quantitatively in order to evaluate the level of performance in relation to expected outcome.

ELEMENT (PROGRAM): An integrated part of a total program, such as a cause sequence, professional inputs, student participation, etc., which is a necessary item in the structure of a program.

ENVIRONMENT: The actual physical, social, cultural, and normative factors which potentially effect a program.

FEEDBACK: Information relating to any and all aspects of a program.

FINANCIAL ACCOUNTING: Methods of recording and classifying university expenditures in accordance with traditional legislative norms, not necessarily related to specific programs.

FISCAL BUDGETING: A procedure for forecasting dollar expenditure ceilings.

FIXED COSTS: Expenditures to which the College is committed without regard for activity levels. These costs usually do not vary at a rapid rate.

GOAL: An ultimate purpose, implying long-range accomplishments toward which College efforts are directed in fulfillment of its missions.

INPUTS: Resources mobilized to achieve programs. These may include money, manpower, space, materials, equipment, supplies and other resources.

LINE FUNCTION: Individual activities considered essential to the operations of the College.

LINE ITEM: An expense category in a fiscal budget organized in such a fashion that it is not associated with a particular program for which it may be intended.

MAJOR PROGRAMS: A number of missions designed to fulfill necessary requirements in reaching a terminal objective, such as, for example, completing all work for a degree.

MANAGEMENT INFORMATION SYSTEM (or MIS): A predetermined order for obtaining, organizing, storing, retrieving, and distributing data.

MINOR PROGRAMS: Fragmented sections of a major program.

MODEL: An abstraction of reality, used to simulate the future.

NODES: An intermediary method of allocating expenditures into components directly and indirectly applicable to programs.

OBJECTIVES: Measurable attainments specifically predetermined in terms of quality and quantity in exchange for expended energy.

OPPORTUNITY COST: A measurable advantage abandoned by virtue of rejecting a second-best alternative for use of resources.

OUTPUTS: A direct gain resulting from program accomplishment.

OVERHEAD CHARGES: Fixed cost allocated to activities in order to proportionally distribute those expenditures required to maintain required physical facilities for reaching program activities.

PERFORMANCE BUDGETING: A budget based upon activities directly related to projects which may be measured in terms of efficiency and controlled.

PLANNING: Long-range selection of objectives allowing for analysis of alternative courses of action.

PPBS: A Planning, Program, Budgeting System. Developed to forecast resource needs in conjunction with reaching stated goals and objectives of individual programs.

PROGRAM: A major mission designed to fulfill necessary requirements in reaching an objective.

PROGRAM ELEMENT: Activities related directly to and supporting the fulfillment of a designated program. The basic unit in a program structure.

PROGRAMMING: A process of deciding particular courses of action to attain objectives. Involves financial considerations over an extended period of time.

PROGRAM STRUCTURE: Is a collection of program elements which, when completed, allows for an evaluation of cost and effectiveness of alternative approaches to goal attainment.

SIMULATION: Manipulation of a model on an experimental basis.

STAFF FUNCTION: Individual activities supporting essential College operations.

STRATEGY: A well-conceived plan for efficient employment of resources to reach stated goals.

STUDENT CREDIT HOURS (or SCH): A measure of (a) faculty contact hours, and (b) student achievement.

SYSTEMS ANALYSIS: A methodical examination of a structure in terms of its efficient impact upon goal attainment.

SYSTEMS APPROACH: A methodical way of thinking about effective use of scarce resources.

TABLES

TABLE 1.--Budget allocation from fiscal year 1964-65 to fiscal year 1969-70 including expenditures for summer quarter, College of Education, Michigan State University.[1]

	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1965-66 to 1969-70 % change
Education							
summer session	100,000	121,250	150,653	154,750	163,862	215,059	+ 11.5%
faculty salaries	1,358,067	1,569,853	1,889,829	2,091,974	2,242,298	2,405,134	
assist.instr.	72,349	74,406	96,105	66,469			
grad. assist.	70,000	75,826	100,000	107,400	160,970	182,328	
contingency	4,845	20,000	33,000	64,559	45,474	25,474	
classified	164,290	194,780	213,670	234,363	272,431	305,067	
labor	21,000	20,500	20,850	23,000	36,070	36,090	
student teaching	154,000						
supl. & services	88,930	103,000	117,312	127,726	149,000	149,000	
equipment	20,000	20,000	20,000	22,550	20,000	19,376	
totals	1,953,481	2,078,365	2,490,766	2,738,041	2,926,243	3,122,469	+ 59.8%
Health,Phys.Ed.&Rec.							
faculty salaries	315,909	354,225	374,485	398,716	426,555	447,506	
assist. inst.	5,000			7,500			
grad. assist.	19,000	26,216	25,516	9,355	17,475	18,864	
classified	20,040	21,120	28,010	30,100	32,680	35,492	
labor	17,500	18,000	18,400	19,000	19,000	19,000	
supl. & services	27,000	32,000	27,200	28,200	29,958	29,958	
equipment	4,500	4,500	4,500	4,500	4,500	4,500	
totals	408,949	456,061	478,111	497,371	530,168	555,320	+ 35.8%
Human Learn.Res.Inst.							
faculty salaries		22,750	32,441	38,866	39,382	27,725	
assist. instr.		3,900	8,349	1,834			
grad. assist.		8,000	6,000	6,000	6,898	5,707	
classified		2,100	2,450	2,550	2,370	2,950	
labor		500	1,500	1,500	1,500	6,000	
supl. & services		1,750	4,100	4,100	4,100	6,163	
equipment		1,000	1,000	1,000	1,000	1,555	
totals	25,000	40,000	55,840	55,850	55,850	50,000	+100.%
Humanities Teach.Inst.							
faculty salaries		22,000	22,000	22,000	33,000	33,000	
supl. & services		1,000	1,000	1,000	1,000	1,000	
totals		23,000	23,000	23,000	34,000	34,000	+ 47.8%
Soc.Sci.Teach.Inst.							
faculty salaries		22,000	22,000	22,000	22,000	22,000	
supl. & services		1,000	1,000	1,000	1,000	1,000	
totals		23,000	23,000	23,000	23,000	23,000	
Student Teach.							
labor		5,000	5,000	5,000	5,000	5,000	
supl. & services		171,000	171,000	176,000	186,000	177,000	
equipment		3,000	3,000	3,000	3,000	3,000	
totals		179,000	179,000	184,000	194,000	185,000	+ 3.4%
Learning Systems Inst.							
labor			750	1,000	1,000	1,000	
supl. & services			1,750	2,250	2,250	2,250	
equipment			500	750	750	750	
totals			3,000	4,000	4,000	4,000	+ 33.3%
Total	2,487,430	2,920,676	3,403,370	3,680,012	3,931,123	4,188,848	+ 68.4%

[1]Source: "Budget Allocations," Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970.

