

THE UNIVERSITY OF ALBERTA
BUSINESS EDUCATION: A DEVELOPMENTAL STUDY
USING P. P. B. E. S.

BY



WILLIAM ELLIS

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION

DEPARTMENT OF INDUSTRIAL AND VOCATIONAL EDUCATION

EDMONTON, ALBERTA

SPRING, 1973

ABSTRACT

Current educational literature discusses the viability of PPBES. Indeed the Provincial Government of Alberta seems to be moving in the direction of introducing such a system through the Department of Education. Further education, perhaps more than ever, is being required to streamline its operations and provide informative data to the public regarding the efficiency of its programs. While PPBES is not a panacea for educational ills it may be seen as a valuable tool in this regard. Therefore, this study was undertaken to explore the structure of PPBES and to provide guidelines to the administrators of the County of Minburn should that County desire to consider the introduction of PPBES.

Program budgeting or the acronym PPBES which refers to the planning, programming, budgeting and evaluation system, constitutes a resource allocation decision system.

The thesis first, examined the PPBES literature on business education and the program budget. A theoretical model was presented as suggested by Barro and extrapolated from many authorities sighted in the literature. Third, the Vegreville program in business education was described. Fourth, using the literature and the model as a theoretical framework, guidelines were suggested for the possible implementation of PPBES into the Vegreville school system. PPBES, in one form

or another, and perhaps under a different label, is very likely to emerge as a significant element within the next decade.

ACKNOWLEDGEMENTS

The successful completion of this study was dependent upon the cooperation and support of a great many people. The writer wishes to express his sincere thanks, first of all, to Dr. H. R. Ziel, my program adviser and thesis supervisor, who encouraged, directed, and assisted me during the development of this thesis.

The writer also wishes to thank the other members of my thesis committee, Dr. Rolf E. Rogers, and Dr. Darrell LeBlanc in assisting me and serving on my thesis committee.

The writer is indebted to graduate student, Mrs. Marilyn Shortt for her kind assistance, advice, and encouragement during the course of this study.

The writer wishes also to express sincere appreciation to Mrs. Isabel Bince and Mrs. Iola Richardson for typing and reproducing this thesis.

The writer also wishes to thank Dr. Glenn J. Misko, for so generously giving of his time and for assisting in the final stages of this thesis.

Most of all, the writer wishes to express his sincerest gratitude to his beloved wife, Elnora-Olga and his two daughters, Marianne and Margaret for continually supporting and encouraging me, and for being so understanding throughout the development of this study. May God bless all these wonderful people, who were all of such great assistance.

TABLE OF CONTENTS

Chapter	Page
I. ORIENTATION TO THE PROBLEM	1
Problem Statement	2
Conceptual Framework	3
Objectives and Goals of PPBES	4
Delimitations of the Study	6
Limitations	7
Goals of Business Education	8
Assumptions	9
The Significance of the Study	10
Definition of Terms	13
Procedures	17
Population	17
Sample	18
Research design	18
Summary	18
II. REVIEW OF THE LITERATURE	19
Principles of PPBES	22
Concepts of PPBES	25
PPBES in Education	34
Educational Objectives and PPBES	39
Limitations and Precautions	49
Summary	52

Chapter	Page
III. PROPOSED PLAN AND PROCEDURES	56
Introduction	56
Modeling the Program of a School District.	57
Resource Allocation Decisions and Alternatives	59
A Public School System as a System	62
Major Decision Variables in the System	66
Selection of Programs, Vertical Organization of the Schools, and Assignment of Students to Programs	68
Curriculum Composition	71
Instructional Design: Instructional Resource Inputs	74
Summary	80
The Analysis of Effectiveness	82
Effectiveness of Program Elements	84
The Development of Cost-Effectiveness Relationships	84
General Principles for Assessing Effectiveness	87
Measuring the Outcomes of the Plan	91
Efficiency	92
Evaluation of New Programs	96
Summary	98
IV. DESCRIPTION OF VEGREVILLE BUSINESS EDUCATION PROGRAM	99
Introduction	99
The Business Program	99

Chapter	Page
Business Education Objectives	100
Suggested Guidelines for the Implementation of PPBES to the Existing Business Education Program in Vegreville.	
Description of Phase I	110
Description of Phase II	112
Description of Phase III	113
Summary	115
V. SUMMARY, CONCLUSIONS, RECOMMENDATIONS, IMPLICATIONS	116
Introduction	116
Summary	116
Conclusions	118
Recommendations	121
Implications	125
BIBLIOGRAPHY	127

LIST OF FIGURES

Figure	Page
I. Overall Structure of a Model of a School System	64
II. School System Decisions, Programs, and their Implications	67
III. Specification of Programs, Vertical Organization of Instruction, and Rules for Assignment of Students for a Hypothetical School District	70
IV. Curriculum Composition by Program	73
V. Instructional Design, Class Sizes and Resource Inputs (Regular Programs--Grades 10-12)	79
VI. Variables in the Model of a School District.	81
VII. A Hypothetical Benefit-Cost Relationship	88
VIII. Evaluation of New Program	98

CHAPTER 1

ORIENTATION TO THE PROBLEM

Educational administrators are faced with the pressure of continuing enrollment in the field of business education and with the demand for a greater diversity in educational planning (Haggart, 1969:1).

The recent development of Planning-Programming-Budgeting-Evaluation-System, (PPBES, also called Program-Budgeting) which is basically a resource allocation system, might provide the way to meet the need for improved educational planning.

Programs have been developed in recognition of the special problems of some groups of students. The increased cost of maintaining educational status quo is a fact of life; the same educational resources cost more each year. Resource availability also presents a problem; in some cases, exactly what is needed is not available at any price. As a result the educational community is being asked to do a better job under a severe financial handicap.

Increasing taxpayer resistance is being demonstrated. The taxpayer maybe asking for better management of the resources used, and/or evidence of a better product from the educational system. In short, they may be asking what is happening? What is our pay off? Is there a different,

and perhaps a better, or more productive way of providing business education and doing business (Haggart, 1969:1-2)?

Alec Mood (1967) states that education is on stage as never before. Results are demanded. Resources cannot be piled upon resources to achieve indeterminate results. Educators must discover more efficient, as well as more effective ways to conduct business education. In the last few years in the field of education, research has been undertaken that has resulted in a design or model of an integrated system which consists of programming, planning, budgeting, and evaluation in education in school systems (Golden, March 9, 1968:4).

PROBLEM STATEMENT

Program budgeting or the acronym PPBES, which refers to the Planning, Programming, Budgeting and Evaluation system, constitutes a resource allocation decision system. A PPBE System of resources allocation assists educational planners in determining how well resources are being used at the present time in selecting preferred ways of using effectively and efficiently scarce resources in the future. The purpose of this study is to

- (1) review the PPBES literature on business education and the program budget.
- (2) describe the Vegreville program in business education.
- (3) present an ideal model of PPBES.
- (4) propose theoretically based guidelines, in light of the effectiveness of PPBES, with their potential application to the Vegreville business education program.

CONCEPTUAL FRAMEWORK

Smithies (1967) states that the need for program budgeting arises from the indissoluble connection between budgeting and the formulation and conduct of a national policy--or the policy of a Province, a City or a Town as the case may be. Governments, like private individuals or organizations, are constrained by the scarcity of economic resources at their disposal. Not only the extent to which they pursue particular objectives but the character of the objectives themselves will be influenced by the resources available.

Smithies also states that the government's desire to pursue its objectives will influence the resources it makes available by taxation or other means. Planning, programming, budgeting and evaluation constitute the process by which objectives and resources, and the interrelation among them are taken into account to achieve a coherent and comprehensive program for education as a whole.

Program budgeting involves the use of budgetary techniques that facilitate explicit consideration of the pursuit of policy objectives in terms of their economic costs, both at the present time and in the future.

To be more specific, the present government is concerned with the broad objectives of education, and with economic development, together with the conduct of current

business operations. The character of each major program will depend upon the total resources the government can appropriate to its purposes. An attempt should be made to educate as wide a segment of the population as possible.

The task of making the necessary compromises among the various objectives is the function of the planning, programming, budgeting, educational system. It is therefore advisable that the various government activities be expressed in simple quantitative terms. Quantitative information can throw light on the consequences of spending money in various directions.

There is a multitude of ways in which money can be spent on education. To make an intelligent examination, the major functions of education must be broken down into meaningful and measurable subfunctions, at least into primary, secondary and tertiary. Traditional programs should be considered in terms of proposed new programs in major and subprogram levels.

Problems are ever present in the field of education. Some aspects of education are designed to increase the economic effectiveness of the labor force. Others are designed to enrich the social and intellectual lives of individuals. Education in particular is held essential for the political health of the country.

OBJECTIVES AND GOALS OF PPBES

The goal of this project PPBES is to improve

management of educational and financial resources by determining the quality and cost of the products of education. For this study the concepts and objectives of PPBES will be utilized to plan a program in business education in a specific rural area; namely, Vegreville School district.