TABLE 2.--Budget aggregations from general funds by traditional categories from fiscal year 1964-65 to fiscal year 1969-70 including summer quarter, College of Education, Michigan State University, 1970.[1]

	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1965-66 to 1969-70 % change
Academic Personnel	2,124,170	2,320,426	2,760,378	2,991,423	3,157,914	3,382,797	59.3
Support Staff	222,830	262,000	290,630	316,513	370,651	410,499	84.2
Supplies	115,930	309,750	323,362	340,276	373,308	366,371	216.0
Services							
Equipment Rentals	24,500	28,500	29,000	31,800	29,250	29,181	19.1
Total	2,487,430	2,920,676	3,403,370	3,680,012	3,931,123	4,188,848	68.6

[1]Source: "Budget Assocations," Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970.

TABLE 3A.--Comparative general funds allocation per SCH.[1]

	1966-67	1967-68	1968-69
Ag. & Nat. Resources	100	104.8	103.6
Arts & Letters	100	107.0	113.4
Business	100	111.2	124.9
Com. Arts	100	101.3	103.6
Education	100	98.1	96.1
Engineering	100	94.0	94.9
Home Economics	100	95.9	89.2
Natural Science	100	111.4	119.1
Social Science	100	123.7	127.7
Veterinary Medicine	100	97.2	100.1

[1]Source: Table 8.0.
"Basic Statistics," Office of Institutional Research, Michigan State University, East Lansing, 1970.

TABLE 3B.--Student credit hours generated per faculty in ten traditional colleges.[1]

	1965-66	percent change	1967-68	percent change	1968-69	percent change
Ag. & Nat. Resources	444.3	+ 7.8%	469.4	+ 5.6%	495.8	+ 5.6%
Arts & Letters	772.0	- 3.7%	779.3	+ .9%	776.2	- .4%
Business	1,116.0	+ 1.5%	1,051.7	- 5.8%	955.2	- 9.2%
Com. Arts	579.7	+ 8.9%	642.3	+ 10.8%	623.8	- 2.8%
Education	961.0	- 6.7%	1,061.8	+ 10.5%	1,116.2	+ 5.1%
Engineering	331.3	+ .5%	379.4	+ 14.5%	404.2	+ 6.5%
Home Economics	445.7	+ 2.3%	481.6	+ 8.1%	520.2	+ 8.0%
Natural Science	568.5	- 7.7%	567.0	- .3%	545.9	- 3.7%
Social Science	990.4	- 13.8%	904.7	- 8.7%	907.3	+ .3%
Veterinary Medicine	406.9	+ 15.0%	433.0	+ 6.4%	421.7	- 2.6%

[1]Source: Tables 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.12, 3.13, and 3.15; "Basic Statistics," Office of Institutional Research, Michigan State University, East Lansing, 1970.

TABLE 3C.--Comparative average faculty FTE salary increases: College of Education, FTE related to all university salaries.[1]

	10 months						12 months					
	Prof. MSU	Prof. Coll.Ed.	As.Prof. MSU	As.Prof. Coll.Ed.	Asst.Prof. MSU	Asst.Prof Coll.Ed.	Prof. MSU	Prof. Coll.Ed.	As.Prof. MSU	As.Prof. Coll.Ed.	Asst.Prof. MSU	Asst.Prof. Coll.Ed.
1966-67	15,686		11,964		9,776		18,412		14,273		11,685	
% increase	4.1%		4.5%		4.4%		4.8%		4.5%		3.9%	
1967-68	16,241		12,325		10,244		19,092		14,814		12,301	
% increase	3.5%		3.0%		4.8%		3.7%		3.7%		5.3%	
1968-69	16,870	14,850	12,781	13,144	10,776	11,734	19,740	20,011	15,321	15,651	12,732	12,965
% increase	3.9%		4.0%		5.2%		3.4%		3.4%		3.5%	
1969-70	17,509	16,675	13,328	13,960	11,366	12,397	20,756	20,894	16,126	16,185	13,554	13,904
% increase	3.8%	12.3%	4.3%	6.2%	5.5%	5.6%	5.1%	4.3%	5.3%	3.4%	6.5%	7.2%

[1]Source: "Basic Statistics," Table 16.0, Office of Institutional Research, Michigan State University, East Lansing, 1970; and The Records of the College of Education, Michigan State University, East Lansing.

TABLE 4.--General instructional fund expenditures per student credit hour produced by college from fiscal year 1964-65 to fiscal year 1969-70 in ten undergraduate and graduate colleges, Michigan State University, 1970.[1]

	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
Ag. and Nat. Resources	47.84	48.54	48.53	50.86	50.26	
Arts & Letters	12.67	13.34	14.83	15.87	16.81	
Business	12.25	12.37	12.56	13.97	15.69	
Com. Arts	19.90	20.57	20.57	20.83	21.32	
Education	12.56	13.79	15.25	14.97	14.66	
Engineering	41.20	39.45	42.35	39.83	40.19	
Home Economics	24.18	25.80	27.00	25.88	24.10	
Natural Science	17.37	19.41	21.56	24.02	25.67	
Social Science	11.51	11.42	12.66	15.40	16.17	
Vet. Med.	43.09	46.63	44.98	43.73	44.92	

[1]Source: "Basic Statistics," Table 8.0, Office of Institutional Research, Michigan State University, East Lansing, 1970.

TABLE 5.--Summary of actual expenditures from academic year 1965-66 to academic year 1969-70, College of Education, Michigan State University, 1970.[1]

	1965-66	1966-67	1967-68	1968-69	1969-70	% Change During the Period
Humanities Teaching Inst.	21,104	21,679	21,290	33,003	22,848	+ 8.3
Social Science Teaching Inst.	33,501	31,555	31,580	29,158	26,710	- 20.0
Education	1,912,433	2,262,183	2,481,487	2,705,135	2,892,000	+ 51.2
Health, Phys.Ed. & Rec.	404,309	428,249	450,534	489,482	506,628	+ 25.3
Human Learn.Inst.	69,104	94,470	96,322	98,170	69,612	+ .7
Labor	52,800	63,465	76,655	82,200	87,877	+ 66.4
Service and Supplies	377,094	400,586	430,219	421,779	488,785	+ 29.6
Equipment Rentals	90,222	88,438	46,370	36,923	31,209	- 65.4
Special Education	12,135	36,035	62,530	26,340	29,717	+144.8
Other Expenditures	517,723	592,851	654,936	750,449	386,124	- 25.4
Research	1,405,452	1,967,528	1,984,484	1,812,281	2,291,864	+ 62.0

[1]Source: Office of Accounting and Financial Administration, Michigan State University, Monthly Summary of Accounts, Form: MSU 260.

TABLE 6.--Number of degrees and certificates awarded College of Education, Michigan State University, 1959-60 to 1969-70.[1]

	1959-1960	1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969
Bachelor's degree	445	435	473	520	715	841	805	844	983	1,149
Master's degree	376	444	496	554	526	567	666	663	801	975
Ph.D. degree[2]	49	51	57	86	89	146	149	143	172	187
Teacher certificates issued	1,693	1,643	1,702	1,854	2,300	2,638	2,775	2,916	3,325	3,592

[1]Source: "Basic Statistics," Table 10.0, Office of Institutional Research, Michigan State University, East Lansing, 1970; and "Registrar's Annual Report," Michigan State University, East Lansing, Michigan (1969-1970).

[2]Includes diplomas granted for advanced graduate study and specialist degrees.

TABLE 7A.--FTE faculty in the College of Education over a ten-year period, financed by general funds.[1]

	Fall 1960		Fall 1961		Fall 1962		Fall 1963		Fall 1964		Fall 1965		Fall 1966		Fall 1967		Fall 1968		Fall 1969	
	A	B*	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	125.0	34.5	121.8	46.0	127.9	36.6	119.2	41.7	139.3	45.7	156.6	42.5	174.0	51.2	180.4	47.2	177.6	57.3	184.5	48.3
Percent change:			-2.6	+33.3	+5.8	-20.4	-6.8	+13.9	+16.9	+12.6	+12.4	-7.0	+11.1	+20.5	+3.7	-7.8	-1.6	+21.4	+3.9	-15.8

*A = Professor-Instructor
B = Asst.Instr., Lecturer, Grad.Asst.

Increase during Period:
Category A: 59.5 FTE = 47.6%
Category B: 13.8 FTE = 40.0%

[1]Source: "Basic Statistics," Table 2.5, Office of Institutional Research, Michigan State University, East Lansing, 1970.

TABLE 7B.--Fall term enrollments in the College of Education over a five-year period.[1]

Term	Undergraduate			Graduate[2]			Total Enrollment
	Regular	Special	Total	Master	Doctoral	Total	
Fall, 1965	3,388	87	3,475	1,168	552	1,720	5,195
Fall, 1966	3,638 (+7.3)[3]	113 (+29.8)	3,751 (+7.4)	1,338 (+14.5)	609 (+10.3)	1,947 (+13.2)	5,698 (+9.6)
Fall, 1967	3,773 (+3.7)	120 (+6.2)	3,893 (+3.8)	1,382 (+3.2)	675 (+10.8)	2,067 (+6.2)	5,950 (+4.4)
Fall, 1968	3,893 (+3.1)	23 (-80.8)	3,916 (+0.6)	1,504 (+8.8)	844 (+25.0)	2,348 (+13.6)	6,264 (+5.3)
Fall, 1969	4,011 (+3.0)	23 (00.0)	4,034 (+2.9)	1,776 (+18.0)	784 (-7.1)	2,560 (+9.0)	6,594 (+5.3)
% Change During Period	+18.3	-73.5	+16.1	+52.0	+42.0	+48.8	+26.9

[1]Source: Office of Institutional Research, Michigan State University, East Lansing.

[2]Includes students pursuing a Specialist Degree.

[3]Number inside the parentheses represents percentage change over previous year.

TABLE 7C.--Student credit hours produced by the College of Education, Michigan State University from fiscal year 1960-61 to fiscal year 1968-69.[1]

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Undergrad.SCH	103,287	90,285	106,535	115,480	123,287	126,499	132,199	150,153	165,007
Graduate SCH	33,921	52,528	52,556	58,731	63,447	70,165	75,870	83,343	87,149
% Graduate SCH of Total SCH Generated	24.6%	36.8%	33.0%	33.7%	34.0%	35.7%	36.5%	35.7%	34.6%

Increase during period:

Undergraduate Instruction: 61,720 SCH = 59.8%

Graduate Instruction : 53,328 SCH =157.6%

[1]Source: "Basic Statistics," Table 1.0, Office of Institutional Research, Michigan State University, East Lansing, 1970.

TABLE 8.--Cost of instruction, general funds accounts, including regular instruction, extension courses, and summer sessions, excluding instruction in Health, Physical Education and Recreation, fiscal years 1968-69 and 1969-70, College of Education, Michigan State University.[1]

	SCH Generated	Total Direct Cost	Cost/SCH
Fiscal year 1968-69			
Undergraduate	117,699	$1,147,004	$ 9.75
Graduate	54,341	$1,302,621	$23.97
Fiscal year 1969-70			
Undergraduate	129,858	$1,207,576	$ 9.30
Graduate	54,775	$1,376,242	$25.13

[1]Source: "Basic Statistics," Table 1.25, Office of Institutional Research; Salary Schedules Regular Faculty, Office of the Comptroller; Salary Schedules Extension and Off-Campus Teaching, Office for Off-Campus Affairs; and Salary Schedules for Part-Time Faculty, Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970.