Program budgeting is not merely performance budgeting, but an objective of program budgeting is to concentrate on effectiveness and efficiency. In other words program budgeting concentrates on the optimum means of performing a stated task. Similarly, program budgeting is not cost accounting. Program budgeting is planning oriented. Novick (1965) states that the main goal of program budgeting is to rationalize policy-making by providing data on the costs and benefits of alternative ways of attaining proposed public objectives and output measurements to facilitate the effective-attainment of chosen objectives. In program budgeting the objective itself is variable.

From the planning perspective the all important thing to be accomplished is rather the objectives or purposes to be fulfilled by the investment of public funds.

In program budgeting, work and services are regarded as intermediate aspects, the process of converting resources into outputs.

Questions to be answered

- (1) Who should be a participant in PPBES in business education?

- (2) What behavioral objectives must be identified and developed in light of the requirements of the PPBE System, in order to formulate a basic structure so that a program budget could be developed?
- (3) Would an in-service program assist the teachers to initiate the experimental project and at the same time permit the teachers to review the basic principles and concepts of PPBES prior to the development of the behavioral objectives for the proposed instructional programs?

DELIMITATIONS OF THE STUDY

The main focus of this study is on a business education program in the Vegreville rural school system. Specifically concerning the following courses:

Typewriting 10	(3)	Typewriting 20	(5)	Typewriting 30	(5)
				Office Practice 30	(5)
		Shorthand 20	(5)	Shorthand 30	(5)
Accounting 10	(3)	Accounting 20	(3)	Accounting 30	(5)
		Law 20	(3)		
				Bus. Machines 30	(5)
		Clerical			
		Practice 20	(5)		
		Data Processing 22	(5)		
		Merchandising 20	(5)	Business Organization	
Business Fund. 10	(3)			and Management 30	(5)
Record Keeping 10	(3)				

It was deemed desirable to write this thesis on one operating school district, in the public school district of the County of Minburn in the town of Vegreville. The County of Minburn was selected because it possessed characteristics

which were desired for a study; namely, an expressed desire to experiment with PPBES and a comprehensive educational program which included business education.

A program of business education was desirable since it mirrors many of the characteristics of both general and vocational education programs in a rural school district. It has some program activities which easily lend themselves to the development of quantifiable, measurable objectives; it also has program activities which are not so easily accommodated. Other disciplines, and programs possibly, will have different requirements and problems which will demand other kinds of experimentation.

LIMITATIONS

When considering program budgeting, one of the first considerations is dealing with alternatives, and then with an extended time horizon. That is, you are trying to examine as many alternatives as you have time, resources and imagination to explore. Also, when you are dealing with extended time horizon, you recognize that what it costs this year may be only the beginning and a small step towards a much, much larger cost at some future date. An obvious example is school construction when little or no provision is made for teachers and related additional expenditures that are going to be involved.

Another limitation, is that program budgeting is not a decision making device. It is rather a way of illuminating

the problems confronting the decision-maker in terms of alternative avenues of action that should be explored. The most important thing is that if you do a program budget, you recognize that you are uncertain about a great many things. You identify the uncertainties, and you identify what might happen.

GOALS OF BUSINESS EDUCATION

Business education makes the following unique contributions to specific district goals:

- (a) "provides for good citizenship" through preparation to become an intelligent, productive wage-earner;
- (b) "promotes an understanding of our economic system" through developing a better understanding of the business world and free enterprise;
- (c) "helps pupils make their post-high school plans," for either employment or advanced training, through courses which relate to the labor market and post-high school education;
- (d) "encourages initiative and creativeness" through the utilization of personal, employable competencies in rewarding job situations;
- (e) "prepares pupils for a vocational future" through occupational training experiences. (Dept. of Education, 1970).

ASSUMPTIONS

Assumptions made regarding the reality in which PPBES will operate include these statements:

- (1) That the financial resources available to the school system are less than equal to the demands of the system.
- (2) That the school system exists to achieve certain objectives expressed as specific changes in the behavior of learners.
- (3) That the attaining of these objectives can theoretically be achieved in a multitude of ways which we call programs some of which are more effective and/or efficient.
- (4) That the productivity of a school system can be enhanced by organization of activities and services into program specifically directed toward carefully defined goals.
- (5) That better decisions regarding program selection and operation will result when the resources thereof are considered on a long-term or a multi-year basis.
- (6) That better decisions regarding program selection and operation result when production (or output) is methodically related to objectives and evaluation (Foster, 1969).

The SIGNIFICANCE of the STUDY

The significance or need for the study is to provide a vehicle whereby the administrators of business education in Vegreville may consider this study and draw their own conclusions as to the viability of the following factors to that system:

- (1) allocation of resources to education,
- (2) adding programs and expanding existing educational programs,
- (3) continuance of education for economic and social development,
- (4) the realization of the necessity of taking all reasonable steps to ensure efficient and effective utilization of resources,
- (5) the benefits of program budgeting is to administrative staff,
- (6) the importance PPBES is for accountability.

From the study, new knowledge may be provided regarding the application of PPBS to education and to an instructional program in Business Education in particular. The potential of PPBES and the program budget as a management tool for a school district should be determined under research conditions. Total involvement of instructional personnel in the PPBES process begins with the setting of goals and objectives and the determining of the program budget structure. By applying

PPBES and program budgeting concepts to an instructional Business education program which is varied in its objectives, new knowledge is provided concerning problems encountered in implementing PPBES as well as the potential of PPBES as a management tool. In this thesis, PPBES utility and development provides only a kind of "microscopic" view of the operation of part of a total school district.

The need seems apparent for school districts to become involved in various facets of PPBES, according to Coulson and Skarp (1968). Many indicators predict that a widespread application of PPBES very likely will occur in the near future, including Congressional hearings held in 1969 and 1970 conducted by Senators Henry Jackson and William Proxmire which attested to a continued concern for utilization of PPBES at the national level (1968). Prominent educational organizations, such as the Association of School Business Officials through their Research Corporation, are directing the energies of their members toward PPBES implementation (1968). Personal conversations with school district administrators in several districts throughout the State of Wisconsin reveal that PPBES will be in general use in education within the next decade. The 1970 annual convention of the Wisconsin Association of School Administrators featured PPBES at one of the main sessions. In Alberta, the Banff Administrators Association annual meeting featured developments in PPBES, in October 1972.

Demands placed upon the resources of society by education in its totality cause public concern for where, how, and why resources are needed as well as what is really accomplished in the process of education. Educations' demand for financial resources has increased at a significant rate and various predictions indicate an ever increasing demand-- the national convention of the National Association of School Boards resulted in a plea from that group that the cost of education per pupil should increase to \$1200 annually (1968). In 1968, October, at the Ohio State University Economists at the National Development Institute in Planning, Programming, Budgeting Systems, suggested an ultimate fourfold increase in education's demand on the Gross National Product from a level of approximately two and one-half percent to a figure approximating that expended for National Defense, or ten percent. The basic contribution of PPBES is its capacity to provide data which make it possible to inform the public of what goes on in the educational enterprise, what major activities cost, and what results are produced by the activities.

The question then seems to be one of "how" and "in what form" PPBES will emerge in education. To determine effectively how PPBES might be initiated and in what way it might function in an operating school district is the purpose of this thesis.

DEFINITIONS OF TERMS

Activity: a program category expresses the purpose of a program; activity is a term which is sometimes used to refer to a way in which the purpose may be accomplished. For example, research and development, standards and regulation, distribution of information, and training of personnel, may be activities applicable to a particular agency program.

Alternatives: within any one agency, this term means other possible programs besides those already decided upon. It suggests a comparison of two or more programs (i.e., two or more possible approaches) toward fulfilling the same objective. Used in this context the term is output-oriented; it suggests substituting an entirely different program (and therefore a different output or outputs) for a program already planned or in process. On the other hand, alternative ways to do a given job takes the program as given, and raises possibilities for changing the mix of inputs. There are various means by which objectives can be attained.

Budgeting: Budgeting is the process of translating planning and programming decisions into specific projected financial plans for relatively short periods of time. Budgets are short-range segments of action programs adopted which set out planned accomplishments and estimate the resources to be applied for the budget periods in order to attain those accomplishments.

Budget: A financial plan serving as a pattern for and control over future operations: hence, any estimate of future costs; any systematic plan for the utilization of manpower, material, or other resources. A plan for the accomplishment of goals within a definite time period including an estimate of resources required together with an estimate of resources available usually compared with one or more past periods.

Costs: specific resources (inputs) required to achieve a given output.

Criteria: premises on which priorities are established among alternatives in order to measure relative degrees of desirability. Predetermined rules or standards for ranking alternatives in order of desirability to facilities and expedite the decision-making process.

Crosswalk: the expression of the relationships between the program structure and the appropriation/budget structure. A crosswalk can be viewed as a table, the stub (rows) of which lists program categories and the columns of which show appropriations and budget activities.

Diads: two persons who are paired in such a way as to maximize heterogeneity and cause a maximum of interaction.

Economic Efficiency: that mix of alternative factors of production (resources, activities, programs, etc.) which result in maximum outputs, benefits, or utility for a given cost; alternatively, it represents the minimum costs at which a specified level of output can be maintained.

Effectiveness: the performance or output received from an approach or a program. Ideally, it is a quantitative measure which can be used to evaluate the level of performance in relation to some standard, set of criteria, or end objective.

Goals: goals are the long-range accomplishments towards which the agencies' efforts are directed in fulfillment of the mission. They are not necessarily quantitative or set time limits. They correspond to program categories or sub-categories.

Inputs: resources utilized to achieve selected outputs, i.e., to accomplish an effort (program) and includes money, manpower, land, material, equipment, and other resources.

Mission: imposed legislation or other means. It describes the organization's reason for existence; its general functions (programs), and the limits of its jurisdiction.

Mission statement: a general statement of the broad purposes to be achieved by a program, an agency, a school, or a school district; the philosophy or principles upon which activity is given direction and emphasis is given to the development and conduct of activities or programs.

Model: a schematic representation of the relationships that define a situation under study. A model may be mathematical equations, computer programs, or any other type of representation, ranging from verbal statements to physical objects. Models permit the relatively simple manipulation of

variables to determine how a process, object, or concept would behave in different situations.

Objectives: outputs that the decision maker wants to attain. Hence, the end product or output of a program element. Objectives are measurable and specify the quality and quantity of output within time limits. They correspond to program elements while subobjectives correspond to program subelements.

Outputs: end product or intermediate action resulting from the accomplishment of a program effort that can be quantified.

Planning: planning is the selection or identification of the overall, long-range objectives of the organization and the making of systems analysis of various possible courses of action in terms of relative costs and accomplishments or benefits in order to aid managers in deciding on courses of action (i.e., programs). Essentially, this level of planning involves deciding on what the organization is in business to do and generally how it is to be done. This is also called strategic planning.

Program: a major agency endeavor, mission oriented, which fulfills statutory or executive requirements, and which is defined in terms of the principal actions required to achieve a significant end objective.

Programming: programming is the process of deciding on specific courses of action to be followed in carrying out

planning decisions on objectives. It also involves decisions in terms of total costs to be incurred over a period of years as to personnel, material, and financial resources to be applied in carrying out programs.

Program element: a subdivision of a program subcategory comprising the specific products that contribute to the agency's objectives with an indentifiable output. A program element covers agency activities related directly to the production of a discrete agency output, or group of related outputs. Program elements are the basic units of the program structure.

Program structure: the program structure should group agency activities in a way that facilitates comparisons of the cost and effectiveness of alternative approaches to agency objectives. Normally, an agency program structure will include three levels of classifications: program categories, program subcategories, and program elements.

Systems analysis: may be viewed as the search for and evaluation of alternatives which are relevant to defined objectives based on judgment and, wherever possible, on quantitative methods with the objective of presenting such evaluations to decision makers for their consideration (Gott, 1969).

PROCEDURES

Population: The population will consist of one school i.e. The Vegreville Composite High School.

Sample: The sample will consist of 160 students.

Research design: (a) The research design will be a review of the existing traditional vocational business education programs in Vegreville. (b) A search of the PPBES informational area for items dealing with efficiency and effectiveness which can be utilized towards the improvement of efficiency and effectiveness in the vocational business education program.

Development: Presentation of behavioral objectives which will be used as bench-mark objectives and be included in a program budget as part of the PPBE system. Also, the presentation of a business education model for methods and procedures in PPBES on a multibase structure.

Conclusion: The completed thesis will then be made available to the specific school system.

Summary

The study addresses itself to problems encountered in adapting PPBES in business education. Chapter II reviews the related topical literature in the field. Chapter III describes the operational aspects of PPBES. Following this discussion, an overview of the Vegreville Business Education Program is presented with reflections upon the viability of the PPBES approach in this rural area.

The thesis concludes with a summary, conclusions, recommendations and implications for further study.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature follows the proposed framework for this study. The focus is on PPBES program structure.

According to Hirsch, Quade et. al. (1969), it has been stressed that program budgeting is an approach to improved planning and that the process is more than budgeting and accounting by program.

This idea--that the program budgeting process provides a better way of looking at decision-making problems--is a unifying thread in this process.

The problem consists of defining objectives, developing a program structure, and viewing the school district as a system in order to develop resource and effectiveness relationships.

Rapp (1969), points out, that as more and more school districts implement a program budgeting system, there will be an increased demand for meaningful evaluation of current programs and of alternative programs. In the wake of this mandate has come an accelerated need for "the design and specification of accurate, reliable and sensitive systems of observation, measurement, testing and, in the final analysis, judgment (1969:160)"

And yet Wilkerson says that, "currently available research in this field typically reports ambiguous outcomes of unknown or amorphous educational variables. This unhappy 'state of the art' is likely to encourage contradictory but equally premature tendencies in educational decision making (1965:160)."

Rapp (1969) states that, planning the evaluation should be one of the phases of designing an innovative program. The assumption that no final decision will be made at the end of the first try-out period needs to be made explicit.

Ristau (1970), also mentions that no matter how well educational innovations may be planned, until the programs are actually in the classroom, it is not possible to know how all the components are going to interact.

A concern that Rapp indicates is with the question of timing: Are these changes to be long-term, or short-term, or both? He further points out that, in an innovative program that cuts across many objectives and two time spans, that it is advisable to return again and again to the stated objectives to instill confidence in the evaluation plans. Even if spectacular achievement gains are realized, the stated objective of raising vocational aspiration should not be neglected, because in the long run this really is the objective, and in its assessment lies the true measure of the effectiveness of the innovative program (1969,:163).

Also Rapp, has this to say that, "if at that time academic achievement has been improved and the other objectives have been met, the decision maker can be rather confident that for the described population he has a better program than he had before. He now has a better basis for allocating scarce resources with which to expand the program (1969:5)" On the other hand, he states that although academic achievement was improved, the other objectives were not met, the decision maker must determine whether or not this kind of innovation is the best program he has for raising achievement level or whether there is, perhaps, a better way of meeting that objective. At this point the evaluation data enter the program budgeting process. The decision maker will need detailed information about all aspects of the innovation, which will consist of items as personnel requirements, special equipment, new materials, field trips--all the details that need to be considered on the cost side of the cost/effectiveness picture. The decision maker now has the informational basis for assessing the new program in the light of his total ongoing program resource requirements and their effectiveness in meeting his objectives.

The decision maker may then be confident that he is implementing not only those programs that will be of maximum benefit to the students under his jurisdiction, but also those that make the best use of his limited resources (1969:6-7).

Wildovsky (1966), points out that, since decisions

typically concern problems, and the program structure can deal explicitly with only a few of them, how can we assert that program budgeting is an aid to decision making. According to Wildovsky, critics of program budgeting systems have stressed this apparent inconsistency.

Carpenter, answers these critics in twofold. First, a program budgeting system (as opposed to an accounting scheme) should ensure that problems are put in the proper perspective vis-a-vis the school district by demonstrating their impact on the cost and effectiveness of the district's primary programs. Second, the program-oriented data that program budgeting requires are more likely to be useful for problem solving than are data gathered to support the traditional budget (1969).

In regard to communication, Haggart (1969), advises that there should be lines of communication to the district's administrative staff--the level responsible for ensuring that the particular activity or program change is in fact, a means to accomplish either an operational objective, or a broad goal of the district. A two way communication line among all the activity areas should exist.

Principles of PPBES

A Planning, Programming, Budgeting System applies scientific management principles to the operation of the educational enterprise. As its name suggests, it is a system

of management in which the function of planning, programming, and budgeting are drawn together and interrelated. It is a system which tends to draw attention to the output, that is, the outcomes or achievements of an educational program and provides for an ongoing evaluation of objectives in such a way that the data feeds back into the system for the purpose of analyzing and redefining operations. PPBES emphasizes the concepts of accountability and communication by relating what is spent to what is accomplished.

Numerous articles which discuss the merits of PPBES in education, appear in a variety of current professional publications which relate to the effective administration of school districts. Most authors currently writing on this subject relate to the promise and potential of PPBES for aiding education and making the educational enterprise more effective, more efficient, and more communicative to its publics. However, few authors seem able to relate to practical experiences of school districts in which educators have participated in one or more phases of PPBES; reports on actual experiences with PPBES in education are scarce.

The principles of scientific management which are an integral part of PPBES are not new to the general management practitioner, particularly in private enterprise. Fayol and others in (1949) introduced such principles as early as 1897, and the Dupont Corporation is noted as having worked with the rudiments of such a system in 1915. Dupont generally is credited with having influenced the introduction of concepts

of establishing objectives, planning for the future, and developing standards and output measures into the operation of the General Motors Corporation (Chambers, 1968). The foregoing concepts can be viewed as component characteristics of PPBES. PPBES is relatively new in the public sector, however, with governmental units only recently becoming involved in the application of PPBES. An early attempt to introduce PPBES to governmental units at the city, county, and state levels was funded by the Federal Department of Housing and Urban Development in conjunction with George Washington University in a project known as "Five-Five-Five (Wilsey, 1969:16)"

PPBES moved into the federal government operation in 1965 when Secretary of Defense Robert McNamara introduced PPBES to his department with considerable success. Subsequent policy issuances by President Lyndon Johnson caused PPBES to be introduced in all federal governmental agencies. Late in 1965, a veteran of the Defense Department's management revolution was assigned as Assistant Secretary of Health, Education and Welfare to head HEW's PPBES team (H.E.W, 1967). Very few school districts, however, have as yet actually become involved in the process of applying PPBES principles and practices; even fewer have involved key staff persons, including teachers, in experimental activities. In Alberta, we have ten pilot areas that are involved in the process of applying PPBES principles and practices to their schools (Gov't of Alberta, 1972).