TABLE 9.--Adjusted cost of instruction, general funds accounts, including regular instruction, extension courses and summer session, excluding instruction in "Health, Physical Education and Recreation," in the four traditional departments of concentration, fiscal years 1968-69 and 1969-70, College of Education, Michigan State University.[1]

		SCH Generated	Total Direct Cost	Cost/SCH
Fiscal year 1968-69				
Dept. of Elementary & Special Education	UG	76,704	$664,115	$ 8.66
	G	10,885	$200,344	$18.41
Dept. of Secondary & Vocational Education	UG	24,599	$308,085	$12.52
	G	17,340	$372,158	$21.46
Dept. of Counseling and Rehabilitation	UG	16,396	$174,804	$10.67
	G	13,612	$273,290	$20.07
Dept. of Administ. & Higher Education	UG			
	G	12,504	$456,829	$36.55
Fiscal year 1969-70				
Dept. of Elementary & Special Education	UG	78,382	$738,795	$ 9.43
	G	10,336	$170,792	$16.53
Dept. of Secondary & Vocational Education	UG	40,048	$298,271	$ 7.44
	G	17,024	$359,337	$21.11
Dept. of Counseling and Rehabilitation	UG	11,428	$170,510	$14.93
	G	15,803	$355,070	$22.46
Dept. of Administ. & Higher Education	UG			
	G	11,612	$491,043	$42.29

[1]Source: "Basic Statistics," Table 1.25, Office of Institutional Research; Salary Schedules Regular Faculty, Office of the Comptroller; Salary Schedules Extension and Off-Campus Teaching, Office for Off-Campus Affairs; and Salary Schedules for Part-Time Faculty, Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970.

[2]UG = undergraduate; G = graduate.

TABLE 10.--Total student enrollment by major and minor discipline emphasis in the College of Education at the beginning of each term from fall term 1968 to spring term 1970.[1]

	Fall 1968	Winter 1969	Spring 1969	Summer 1969	Fall 1969	Winter 1970	Spring 1970
Education							
Ed. Major Undergraduate	4,499	4,111	3,775	2,378	5,908	5,722	4,841
Non Ed. Major Undergrad.[2]	2,654	2,668	3,151	1,081	2,819	2,960	3,417
Percent Non Ed.	37.6%	39.3%	43.5%	31.3%	32.3%	34.1%	41.3%
Ed. Major Graduate	4,337	4,248	4,718	6,277	4,957	4,951	5,289
Non Ed. Major Graduate[2]	1,481	1,397	1,232	2,626	1,474	1,499	1,527
Percent Non Ed.	25.5%	24.7%	20.7%	29.5%	22.9%	23.2%	22.4%
Health Phys. Ed.							
Phys.Ed. Major Undergrad.	2,040	1,997	2,281	460	2,025	2,010	1,886
Non Phys.Ed.Major Undergrad.[2]	7,830	5,479	6,144	287	7,034	5,367	5,153
Percent Non Ed.	79.3%	73.3%	72.9%	38.4%	77.6%	72.8%	73.2%
Phys.Ed. Major Graduate	167	147	161	287	224	149	212
Non Phys.Ed. Major Grad.[2]	3	10	17	34	5	20	20
Percent Non Ed.	1.8%	6.4%	9.6%	10.6%	2.2%	11.8%	8.6%

[1]Source: "Total Students by Students College," Form R 7706, Michigan State University, East Lansing.

[2]Included in the "Non Ed. Major" categories are students with dual enrollment, one of which is in the College of Education.

TABLE 11.--Non-degree students enrolled in the College of Education from the fall of 1965 to the spring of 1969.[1]

	Fall 1965	Fall 1966	Fall 1967	Fall 1968	Fall 1969
Master students	409	560	603	601	760
Doctoral students	76	85	128	176	132
Total	485	645	731	777	892
Percent increase		33.0%	13.1%	6.3%	14.8%
Total increase from fall 1965 to spring 1969:	892 - 485 = 407 or 84%				

[1]Source: "Curricula Enrollments by Term," Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970.

TABLE 12.--Cost of direct instruction, allocated support-staff, services, supplies, and equipment calculation at total cost per SCH for four selected minor programs including regular instruction, extension courses, and summer session; excluding costs accruing in the Department of Health, Physical Education and Recreation fiscal years 1968-69 and 1969-70, College of Education, Michigan State University.[1]

	% of Total Expenditures	Cost 1968-69	SCH 1969-70	Cost 1969-70		
Minor-Program I						
Provider Category						
Instruction		533,783		603,345		
Support-Staff	9.4	50,175	9.8	59,127	cost PSCH 1968/69	638,937 / 73,173 = 8.73
Supplies-Services	9.5	50,709	8.7	52,491		
Equipment Rentals	.8	4,270	.8	4,827	cost PSCH 1969/70	719,790 / 90,082 = 8.00
Total		638,937		719,790		
Minor-Program II						
Provider Category						
Instruction		222,223		188,284		
Support-Staff	9.4	20,889	9.8	18,451	cost PSCH 1968/69	266,000 / 9,580 = 27.76
Supplies-Services	9.5	21,111	8.7	16,380		
Equipment Rentals	.8	1,777	.8	1,506	cost PSCH 1969/70	224,621 / 10,941 = 20.53
Total		266,000		224,621		
Minor-Program III						
Provider Category						
Instruction		220,509		318,738		
Support-Staff	9.4	20,727	9.8	31,236	cost PSCH 1968/69	263,948 / 7,121 = 37.06
Supplies-Services	9.5	20,948	8.7	27,730		
Equipment Rentals	.8	1,764	.8	2,549	cost PSCH 1969/70	380,253 / 9,082 = 41.86
Total		263,948		380,253		
Minor-Program IV						
Provider Category						
Instruction		26,372		38,837		
Support-Staff	9.4	2,478	9.8	3,806	cost PSCH 1968/69	31,565 / 1,481 = 21.31
Supplies-Services	9.5	2,505	8.7	3,378		
Equipment Rentals	.8	210	.8	310	cost PSCH 1969/70	46,331 / 1,327 = 34.91
Total		31,565		46,331		

[1]Source: "Basic Statistics," Table 1.25, Office of Institutional Research; Salary Schedules Regular Faculty, Office of the Comptroller; Salary Schedules Extension and Off-Campus Teaching, Office for Off-Campus Affairs; and Salary Schedules for Part-Time Faculty, Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970.

TABLE 13.--Proposed cost of program elements in one selected minor program where direct instructional cost and allocated support expenditures are associated with the production of student credit hours, College of Education, Michigan State University.