Concepts of PPBES

The abbreviation PPBES stands for a Planning, Programming, Budgeting, Evaluation System. These words refer to the processes that make up a resource allocation decision system. This approach emphasizes objectives, and alternative ways of meeting these objectives, as part of the process of continual evaluation and adjustment of educational programs. A PPBE System is more than a budgetary or financial control device; it is a means for improving educational programs and decisions, and for managing educational resources. The system becomes a sound approach to educational planning only when the planning and evaluative aspects are given as much emphasis as the budgetary and financial control aspects (Gov't of Alberta, 1972).

A study of current literature relating to areas of professional education and educational administration reveals a considerable volume of articles and publications concerning the principles of Planning-Programming-Budgeting Systems and concepts related to them. Leading professional magazines contain current writings by authors who share with their readers potentialities, expectations, and perceptions of PPBES based on direct or vicarious experiences with various stages of the development of a PPBE System. Discussions of program budgeting, educational objectives and related methods of helping to make the educational enterprise more effective and efficient are included in the literature reviewed in this thesis.

Relatively little is available to the current reader concerning actual research into PPBES, its application to educational administration, and its involvement with instructional programs and teachers. A search of numerous recent publications of Dissertation Abstracts--The Humanities and Social Sciences, by the University Microfilms, Ann Arbor, Michigan, revealed few studies on PPBES (Ristow, 1970). The key words of "accounting," "budgeting," "program budgeting," "planning-programming-budgeting systems," "school management and organization," and "education-costs" were included in the search.

The current "state of the art" so far as PPBES in education, is concerned and the need for research in this area is revealed in this review of various authors who relate to a variety of issues and concerns in PPBES. In this chapter, a review is made of literature relating to PPBES in government, the program budget, PPBES in education, educational objectives, behavioral objectives, and cautions and precautions in the consideration of PPBES in education.

"Occasional Papers" on PPBES published by the Center for Development of Community College Education notes in particular that U.S.A's former Secretary of Defense Robert McNamara's PPBES was considered to be a management innovation which met with "amazing success. (Haggart et.al. 1969). Buchmiller (1963), the deputy superintendent of Wisconsin's Department of Public Instruction, notes in a paper summarizing

early program budget efforts in that state that the Taft Commission stimulated activity with its emphasis on efficiency and economy in government. Chambers (1968) disagrees with the notion that PPBES might be a creation of the Department of Defense. He states that PPBES evolves from three distinct sources: private enterprise, the federal government, and an evolution of budgetary practices (Chambers 1968). It was President Lyndon Johnson's announcement at a 1965 cabinet meeting that requested all government divisions to implement PPBES based on the successes of the Department of Defense which moved top-level governmental units into activities that continue to filter down into other levels of governmental operation. President Johnson also stated that the operation of the system being purported would enable policy-makers to:

- (1) Identify our national goals with precision and on a continuing basis.
- (2) Choose among those goals the ones that are most urgent.
- (3) Search for alternative means of reaching those goals most effectively at the least cost.
- (4) Inform ourselves not merely on next year's costs, but on the second, third, and subsequent year's costs of our programs.
- (5) Measure the performance of our programs to insure a dollar's worth of service for each dollar spent (Haggart et.al. 1968).

The report predicted that the system would improve the government's ability to control programs and budgets rather than having them control the government. The system

would call for persons who were experts in their fields, and in his budget message to the Congress on March 17, 1967, he called for support of agency budget items for PPBES staff to help improve the quality of government (Haggart, 1968).

Subsequently Congress began to look into PPBES and its many ramifications, and Congressional hearings continue to be held (U.S. Senate Sub-Committee 1967). The Joint Economic Committee's Subcommittee on Economy in Government, headed by Wisconsin's Senator William Proxmire, continues to investigate PPBES and its implications for improving the quality and efficiency of governmental operations (U.S. Congress Hearings 1967).

The Federal Department of Housing and Urban Development funded the State-Local Finance Project of George Washington University, the "Five-Five-Five Project," which aimed at developing PPBES in state, county, and city governments and involved five units at each level. Wisconsin was one of the five states participating and in December, 1967, a publication of the Wisconsin Department of Administration set forth a broad concept for "A Prospective Integrated Planning Budgeting System for the Wisconsin State Government." McGowan, explained that the State of Wisconsin would "shape its planning and budgeting procedures into a more comprehensive and more fully integrated policy analysis and policy decision-making process. . . . of commonly understood long-range planning-budgeting objective (1966:1)." McGowan

further stated that the process would be implemented over a five to ten-year period, and that the first step would involve converting the budget into a language that permits blending with planning process.

Hatry and Cotton (1967) identify in succinct fashion four primary distinctive characteristics of PPBES; they note them to be as follows:

- (1) fundamental objectives are identified and related to all activities regardless of organizational placement.
- (2) future year implications are explicitly identified.
- (3) pertinent costs are considered, and
- (4) systematic analysis of alternatives is performed.

Hartley, refers to a close association of PPBES and the program budget and gives it emphasis by referring to the program budget as the heart of the PPBE system. Hartley describes a program budget as a listing of programs and subprograms with costs and justification data to support input and output. According to Hartley, traditional budget headings are nondescript whereas the PPBES budget document "should be more meaningful, defensible, and understandable to the public (Hartley, 1968:147)."

Fitzsimmons conducted research relating to the application of program budgeting in education. In his attempt to develop a model for a public school program budget, he analyzed the reported duties and assignments of school personnel and used a budget document to determine program

costs. His conclusion was that expenditures for debt service and capital outlay were impractical items for distribution to program costs (Fitzsimmons, 1966).

Chamberlain (1967) developed a program budget for education at Stanford University and concluded that it did aid in the achievement of objectives; he noted a corollary purpose of increasing efficiency in the process of achieving objectives. He included a feedback mechanism which would help to shape decisions, in his concept of a program budget. Chamberlain (1967), determined a need for balancing programs by including revenue expenditures, and ending balances, most of which are frequently omitted as a practical simplification of individual program budgets. He stated that his study pointed to a need for a field test situation.

Hagen (1968), developed a three-dimensional program budget format for public schools. Hagen discovered that program budgeting is strongly influenced by three distinctly different purposes: (1) annual budgeting, (2) cost accounting, and (3) long-range planning. His study centered primarily on the annual budget, and elements considered as programs for implementation fell into one or more of six fundamental categories: (1) type of school, (2) object-function classification, (3) restricted income, (4) curriculum, (5) instructional media, and (6) social purpose.

Schick (1966) reviewed program budgeting in the various states and noted that although program budgeting was

acclaimed as one of the major administrative reforms in this century, it had failed to achieve the promise of its early years. His general conclusion was that program budgeting had received limited acceptance in the various states in which it had been introduced.

Within the current literature, performance budgets and program budgets are discussed with a high degree of similarity. According to Mosher a performance budget is similar in many respects to the program budget although he indicates that a performance budget tends to have a greater focus on specific functions of programs. Mosher also suggests that the central idea of a performance budget is "deceptively simple," but he notes that "the budget process is focused on programs and functions--that is, accomplishments to be achieved, work to be done (1954:79)."

The performance budget, as referred to by Akerly, suggests that "instead of thinking of money alone . . . citizens should hear children singing in the spring concert . . . feel that school roofs are tight and walls are safe . . . and see fishing in Alaska with children in the fifth grade" (1951,:37).

Thomson (1968) in projecting beyond the function of program budgeting, also notes that some revision must be made of the accounting system. This would likely involve basic changes in the nomenclature of the chart of accounts.

Johnson, (1968), in his staff paper, outlined steps

in planning for program accounting and suggested a format for a program structure. He described his paper as a preliminary introduction to program accounting and noted it as an exploration into a new field for the operation of a school system, in which the combined efforts of the staff would be utilized, in its development. He stated that program accounting as a relatively new practice combines budgeting, curriculum evaluation and long-range planning. As suggested by the Midwestern States Educational Information Project (MSEIP), Johnson (1968) presented the following as steps to be considered:

I. Steps in Planning Program Accounting

- A. State measurable objectives.
- B. Assign priorities.
- C. Determine alternate plans.
- D. Assign financial estimates.
- E. Select alternatives.
- F. Place system in operation.
- G. Analyze and evaluate system.
- H. Review objectives.
- I. Review and prepare alternative plans.
- J. Return to Step C and restart cycle.

The following is a preliminary plan which is intended to itemize factors which might serve effectively in structuring a program.

II. Format of Area Programs

- A. Introduction or overview.
- B. Program objectives (measurable).
- C. Structure of the Program.
 1. Planned program meeting the objectives.
 - a. Consideration of the curriculum.
 - b. Methods and techniques.
 - c. Alternatives.

2. Staffing requirements - criteria
 3. Class load.
 4. Supplies required to meet objectives (alternatives).
 5. Equipment required to meet objectives (alternatives).
 6. Time requirements to meet objectives (alternatives).
 7. Enrollment projections.
 8. Plant facilities to meet objectives.
 9. Long-range estimates.
 - a. Items required.
 - b. Facilities.
 - c. Staffing.
 - d. Cost of program.
 - e. Per pupil costs.
 - f. Analysis of Costs.
- D. Place system in operation.
- E. Evaluation procedure.
 - a. Measurable evaluation directly referable to the objective.
 - b. Analysis of results with recommendations.
- F. Restart cycle for refinement and development of the program. (Johnson, 1968:7-8).

In writing on problems in municipal management, Martin, observes apparent confusion over the terms "performance budgeting," "program budgeting," and "planning-programming-budgeting" in the literature of public administration. Martin admits that performance budgeting might be considered a further sophistication of program budgeting but purports that performance budgeting has as its primary objective the measurement of costs for each unit of service provided. Martin further observes that as a practical matter such attempts to measure all performance in terms of service-unit costs ends in agency frustration and disappointment and a failure to accomplish the degree of precision anticipated (Martin, 1967).

Further, Martin suggests that a key to understanding

the effective application of program budgeting is to recognize its primary objective of developing a meaningful basis for policy making. He observes, that program budgeting, goes beyond the performance budget in giving full consideration to possible alternate objectives. He also notes that "program budgeting, like performance budgeting, is yet another management technique which offers a promising alternative to present municipal budgeting procedures, and concludes that program budgeting at best significantly improves the body of knowledge made available to the administrator (Martin, 1967:266-267)."

PPBES in Education

According to Hartley (1966) PPBES is a systems approach in educational planning. He states in considerable detail the potential of PPBES in education, the problems encountered, the considerations necessary, the needs that are evident, and related experiences that will assist those who undertake to implement PPBES in education. He sees considerable promise in PPBES as an aid to the administrators of school districts and encourages experimentation with it. The six components of the PPBES design that Harley identifies are:

- (1) systems analysis,
- (2) program structure,
- (3) multiyear planning,
- (4) cost-effectiveness analysis,
- (5) budgeting, and
- (6) evaluation.

Hartley noted that the six components or procedural steps, must be employed to phase in the total process successfully (1966).

Reference is made by Hartley that program review is a year-round process of evaluating and revising program objectives, performance, and costs. He observes this as the element which makes the system a dynamic one, and he looks for some organizational restructuring in education to help facilitate a provision within the annual budget cycle for periodic updating of objectives and programs (1969).

A model Hartley (1968) provides for PPBES implementation in a school district proceeds through four basic steps of (1) determining operational objectives, (2) designing programs, (3) allocating resources, and (4) assessing performance. In a subsequent model, Hartley (1968) provides an analysis of organizational interactions which recognizes cultural, social, economic and political forces which feed into the school district through expressed interests of the general public.

The national Committee for the Support of Public Schools (NCSPS 1968) suggests that PPBES can be good for education. The NCSPS sees PPBES as a key to the successful employment of all other management tools. The publication for the Center for Development of Community College Education notes that was one of the tools to be employed by decision makers in education, the primary contribution of PPBES is very likely its analytical process. It also sees PPBES requiring systematic development including the following steps which are considered basic to implementing the system: (1) needs assessment, (2) goals expressed as specific end results,

(3) program objectives, and (4) program structure (Hartley, 1968).

Greenhouse observes that the important question facing educators today is "whether and in what directions" PPBES may prove to be useful (1966).

In a broad context Schick sees PPBES and states that planning involves the determining of objectives, the evaluation of alternative courses of action, and the authorship of select programs. Schick points out that the major aim of PPBES is the appraisal and formulation of future goals and policies. He also states that the management process is visible over the entire cycle, ideally linking goals made and activities undertaken. In program budgeting, he states, the all important aspect is objectives and purposes, and the intermediate aspects are work and services, the process of converting resources into outputs (Schick, 1966).

Some experimentation with PPBES has been undertaken at the Skokie, Illinois, school district. Gibbs, Superintendent of Schools, directed the reclassification into program budget format of the budgetary expenditures for the primary and elementary schools. Gibbs stated that PPBES appeared both promising and attractive, and he also concluded that a great deal was learned about the school system by developing a program budget as part of PPBES. In Gibbs' opinion PPBES is primarily concerned with the following aspects: (1) developing a program budget, (2) in each program, identifying

specific objectives, (3) measuring gains toward objectives, (4) developing long-range planning, and (5) in a systematic way considering the most effective means for obtaining stated objectives. Also, in the Skokie project the model for PPBES emphasizes the utilization of data in the decision-making process (Gibbs, 1968).

McGivney (1969), who served as Project Director of the National Development Institute in PPBES, the Ohio State University, relates PPBES to vocational education in a national periodical and sees it as making a significant contribution to more rationale decisions in education. He perceives PPBES as having an impact on the restructuring of the administrative organization of school districts.

Poindexter (1969) focuses on PPBES in education and presents a model which incorporates systems analysis, feedback, and commitment as prominent characteristics in addition to the usual components of the system.

Another current attempt to move toward the implementation of PPBES in school districts is a massive project undertaken by Curtis (1968). The project will take into its operation the entire budgetary scheme of the school districts and will attempt to encompass the entire school operation. This project states as its purpose the design of an integrated system of program planning-budgeting-evaluation for local school system.

Curtis (1969), cited a need for more school systems

and state departments to become interested in such projects. He encourages experimentation with PPBES in education, forecasts its value, and predicts implementation in the future.

To date, most of the school districts have developed program budgets rather than PPBE systems. The former being a financial accounting system, while the latter refers to the total systems approach. However, the school districts are now attempting to focus to a greater extent on the planning and development of educational programs.

Two of the most promising projects in PPBES are being prepared by:

1. The Fels Institute of Local and State Government, University of Pennsylvania (1968). Additionally Fels is in the process of preparing a general design for an educational PPBE system for its five Pennsylvania Counties (1970). Their study includes the development of procedure manuals and instructions, specific files and forms, and computer programs.
2. The Department of Educational Administration, Ontario Institute for Studies in Education in cooperation with the Systems Research Group (1970). The Ontario project entitled, "System Analysis for Educational Management" proposes to design a model for educational planning and management, install it in a school system, assess its utility and practicality, and disseminate the model to

and state departments to become interested in such projects. He encourages experimentation with PPBES in education, forecasts its value, and predicts implementation in the future.

To date, most of the school districts have developed program budgets rather than PPBE systems. The former being a financial accounting system, while the latter refers to the total systems approach. However, the school districts are now attempting to focus to a greater extent on the planning and development of educational programs.

Two of the most promising projects in PPBES are being prepared by:

1. The Fels Institute of Local and State Government, University of Pennsylvania (1968). Additionally Fels is in the process of preparing a general design for an educational PPBE system for its five Pennsylvania Counties (1970). Their study includes the development of procedure manuals and instructions, specific files and forms, and computer programs.
2. The Department of Educational Administration, Ontario Institute for Studies in Education in cooperation with the Systems Research Group (1970). The Ontario project entitled, "System Analysis for Educational Management" proposes to design a model for educational planning and management, install it in a school system, assess its utility and practicality, and disseminate the model to

other school systems. One of the main tasks of the project is to design, install, test, and modify a PPBE system. The project is being carried out in cooperation with the York Borough Board of Education and should be operational in the early 1970's.

Educational Objectives and PPBES

The literature on PPBES has a continuous reference to objectives. Hartley (1968) suggests that after preparing a formal statement of educational philosophy for the school district as a whole that the objectives for instructional programs can be derived. He states that the constructing of exhaustive lists of very specific instructional objectives is not desirable and would render a program budget practically useless; he suggests that some kind of classification scheme for objectives be devised by school district personnel. Hartley further suggests that the well-known "Taxonomy of Educational Objectives" as developed by Bloom (1956, 1964) and others might be consulted by school planners in arriving at possible objectives classifications.

In concluding the discussion on objectives Hartley states that the "importance of defining objectives operationally cannot be overemphasized. Precise statements of desired outcomes are essential.

According to Gibbs objectives need to be stated in behavioral terms as a step toward measuring gains and

considering options; he also states that developing evaluation measures is presently the most difficult portion of PPBES to implement and that means of evaluating cannot be separated from the work of stating objectives (1968:52-53)."

Thompson has stated that educators who venture into PPBES find that there is a lack of definitive objectives for education stated in operational terms. According to Thompson objectives must permit evaluation of results with respect to costs. He states that an objective which is operationally stated "defines learner behavior which is identifiable or observable, expresses the conditions under which the behavior is to occur and according to standards of quality (1968:282)." Thompson concludes that two basic conditions necessary for PPBES to succeed are costs and objectives.

Coster and Ihren inform us that recent studies of the goals and objectives of vocational education have a primary emphasis on verifying the appropriateness of existing objectives. According to them objectives have been stated in rational rather than empirical terms and seldom have objectives been defined as measurable products involving a component of time (1968).

Coster and Ihren (1968) see the definition of goals and objectives as a social process conditioned by political realities and economic development. They state that research should be directed toward how goals and objectives may be

attained, the extent to which they have been attained, and alternate processes of attaining them.

According to a publication on PPBES Hartley (1968) states that in education, planning is poor and planners and budgeters do not communicate. This same publication points out that goals stated for education are seldom quantified or specified, and that objectives which lead to the accomplishment of goals tend to be "fuzzy."