Program Category: 46 Credit Elementary Education
Period : Fiscal Year 1969-70

Academic Staff		
Professor	5 FTE @ 20,000.	100,000
Associate Professor	15 FTE @ 15,000.	225,000
Assistant Professor	20 FTE @ 11,000.	220,000
Instructor	10 FTE @ 5,834.50	58,345
Support Staff		
Secretarial	8 FTE @ 6,000.	48,000
Labor	100 Hrs @ 4.92	4,492
Supplies		
Printing		20,000
Books		1,000
Video		4,000
Audio		990
Services		
Telephone	40 Units @ 100	4,000
In-State-Travel	estm.	12,000
Out-State-Travel		10,000
Other		500
Equipment		
Rentals		4,827
Total Estimated Cost		$717,790

Total SCH	90,082
Student Enrollment	1,977
Cost per SCH	$8.00
Student Faculty Ratio	50:1

TABLE 14.--Comparative cost of two service programs.[1]

Office for Graduate Student Affairs	Fiscal Year 1968-69	Fiscal Year 1969-70	Office for Undergraduate Student Affairs	Fiscal Year 1968-69	Fiscal Year 1969-70
Faculty salaries	$16,446.72	$16,844.80		$15,638.40	$17,925.76
Staff salaries	23,479.26	29,273.38		38,383.24	47,829.09
Student salaries	11,590.34	13,398.24		52.00	60.00
	$51,516.32	$59,516.42		$54,073.64	$65,814.85
Fall term graduate student enrollment	2,348	2,560		3,916	4,034
Computed service cost per student	$21.94	$23.25		$13.81	$16.32

[1]Source: Ledgers, Office of Administrative Services, College of Education, Michigan State University, and Office for Institutional Research, Michigan State University.

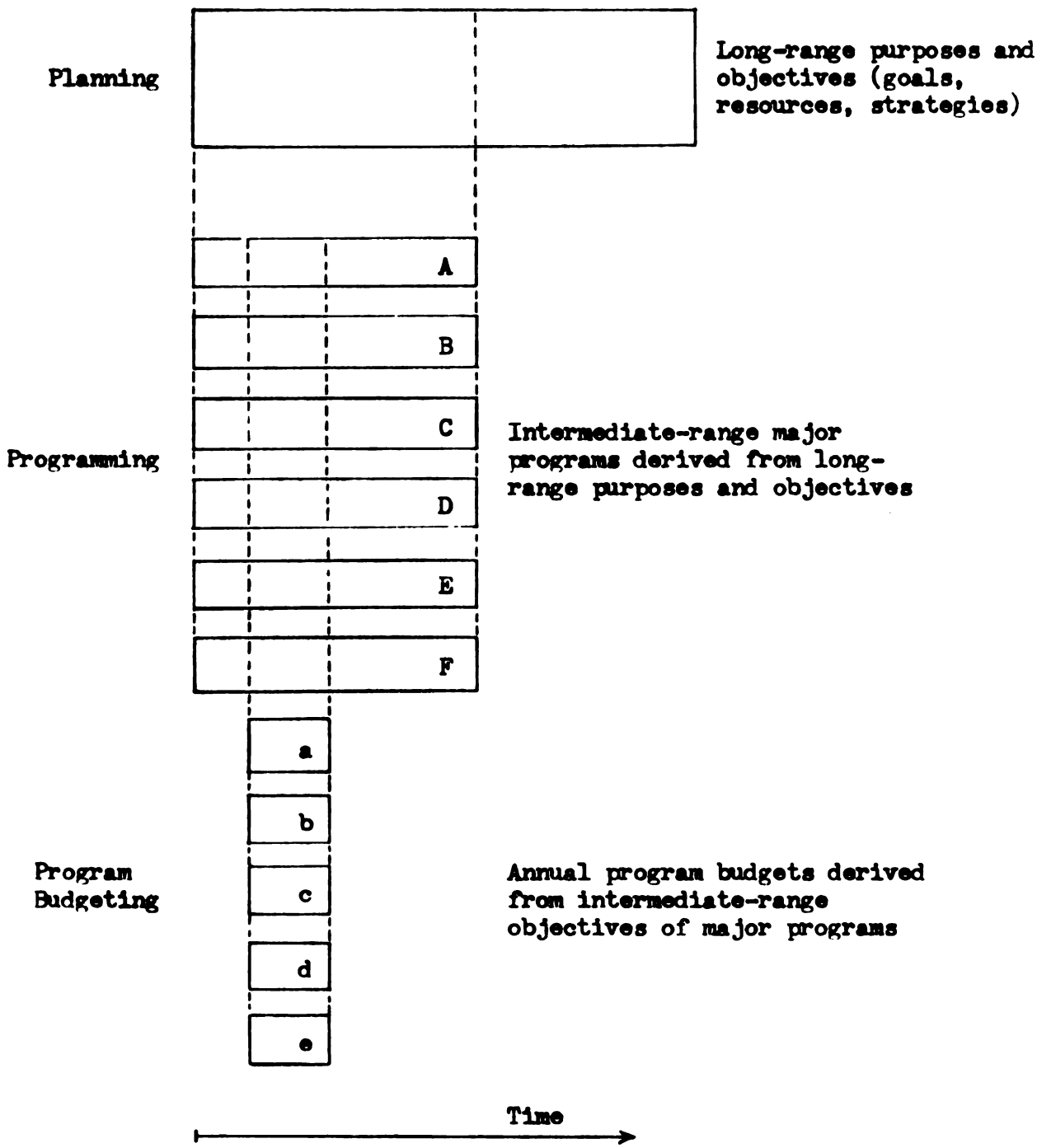
TABLE 15.--Faculty consumption of general fund, including contingency budgeted from 1964-65 to 1969-70.[1]

	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
Total G.F. budget	2,487,430	2,920,676	3,403,370	3,680,012	3,931,123	4,188,848
Faculty salary	2,124,170	2,320,426	2,760,378	2,991,423	3,157,914	3,382,797
Percent of budget	85.4%	79.5%	81.1%	81.3%	80.3%	80.8%

[1]Source: "Budget Allocations," Office of Administrative Services, College of Education, Michigan State University, East Lansing, 1970, and Table 2.

APPENDICES

APPENDIX A.--The Derivation of Program Budget.[1]



[1]Source: American Council on Education, Planning for Effective Resource Allocation in Universities (Feb. 1966) p. 33.

APPENDIX B.--Examples of data compiled and distributed by the Office of Institutional Research, Michigan State University.