The Institute on Governmental Affairs in their 1968 publication notes that a goal is generally defined as "the end to which a design tends" and suggests that a goal represents the ultimate aim of a program. Objectives are seen as intermediate points to be reached in achieving goals. In the above publication it is also pointed out that effective goals must be relevant, change-oriented, challenging, results-oriented, and compatible with objectives of other programs. This publication "Guidelines" also suggests that the job of subordinate administrators is made easier by the establishment of goals and program objectives at higher levels in the organizational structure since they serve as an effective framework for evaluating program effectiveness. Goals and objectives need to relate to the future, but realities of the present conditions must be also considered--that is, contemporary problems and issues, and present levels of accomplishments, must be taken into account. "Guidelines" also recognizes the establishment of goals and program objectives

as serving at least two very important management functions: (1) establishing organizational planning, and (2) determining needs for management information.

According to Buchmiller (1963), education is basically a service which is not easily translated into performance units and cost analysis categories. He points out that services fall into categories of value judgments and acceptance of program costs hinge largely on subjective and emotional values. Buchmiller further states that program administration must address itself to defining and grouping kinds of services and activities which are similar. In his conclusion he states that there is a need for performance data and performance measures or indicators, and he considers the meeting of those needs to be an important part of the administrators responsibility.

Difficulties may be faced in implementing a PPBES and in defining objectives, but public leaders ask for more definitive measures of education. The Speaker of the California Assembly, Unruh, stated the case effectively in 1967 when he exhorted that "the politician of today is unimpressed with continuing requests for more input without some concurrent idea of the school's output (1968,:1)."

Although PPBES might not reduce expenditures for education or its demand for resources, it can enhance the potential for education to attain greater resources and should help to demonstrate the effective utilization of those resources through stated objectives which are evaluated.

In the Alberta Government, Department of Education recent publication on Program Accounting and Budgeting Manual (1972), in mentioning Goals and Objectives, they state as other sources of literature on PPBES, that there are many levels of goals and objectives. Schools have varying problems, and therefore may have varying goals and objectives. Within each school, because of differing capabilities and capacities of groups of students, two teachers who are handling the same course may have slightly different objectives for their students. It cannot be expected that the two classrooms will have exactly the same objectives whether they be within the same system or widely separated. Because of this factor, it may be impossible for a comprehensive list of specific instructional objectives to be provincially mandated. However, a suggestive list is possible. In many cases although the goals and objectives will be similar, the emphasis between and among these goals and objectives will differ from system to system and from classroom to classroom.

The same source also states that, the goals of a school system chart the general direction in which it is moving. However, goals must be delineated in order to be useful in terms of analysis or evaluation. They further stated that the finest delineation of these goals is behavioral in nature. Behavioral objectives are highly specific and indicate precisely both the response desired from each student and the criteria for evaluating the results

of the program. The less explicit these behavioral objectives are, the more difficult will be the task of measuring the results of a certain program.

In this manual, it has been stated that behavioral objectives have several characteristics. Ideally, a well-defined behavioral objective should:

- (a) Use the active form of the verb.
- (b) Specify the behavior expected from each student.
- (c) Specify the number or percent of students expected to achieve this objective.
- (d) Indicate how achievement of this objective will be evaluated.
- (e) Indicate the length of time in which it is expected that this objective will be achieved.
- (f) Indicate a "cost no more than" criteria (1972:198).

Each goal may have several behavioral objectives which contribute to the achievement of that goal. Each behavioral objective may have several activities which are related to the achievement of that objective. Each behavioral objective may have several evaluative criteria corresponding to it. Particularly in the cognitive areas of instruction, behavioral objectives can be very highly defined. However, in the affective domain, it is difficult to specify the learning behavior or to determine the level of achievement. Unless a great deal of work is undertaken in originally defining these behavioral objectives, there is the danger that the affective areas of learning may be neglected because of the difficulty in defining behavioral objectives for these areas. The

cognitive areas can often be measured in terms of standardized tests or teacher-made tests. The affective areas may depend on indicators other than testing criteria. Indicators may be either quantitative or qualitative. That is, a quantitative indicator can be expressed numerically. An example might be: 90% of the students will attend drama festivals voluntarily. A qualitative indicator, on the other hand, often cannot be expressed numerically with any degree of precision. An example of this might be: parents feel that . . .

Objectives which are stated operationally or behaviorally, and which relate so closely to one of the basic requirements of PPBES, are also of current concern to many educators in a more general realm of concern. Perhaps attesting in part to this concern is the establishment of an "Instructional Objective Exchange" as a major project of the UCLA Center for the Study of Evaluation. The Center's recently established Exchange "will collect and make available for distribution to school personnel throughout the nation sets of operationally stated instructional objectives and related evaluation measures" (Popham 1968:192-1933). Materials to be made available will cover several subject areas and various grade levels. It is further indicated that the Exchange was instituted in response to increasing support on the part of American educators for such objectives.

Mager (1962) provides for teachers a valuable aid to writing behavioral objectives. He sees an objective as "an intent communicated by a statement describing a proposed change in a learner" (1962:3). Mager sees well-stated,

appropriately selected objectives as providing needed direction for both the teacher and the student allowing an evaluation of progress and accomplishment to take place. Instructional behavioral objectives, Mager points out, have the following characteristics:

- (1) description of the intended outcome of instruction,
- (2) definition of terminal behavior that communicates instructional intent to the reader.
- (3) identification of the observable act that will be acceptable as evidence of the learner having achieved the objective, and
- (4) description of the conditions under which behavior will be observed so as to exclude acts that will not be accepted as evidence of achievement (Mager, 1962).

A series of articles appearing in The Science Teacher (1968) focuses on behavioral objectives in science education. Montague and Butts (1968), inferred that behavioral objectives enjoy more popularity than understanding and they go on to state that basically objectives to be useful must project some specific outcomes of learning. They point that the writing of behavioral objectives is a simple process that involves three considerations: (1) the behavior, (2) a description of the situation in which the behavior is observed, and (3) the extent to which the student should exhibit the behavior. They also note that such objectives increase relevancy and improve planning and instruction; they further

note that most current efforts describe objectives in the cognitive domain of Bloom's taxonomy and that considerable effort needs to be given to developing objectives which relate to the affective domain. Atkin provides a cautionary note in the behavioral objectives trend. He particularly notes that "behavioral objectives enthusiasts are warmly endorsed and embraced by the system and operations analysis advocates, most educational technologists, the cost-benefit economists, the planning-programming- budgeting system stylists, and many others (1968:27)." Atkin acknowledges a "forceful tide" established today by the above mentioned persons. He further admits that behavioral objectives can be good for education and that a world of education research opens when reliable measures are used to evaluate educational output. However, Atkin cautions, that some outcomes of learning may be impossible to anticipate since the interaction of real people causes objectives to change in the teaching-learning process. He further sees a danger in the possibility that instruction will tend to emphasize those elements which have been behaviorally identified. Atkin also suggests that behavioral objectives might tend to restrict behavior and limit innovation and suggests that effective curriculum development begins with general objectives based on sound philosophies.

Atkin (1968), discusses the experiences of teachers in the Carlisle, Pennsylvania, School System in writing behavioral objectives. The teachers in this system were

deemed "the logical source of persons who could best design and develop the objectives which would reflect the characteristics of the graduates (Atkin, 1968:32)." McDermott (1968), Chairman of the Science Department, states that desirable change was evident in many of the project personnel as they participated in the project.

Atkin (1968), discussed behavioral objectives as a "key to planning." The discussion indicated that the desirability of stating objectives in behavioral terms is hardly debatable. It also suggested that the enhancement of teaching effectiveness comes when a shift in emphasis from measurement of mastery of content to measurement of achievement of objectives occurs. He sees the development of behavioral objectives taking place in a four-phase procedure with objectives requiring careful nurture and proper treatment before they mature into a realized goal. The four-phase process incorporates activities which interact and which are not entirely dissimilar to PPBES characteristics:

Phase I --Objectives stated in behavioral terms;

Phase II --Appropriate learning experiences based on
stated objectives;

Phase III--Evaluation objectives;

Phase IV --Analysis and revision of objectives to be
restated in behavioral terms.

Ristau (1970) describes a filmstrip on "Selecting Appropriate Instructional Objectives," in the narrative portion states that there can be a tendency to state behaviorally,

trivial activities in the teaching-learning process and to exclude important activities which are difficult to state behaviorally. The filmstrip challenges viewers to focus on the significant activities and to strive to relate the principles of behavioral objectives to all worthy goals and objectives of instruction. This caution seems particularly appropriate for educators faced with preparing objectives for the PPBES budget document.

Dmetrichuk stated that "The objectives, are to endow the individual with sufficient knowledge, skills, cultural and human appreciation and acumen to become a useful member of society in the interests of himself and his fellow man. To accomplish these objectives, the educational process must foster the personal attributes of self-reliance and independence of thought and action . . . such an education will prepare the individual to cope with change in society (1973:2)."

Limitations and Precautions

For education, PPBES seemingly holds real promise, but, as with much that is good, there are dangers and pitfalls to be noted. Hartley (1960), an admitted proponent of PPBES, notes some important limitations to systems approach in education. He hopes that his discussion will provide a more realistic understanding of the advantages of systems analysis. Hartley sees goal distortion, measuring the unmeasurable,

and cults of testing and efficiency among the limitations. He also sees some new systems approaches, including PPBES, as "doomed to success" if they are evaluated by the same persons who initiate them. He further observes an "image problem" which can occur from misunderstandings of what systems procedures require and can accomplish.

Hartley cautions against attempts to place an over-emphasis on objectives that can be stated readily in behavioral terms and measured by simple recall or direct skill application. He also perceives a danger of some educators to adopt only the jargon of innovations such as PPBES and to fail to respond to the "rigorous requirement of specification." Hartley further states that it is easy to exaggerate the extent to which PPBES can assist schools and calls for a high degree of collaboration and dialogue among educational specialists when PPBES is implemented with a plea that planning come from within the profession itself (Hartley, 1968).

Curtis warns against trying to relate only to measurable goals and objectives and explains that the Research Corporation of the Association of School Business officials (ASBO) model for PPBES will attempt to provide room for including those objectives of education which are valid and important but not necessarily subject to precise measurement (Curtis, 1969).

In the conclusions and recommendations, the ASBO

"First Year Final Progress Report" draws attention to apparent confusion over terms such as "PPBS," "PPBES," and "program budgeting" and suggests that the project be renamed "Education Resource Management Design: (ERMD) to better convey the real purpose of the new management system to be developed (1968). The HEW Secretary's Newsletter refers to the danger of the image of a dehumanized concept, and an answer is provided by PPBS specialist Gorham:

Another difficulty was the notion that PPBES was mechanical and inhuman. People visualized data being fed into a computer and important social decisions coming out. That's nonsense! We are using computers to help us manage data and to do complex calculations, but we aren't about to create an 'Instant Decision-Maker' which will replace judgment, common sense, and compassion (Gorham, 1967:4).

Hartley refers to the problem of computer involvement in his discussion of limitations of systems analysis. He admits that some believe the system can be operational only with "a staff of highly specialized systems experts backed by an expensive computer installation (1968:212)" but observes that to be a misconception.

Poindexter states that a multitude of difficulties and problems can accompany any attempt to implement a PPBE System to aid educational decision-making. He further notes that PPBES as a goal may never be totally or adequately accomplished but rests with the conviction that "a School system can operate at a higher level from the attempt to implement PPBES, regardless of the outcome (1969:212)."

Summary

This chapter presents a review of the literature on PPBES in education. The demand being placed by education on the financial resources of the economy has increased the public's concern for accountability of the educational enterprise. A need is evident to communicate more effectively with decision makers and the general public regarding costs, objectives, and accomplishments of educational programs.

The principles of a Planning, Programming and Budgeting Evaluation System (PPBES) have been used in the private sector over several decades; recently PPBES was used with success in government. The adaptation of PPBS to education is recognized by various authors as being desirable, but relatively few attempts have been made to develop a PPBE System in an operating school district. Activities which have been undertaken with respect to PPBES in education generally have not involved the program specialists--that is, the teacher--in any meaningful way. Ways of involving teachers in the initiation of PPBES and in the developmental activities related to it is a major problem of concern. Another problem is the requirement of PPBES for program objectives which are quantifiable and measurable as well as for those program objectives which are not quantifiable and immeasurable.

A review of the literature reveals a need for methods

and procedures in education in PPBES, which would provide direction for school districts which desired to undertake the initiation, development, and operation of PPBES in education. The business education program is deemed desirable. However, other instructional programs, will encounter problems when involved with PPBES that are different from those of business education. Objectives in the cognitive and psychomotor domain of Bloom's (1964) Taxonomy of Educational Objectives are more evident in the Vegreville business education program than in some other instructional programs. A limited number of objectives in the business education program are in the affective domain.

The PPBE system requires an extensive period of time for complete development and additional time beyond this thesis will be required for its operational effectiveness.

Considerable attention is given in current educational literature to PPBS in education and to various concerns related to its implementation and acceptance. Actual research which has been conducted to date in this area, although somewhat limited, makes a contribution to knowledge of educational program budgeting and concerns related to this study.

Success with PPBES in the Department of Defense led other units of federal government into similar activities. Early efforts with PPBS concepts or components in private industry are mentioned by several authors. Contributions of PPBES to year-round planning, analyzing, and evaluating are

among benefits perceived. Governmental committees perceive PPBES as a possible tool for improving governmental efficiency and quality of operation. State, provincial, and county governments also have turned to developmental activities related to PPBES.

The program budget is seen as a vital part of PPBES and furnishes desirable information not contained in traditional budgets. Research activities shed light on the potential of the program budget in education. Similarities are noted between performance budgets and program budgets, but confusion in the use of terms is noticed.

Components in the PPBES design and procedural steps for education are presented in some models for PPBES in education. PPBES is seen as a management tool of promise for education, but questions are being raised in terms of future directions for PPBES in education. Objectives and purposes are seen as an important aspect of PPBES. Activities in PPBES experimentation include a project of national scope as well as some localized attempts to develop PPBES in some form.

Educational objectives for PPBES must communicate desired outcomes. The lack of definitive objectives in education pose a problem for those who would implement PPBES. Setting objectives for education is a complex process and various outcomes suggest ways of looking at goals which might aid education in being more specific in expressing its intended accomplishments. There is a public demand to understand better what the educational process accomplishes.

Behavioral objectives in education relate to the needs of PPBES; characteristics of behavioral objectives are similar to those desired for PPBS. Attempts to develop behavioral objectives in education lead to some cautionary notes that all educational objectives cannot be measured in terms of observable, terminal behavior. A dangerous tendency to overemphasize objectives which can be stated behaviorally is noted.

The systems approach to educational finance holds promise, but it also contains some inherent dangers. PPBES need not dehumanize the educational enterprise nor replace common sense judgments. Attempts to implement PPBS in education may be rewarding and may provide valid data for educational decision makers.

CHAPTER III

PROPOSED PLAN AND PROCEDURES

Introduction

The problem of this thesis is stated in Chapter I. The literature is reviewed in Chapter II with particular attention to the importance of objectives, planning and the determination of vital factors relating to PPBES by members of the educational profession.

This chapter presents a model suggested by Barro extrapolated from the work of authors cited in the previous chapter (Novick, Dei Rossi, Haggart, Rapp, Carpenter, 1969).

One of the objectives of the thesis is to provide theoretically based guidelines to facilitate the potential implementation of PPBES to the Vegreville System. Further this model is considered to be a vital component from which these guidelines will be derived. Therefore, this model is presented in a separate chapter to clarify its major concepts and thereby facilitate the application of the model to the Vegreville system of PPBES in business education.

This chapter is organized into three separate parts. The first part elucidates upon structural components of the model while the second part deals with the aspects of efficiency and effectiveness as these concepts relate to the theoretical framework of PPBES. The third part presents a brief

consideration of one method of evaluation of a new program, namely PPBES.

The presentation of this model begins with the discussion of factors implicit in Barro's theory. The constructs of generality and compactness are touched upon. One of the key questions seems to be: How do choices about any given district and its programs affect educational and financial outcomes under given conditions? Consequently, resource allocation decisions and possible alternatives are explored. Vertical organization of schools and possible assignment of students to programs is considered. Finally, curriculum composition and instructional design are developed in this section of the chapter.

The second part of this chapter considers an analysis of the concepts of effectiveness and efficiency as it applies to PPBES. The chapter concludes with a suggested model for evaluation of new programs in the subject area.

Modeling the Program of a School District

According to Barro (1960), the purpose of the analytical part of program budgeting is to provide a school district with capability to systematically examine the consequences of decisions about its educational program. The product of analysis is information in the form of projected costs and benefits of proposed courses of action. Most of the work that goes into analysis has to do with developing methods

for making consistent estimates of resource requirements and educational results of alternative district programs, so that these may be evaluated, compared, and presented to those with the responsibility to choose.

Barro states that the concept of modeling is central to the analytical effort. Models are the principal tools used in estimating program consequences. By developing generalized models of its activities, a district can acquire both the capacity to look at wide ranges of alternatives rather than merely a few, and a guarantee that the alternatives have been examined consistently. Neither of these is available with ad hoc methods of program analysis.

A model, in this context Barro (1969) informs us, consists of a set of quantitative relationships among variables that enter into the determination of program benefits and cost. The set of relationships is structured so that a description of the school district, either as it is or as it might be, can be translated into estimates of the resources needed to operate the district in the specified manner or of the educational results that are likely to be forthcoming. When such models have been developed, the analyst is in a position to formulate a description of the district at some future date, and then to vary any of the characteristics in the description and observe the consequences. Thus, the models may be said to simulate the operation of the district under a variety of conditions.

As a practical matter, models of school district resource utilization and cost, on one hand, need to be sharply distinguished from models of educational results or benefits, on the other. The two classes of models differ in complexity, the kinds of data and techniques they require, and the feasibility of operational use in school districts in the near future. The methodology of resource and cost modeling is relatively advanced as a result of much work in other fields and is available for application to school district planning. The methodology of "effectiveness" modeling is relatively undeveloped both in education and in other fields. In education, in particular, conceptual advances and considerable empirical research will be required before it is possible to establish valid predictive relationships between program characteristics and educational results. Therefore, much of this focuses on the more developed area of resource and cost modeling. However, an effort is made to show how effectiveness modeling fits into the picture and to indicate some of the special problems needing resolution before effectiveness models can be made operational.