Student Credit Hours accumulated

by College

by Off-Campus

by Departments

Fall Term Student Credit Hours produced

by College

by Off-Campus

by Departments

Full Time Equivalent Employed Faculty

by College

by Department

Number of Faculty with Tenure

by College

by Rank

Student Credit Hours produced

by FTE

by College

by Department

Catalogue Course Listings by College

- Courses taught
  - by College
  - by Department
- General Fund Budget
  - by College
  - by Department
  - by SCH produced by College
- Enrollment
  - by Degree sought
  - by College
  - by Department
- Degrees rewarded
  - by Discipline and level
  - by College
  - by Department
- Library Budget, Staff, Volumes, Periodicals, Dollars and Volumes Per Student, and Students Per Staff
- Gifts, Grants, and Contracts
- General Fund Research Budget
- Operating Revenues by Sources
- Revenues for New Plant Construction
- Average Faculty Salaries by Rank
- Student Loans by Sources, Number, and Amount
- On-Campus Student Housing in Residence Halls and Married Housing

UNIFORM PROGRAM ELEMENT SUPPORT SHEET*

DEPARTMENT :

DATE :

PART CLASS :

COURSE I.D.

CREDIT HOURS

ACCOUNT I.D.

SUPPORT SHEET I.D.

PROVIDER CATEGORY	REMARKS	CODE	VOLUME	1970-71	VOLUME	1971-72	VOLUME	1972-73	VOLUME	1973-74	VOLUME	1974-75
PERSONNEL												
PROFESSOR												
ASSOC. PROFESSOR												
ASSIST. PROFESSOR												
INSTRUCTOR												
GRAD. ASSIST.												
SUPPORT STAFF												
SECRETARIAL												
LABOR												
SUPPLIES												
PRINTING												
BOOKS												
VIDEO												
AUDIO												
FILM												
SERVICES												
TELEPHONE												
TRAVEL												
TECHNICIANS												
EQUIPMENT												
RENTALS												
TOTALS												
EXPECTED ENROLL.												
COST PER SCH.												
STUD. INST. RATIO												
COST PERCENT CHANGE												

*SOURCE: OLAN RAITHEL, BEHAVIORAL SCIENCE TEACHER EDUCATION PROGRAM, MICHIGAN STATE UNIVERSITY (WASHINGTON, D.C.: U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, 1970).

UNIFORM PROGRAM ELEMENT SUPPORT SHEET*

BUDGETARY UNIT : ADMINISTRATION

DATE :

PART CLUSTERS :

ACCOUNT NO:

SUPPORT SHEET NO:

PROVIDER CATEGORY	REMARKS	CODE	VOLUME	1970-71	VOLUME	1971-72	VOLUME	1972-73	VOLUME	1973-74	VOLUME	1974-75
PERSONNEL												
SUPPLIES												
PRINTING												
OTHER												
SERVICES												
TELEPHONE												
TRAVEL INST.												
TRAVEL OUTST.												
EQUIPMENT												
RENTALS												
	TOTALS											

*SOURCE: OLAF BAUMEN : BEHAVIORAL SCIENCE TEACHER EDUCATION PROGRAM, MICHIGAN STATE UNIVERSITY (WASHINGTON, D.C.: U.S. DEPARTMENT OF HEALTH EDUCATION AND WELFARE, 1971)

UNIFORM PROGRAM ELEMENT SUPPORT SHEET

BUDGETARY UNIT: LIBRARY

DATE :

PARTICULARS :

ACCOUNT NO.

SUPPORT SHEET NO.

PROVIDER CATEGORY	REMARKS	CODE	VOLUME	1970-71	VOLUME	1971-72	VOLUME	1972-73	VOLUME	1973-74	VOLUME	1974-75
PERSONNEL												
SUPPLIES												
PRINTING												
OTHER												
SERVICES												
TELEPHONE												
TRAVEL INST.												
TRAVEL OUTST.												
EQUIPMENT												
RENTALS												
	TOTALS											

(SOURCE: DIANE GOUDSEY, BEMA, ORA SCIENCE TEACHER EDUCATION PROGRAM, MICHIGAN STATE UNIVERSITY, WASHINGTON, D.C.: U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, 1970).

PROJECTED ENROLLMENT FORMULATION SHEET

APPENDIX D.

DEPARTMENT

PROGRAM

DATE

SHEET NR:

NR.	TITLE	INSTR.	SEQ.	FALL 1970		WINTER 1971		SPRING 1971		SUMMER 1971		FALL 1971		WINTER 1972		SPRING 1972		SUMMER 1972	
				NR.	CR.	NR.	CR.	NR.	CR.	NR.	CR.	NR.	CR.	NR.	CR.	NR.	CR.	NR.	CR.
			TOTAL																
			SCH / FAC																
			STD / FAC																
			COST / SCH																
			COST CHANGE																

APPENDIX E.--Analysis Report.

Program Element:

Program Name:

Program Code:

Date:

I. Intended and Actual Program Structure

II. Resource Comparisons Projected - Actual

III. Results Projected - Actual

IV. Product of Interaction

V. Recommendations

APPENDIX F.--Faculty Load Sheet.[1]

Name:_____ Department:_____
Rank:_____ Base Salary:_____
(Full, Assoc., Asst., Instr., or Grad.Asst.) Fall Semester 19____

I. Teaching:

a) Undergraduate

Course Number/Degree or Speciality Area	Sections	Expected Enrollment	Credit Hours	% of Actual Load	Cost
_____/_____	_____	_____	_____	_____	_____
_____/_____	_____	_____	_____	_____	_____
_____/_____	_____	_____	_____	_____	_____
_____/_____	_____	_____	_____	_____	_____

b) Graduate

_____/_____	_____	_____	_____	_____	_____
_____/_____	_____	_____	_____	_____	_____
_____/_____	_____	_____	_____	_____	_____

Advising (attach list):
Number of active advisees _____
Number of doctoral committees _____
TOTAL _____
If over 25 indicate number of credit hours allowed at rate of: 26-50 = 1 hour
51-75 = 2 hours
75-100= 3 hours ALLOWANCE

DISSERTATION DIRECTION
Number of doctoral dissertations I am directing (attach list) _____
If 2 or more indicate hours allowed at rate of:
2 = 1 hour
3 = 2 hours
4 - 3 hours ALLOWANCE ____ _____ _____
(Independent work or research problem courses should be prorated as follows: 3 or less students, 1 credit hour; 4 or 5 students, 2 credit hours; over 5 students, 3 credit hours.)

II. Research Activities:
On separate page list research project(s) and approximate hours per 40-hour week required (this does not include the routine research, reading, etc. which is expected of everyone on regular faculty appointment.)
The agreed upon allowance in semester hours for this work is:____ _____ _____

III. Public Service and Other Assignments:
On separate page list public service mission(s) and give number of hours per 40-hour week required.
The agreed upon allowance in semester hours for this work is:____ _____ _____

TOTAL SEMESTER HOURS _____ _____
Actual (100%)

[1]Source: Robert C. Ward, Academic Management of Scarce Resources, (University of Kentucky, 1969) p. 68-69.

APPENDIX G.

No uniform format for the Narrative Support Sheet was designed due to the opinion that a format would need to be developed after a program budget had been operational in specific program areas. Dimensions of accomplishments would be particularly developed in narrative form and gross quantified terms. The reason for this demand is to preserve an overview of activities and not divert efforts into segments of a wholistic approach to achievements in program areas. The format for the Narrative Support Sheet as proposed by Ward should contain the following basic elements:

1. Reduction in Activity/Degree Program and Program Element. Specifically identify savings resulting from changes in program elements by resource categories.
2. Continuation of Present Activity/Degree Program and Program Element. Discuss each resource category where increases and decreases tend to offset each other. Approximate measures of the impacts of the change in the composition of the resource-use pattern in terms of student contact hours, hours devoted to research, and any change in the ratio of undergraduate to graduate instruction offered.
3. Increase in Resource Requirements. Specifically identify resource requirement increase, the additional contribution to be made to teaching, research, and public service, and

four-year projections of total costs. Offices, classrooms, laboratories, and library support, etc. are determined on basis of activity/degree program needs.

4. Interim Changes. During the fiscal year, interim changes should be justified on the basis of the effect resulting from the change on specific program elements.

APPENDIX H.--Annual Report of Individual Faculty Accomplishments, College of Education, Michigan State University.[1]

Name _____ Soc. Sec. No. _____

Department _____ Rank _____

Appointment Basis: 10 Mo. _____

12 Mo. _____

Period Covered: January 1, 1969 through December 31, 1969

I. INSTRUCTION -- includes all effort dedicated to the teaching of students, whether the teaching situation is formal or informal. The students taught must be in one of the following categories: (a) registered for degree credit; (b) receiving instruction of college or university level in a program sponsored by the University; (c) engaged in completing degree requirements. Lectures to civic groups or laymen not students or practitioners in the subject field are excluded here and placed under "Public Service." Reading related to a research project or general reading in one's professional field not specifically related to courses taught is subsumed under "Research and Scholarly Activity" or possibly "Professional Development."

A. Teaching Load. Teaching loads for Winter - Fall terms 1969 are provided on the attached printout. Will you please check this listing for accuracy and indicate any corrections on the sheet.

B. Teaching Effectiveness. Supply any information you feel is appropriate which summarizes your effectiveness in teaching.

_____

_____

_____

_____

_____

_____

_____

C. Associated Instructional Activities. If you check any of the activities listed below, explain briefly.

_____ New course development.

_____ Class notes in trial or preliminary preparation.

_____ Preparation of laboratory exercises or notes; design of laboratory experiments.

_____ New experiments in teaching, learning, or examination methods.

_____ T.V. instruction programs.

_____ Experiments with programmed learning.

_____ Audio-visual aids, electrowriter, or any other teacher-learning media.

_____ Services performed in support of instruction; i.e., service at registration desk, orientation program.

_____ Course supervision.

_____ Other.

Explain associated instructional activities:

D. Academic Advising

	W'69	S'69	SS'69	F'69
Number of undergrad advisees				
Number of M.S. advisees				
Number of students requiring thesis direction				
Number of M.S. degrees awarded				
Number of Ph.D. degrees awarded				
Number of guidance committees				

II. RESEARCH AND SCHOLARLY ACTIVITY -- includes all effort dedicated primarily to the discovery and application of new knowledge. Excluded are any activities for which the major purpose is the training of students or the improving of instruction, both of which should be accounted for under "Instruction." Consulting or other activity for which individuals receive more than token payment from an outside source is also excluded.

A. Contract Research. (Funds supplied by sources outside the University.)

Title	Agency	Amount	Starting and Ending Date
_____	_____	_____	_____
_____	_____	_____	_____

Provide a brief summary or abstract of progress.

B. Department Research. (Any research effort not supported by outside funds.)

Title or activity	Starting and Ending Date
_____	_____
_____	_____

Provide a brief summary of the activity.

C. Gifts and Grants from Outside Sources. (Equipment, unspecified gifts and grants, fellowships, etc.)

Item Received	Amount	Source
_____	_____	_____
_____	_____	_____
_____	_____	_____

Explain if necessary:

D. **Proposal Development.**

Title	Date Submitted	Approved	Denied

If pending or under active development, briefly explain.

E. Publications. (Include books, articles, papers, monographs and reviews. Include any works in progress.) Please use the following format:

Journal reference:

G.E. Doe and P.S. Roe, "The development of the betatron," Am. J. Phys. 20, 298 (1952).

Book reference:

John G. Doe, The Gammatron (McGraw-Hill Book Company, Inc., New York, 1952) 2nd ed., Vol. I, Chap. 2, p. 69.

III. PUBLIC SERVICE -- includes the following activities: non-credit courses; preparation of information bulletins; contacts with professional organization (offices held, committee assignments); editor of professional publication; directorship or planning chairmanship of conferences; participation in conferences, seminars, colloquia; radio and T.V. presentations; talks or papers before service clubs, high schools, community service and activities; public relations work with outside agencies or institutions for courtesy and good will; campus visitor programs; student campus society or fraternal organization advising.

Name of Activity	Nature of the Service
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

IV. COMMITTEE AND ADMINISTRATIVE SERVICES -- includes all effort devoted to managerial and supervisory tasks (except course supervision) performed for the department, college, or University as a whole but supported by the department.

Name of committees or activities

_____

_____

_____

_____

You may want to detail any contributions of the administrative responsibilities listed above.

V. PROFESSIONAL DEVELOPMENT -- includes any personal accomplishments designed to maintain and improve one's general professional competence rather than one's performance of current instructional, research, or service responsibilities. Such activities include scholarships, fellowships, grants, leaves, travel, special summer programs, and activities, added degrees, honoring awards or memberships granted.

Name of accomplishment or activity	Dates
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Explain if you so desire:

FACULTY EFFORT FORM

COLLEGE OF EDUCATION

You have recorded your activities during the period from Winter 1969 through Fall 1969. Will you now look through the questionnaire and estimate the percent of time you spent in each of the listed activities.

Your total effort should not exceed 100 percent and should not be less than 100 percent unless you are employed part time or have a joint appointment. If you have a joint appointment with another department you should complete another form for the effort produced for the department.

1.	INSTRUCTION	**Course development:** Lower undergraduate (100+200)	_____
		Upper undergraduate (300+400)	_____
		Master (800)	_____
		Doctoral (900)	_____
		Academic advising: Lower undergraduate	_____
		Upper undergraduate	_____
		Master	_____
		Doctoral	_____
		Thesis direction: Master	_____
		Doctoral	_____
		Instruction: Lower undergraduate	_____
		Upper undergraduate	_____
		Master	_____
		Doctoral	_____
2.	RESEARCH	**Contract Research:** Any formal assignment by the USOE or other outside source	_____
		Department Research: Any research effort not supported from funds outside the department	_____
		Research proposal development	_____
3.	FIELD SERV.	**Public Service**	_____
4.	ADMIN. STRATION	**Standing administrative related committees, or management:** Department	_____
		College	_____
		University	_____
5.	PROF. DEVELOPMENT	**Maintenance of general professional competence rather than current responsibilities**	_____

[1]Source: College of Engineering, Michigan State University, East Lansing, Michigan.

COST OF ALTERNATIVE PROJECT

APPENDIX I.

DEPARTMENT

PROGRAM ELEMENT

DATE

ALTERNATIVE SUBELEM. NR.	NON MONETARY BENEFITS	1970 - 71		1971 - 72		1972 - 73	
		TOTAL $	PSCH	TOTAL $	PSCH	TOTAL $	PSCH
NR.							
NR.							
NR.							
NR.							
NR.							

COMMENTS :

COST OF ALTERNATIVE RECORD

APPENDIX J.

DEPARTMENT

PROGRAM ELEMENT

DATE

ALTERNATIVE SUB ELEM. NR.	NON MONETARY BENEFITS	1970 - 71		1971 - 72		1972 - 73	
		TOTAL $	PSCH	TOTAL $	PSCH	TOTAL $	PSCH
NR							
NR.							
NR.							
NR.							
NR.							

COMMENTS:

ACCUMULATED BENEFITS FROM PROGRAM ELEMENTS

APPENDIX K.

MAJOR PROGRAM

DATE

PROGRAM ELEMENT CATEGORY	RANK	UNIQUE NON-MONETARY BENEFITS	NET ESTIMATED COST OF PROGRAM ELEMENT				
			1970-71	1971-72	1972-73	1973-74	1974-75
PROGRAM ELEMENT # SUPPORT SHEET #							
PROGRAM ELEMENT # SUPPORT SHEET #							
PROGRAM ELEMENT # SUPPORT SHEET #							
PROGRAM ELEMENT # SUPPORT SHEET #							
PROGRAM ELEMENT # SUPPORT SHEET #							
PROGRAM ELEMENT # SUPPORT SHEET #							
PROGRAM ELEMENT # SUPPORT SHEET #							

APPENDIX L.--Potential application of utilizing the capacity of a small computer in a college PPB system.[1]

Level 1 - College

Type	Description
Student	Student Report
Staff	Staff Report
Space	Summary of College Classroom Requirements
	Summary of College Laboratory Requirements
	College Office Space Report
	College Residence Space Report
	Report on Auxilliary Types of College Space
Other	Other Resource Report
Summary	Summary of Operation Costs

Level 2 - Faculty

Type	Description
Student	Students and Enrollees
Staff	Staff Requirements
Space	Summary of Faculty Classroom Requirements
	Summary of Faculty Laboratory Requirements
	Faculty Office Space Report
	Faculty Residence Report
Other	Other Resource Requirements
Summary	Summary Report

Level 3 - Department

Type	Description
Student	Student and Enrollee Report
Staff	Academic Staff Requirements
	Support Staff Requirements
Space	Classroom Space Requirements
	Laboratory Space Requirements
	Office Space Requirements
	Library Space Requirements
	Auxilliary Space Requirements
Other	Other Resource Requirements
Summary	Summary Operating
	Department Loads Allocated to Activities
	Department Loads Allocated to Programs

Level 4 - Program

Type	Description
Student	Student and Enrollee Report
Summary	Summary of Operating Costs
	Program Resource Loads Generated by Activities
	Resource Loads Allocated by Cost Centre

[1]Source: Notes from a seminar offered by System Research Group, Toronto, Ontario, Canada, December 1969.

THE MULTI-YEAR MASTER PLAN[1]

APPENDIX M.

CATEGORIES	CODE	UNDERGRADUATE					GRADUATE					RESEARCH					PUBLIC SERVICES				
		1970-71	1971-72	1972-73	1973-74	1974-75	1970-71	1971-72	1972-73	1973-74	1974-75	1970-71	1971-72	1972-73	1973-74	1974-75	1970-71	1971-72	1972-73	1973-74	1974-75
ADMINISTRATION																					
PROFESSORS																					
ASSOC. PROFESSORS																					
ASSIST. PROFESSORS																					
INSTRUCTORS																					
GRAD. ASSISTANTS																					
SECRETARIAL																					
LABOR																					
PRINTING																					
BOOKS																					
VIDEO																					
AUDIO																					
PERIODICALS																					
OTHER																					
TELEPHONE																					
IN STATE TRAVEL																					
OUTSTATE TRAVEL																					
OTHER																					
EQUIP. RENTALS																					
TOTAL		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
PERCENT ACTIVITY																					

[1]SOURCE: ROBERT C. WARD, ACADEMIC MANAGEMENT OF SCARCE RESOURCES (UNIVERSITY OF KENTUCKY), 1969, p. 72.

APPENDIX N.

The purpose of evaluating the program budget is (1) to determine to what degree implementation of programs or program elements, as proposed in Appendix B, format a, b, and c, have materialized, and (2) allow for adjustment of future planning.

A Program Evaluation Report should be an objective document blending quantifiable and qualitative measures. No predetermined format is necessary for use in the present situation. The Report should contain information about four specific items:

1. A brief description of the program-element, or the program as the case may be.
2. An evaluation of to what degree the program was achieved as compared to initial intentions.
3. Compare projected and actual costs with results in terms of cost/benefits.
4. If deemed appropriate recommend changes
   - in terms of reevaluation of purpose
   - in terms of better meeting the needs of students or efficiency of services
   - in systematic procedure, for meeting educational needs in order to better develop, evaluate, and communicate the needs and achievements of education programs.

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