Resource Allocation Decisions and Alternatives

Analytical modeling of the district is intended to aid school officials in making resource allocation decisions that may be defined as choices among alternative uses and deployments of economic resources. This takes in a broad area since the term 'resources' embraces such diverse items

as school buildings, instructional materials, the labor of all types of personnel in the educational system, and even, for some purposes, the time children spend in school.

Resource allocation questions arise in a great many concrete forms:

1. What size schools to build and how many of them.
2. Whether to adopt a compensatory program for disadvantaged students.
3. Whether to spend additional instructional time on reading.
4. Whether to invest in educational television or other technological aids.
5. Whether to adopt team teaching methods, or ungraded schools, or to provide teaching aides in the classroom.
6. Whether to use bussing as a means of achieving school integration.
7. Whether to spend the money needed to reduce class size. (Barro, 1969:65).

All of these are problems requiring choices among alternative uses of resources. It is understood, of course, that one alternative is always to do nothing or to continue doing things the same way as before.

According to Barro (1969), there may be an alternative to an existing program with certain differences in its specifications. The differences may be quantitative; for example, the two programs may differ in average class sizes. The differences may also involve discrete differences; for example one program may call for building two elementary schools enrolling 500 students each, and the other may require one

school enrolling 1000. Differences may also be qualitative: One program may call for graded schools and the other for ungraded schools. Typically, alternatives for resolving an issue might differ in a number of program characteristics. Of two programs designed, say, to improve education for the disadvantaged, one may call for graded schools and the other for ungraded schools. Typically, alternatives for resolving an issue might differ in a number of program characteristics. Of two programs designed, say, to improve education for the disadvantaged, one may call for more teachers, fewer para-professionals, different instructional equipment, and less classroom space than the other to serve the same number of pupils. The job of the analyst is to translate the specifications of each relevant alternative into the cost and effectiveness information needed by the decision maker.

Two important considerations in selecting a set of variables to represent educational programs are generality and compactness. "Generality" needs to be understood in two senses. First, the set of variables must be flexible enough to characterize a great many ways of organizing and operating a school district. It is especially important that it be able to accommodate novel or innovative forms of education so that the analytical framework itself does not inhibit imaginative responses to issues. Second, the universality can probably only be achieved in part, since some issues and circumstances are inherently local. However, it is worth

working for, because a generalized representation of district programs is a prerequisite for development of broadly applicable tools of cost and effectiveness analysis (Barro, 1969).

"Compactness" means that programs can be described with an analytically manageable number of variables. It is important because a school district is intrinsically a complicated system. A large number of interdependent variables would be needed to provide a really complete, or true-to-life description of its activities. Given this complexity, and at the same time, the need to develop a broadly applicable analytical framework within which a reasonably concise set of constructs and categories may be applied to many districts and many kinds of resource allocation questions, it is fortunate that it seems possible to aggregate data and eliminate much detail without losing information that is essential to decision making (Barro, 1969:67). This is important simply in terms of the effort required if we are to analyze and compare numerous program alternatives and if analyses are to encompass a multi-year planning period. An important aspect of the "art" of model building is to select appropriate levels of detail for representing each aspect of the educational program.

A Public School System as a System

Although aggregation and simplification makes the

problem more manageable, there are still many variables that must be taken into account in constructing a model of resource allocation in a school district. The following model identifies the major classes of variables that enter into such a model and presents a very general picture of their interaction. It shows that certain externally determined magnitudes, such as projected enrollment in the district and certain specifications of the educational program established by school district managers, combine to determine levels of educational activity, resource requirements, financial requirements shown in the budget, and educational output or effectiveness.

Three kinds of variables are represented by the boxes in this figure. First, there are certain magnitudes that are "given" from the point of view of the district planner. The most important one of these is the projected enrollment for the district, which the educational planner must try to estimate, but over which the district has practically no control since education must be provided for all children within its bounds. Another "given" is the existing physical plant of the district, which was shaped by decisions made in the past, but which must be considered fixed in the context of current planning (except, of course, that there is the option to abandon parts of it). Other variables that are "given" include certain externally determined constants that enter into determination of program cost, such as some of the prices that the district must pay for the resources it purchases.

OVERALL STRUCTURE OF A MODEL OF A SCHOOL SYSTEM

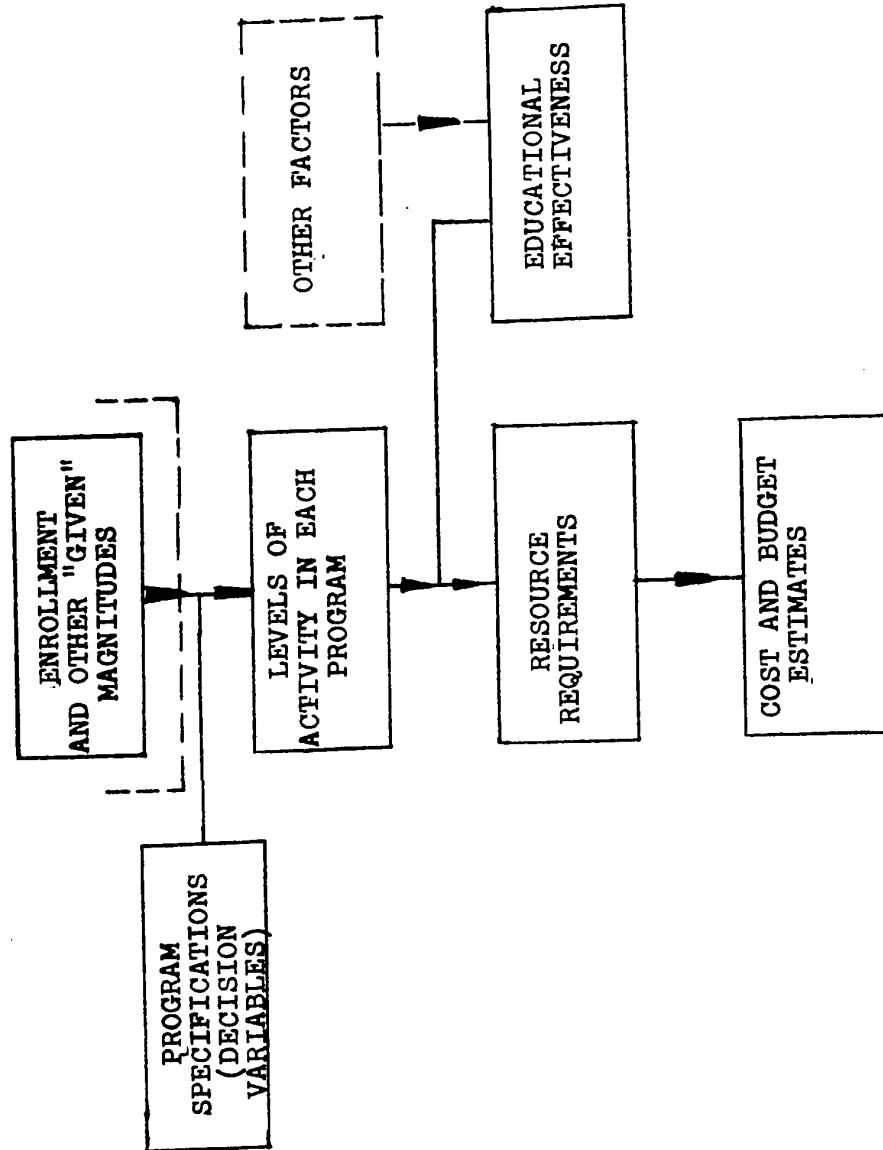


FIGURE I

Incidentally, the price of educational man-power--teachers' salaries--does not fall into this category. All of these magnitudes are known as predetermined variables, signifying that they are determined before, or independent of, any decisions taken by the district. The predetermined variables are set off by dashed lines in Fig. 1 to show that they are determined independently of current decisions.

The second category of variables with which we are concerned are the variables controlled by the school district decision maker. These are the decision variables or policy variables in the system. They are of central interest in program analysis since they are the variables that district administrators can manipulate and that are the subject of controversy in debates over educational issues. They are represented by oval figures in the diagrams.

The remaining variables are the internal variables of the system. They are variables that no one sets directly, but that are determined by the choices embodied in decision variables and by the "givens" of the system. An example of such a variable is the amount of third grade teachers in the system, a number that is not decided directly but that emerges as a result of there being so many third graders enrolled and of our deciding to teach third graders certain subjects in a certain way. The elements of the district budget, which are determined by almost the entire constellation of given conditions and decisions taken about the district and its

programs, constitute one set of internal variables. Another set of internal variables represents the effectiveness, or "educational output" of the district. In a sense, educational effectiveness and the district budget are the endpoints of the system. As such, they may be designated target variables to set them apart from other internal variables that perform an intermediate role.

In terms of these variables, the purpose of the system-analytical aspect of educational program budgeting is to understand how changes in the decision variables affect the target variables subject to given values of variables that are predetermined. Or, in simpler terms, how do choices about the district and its program affect educational and financial outcomes under given conditions?

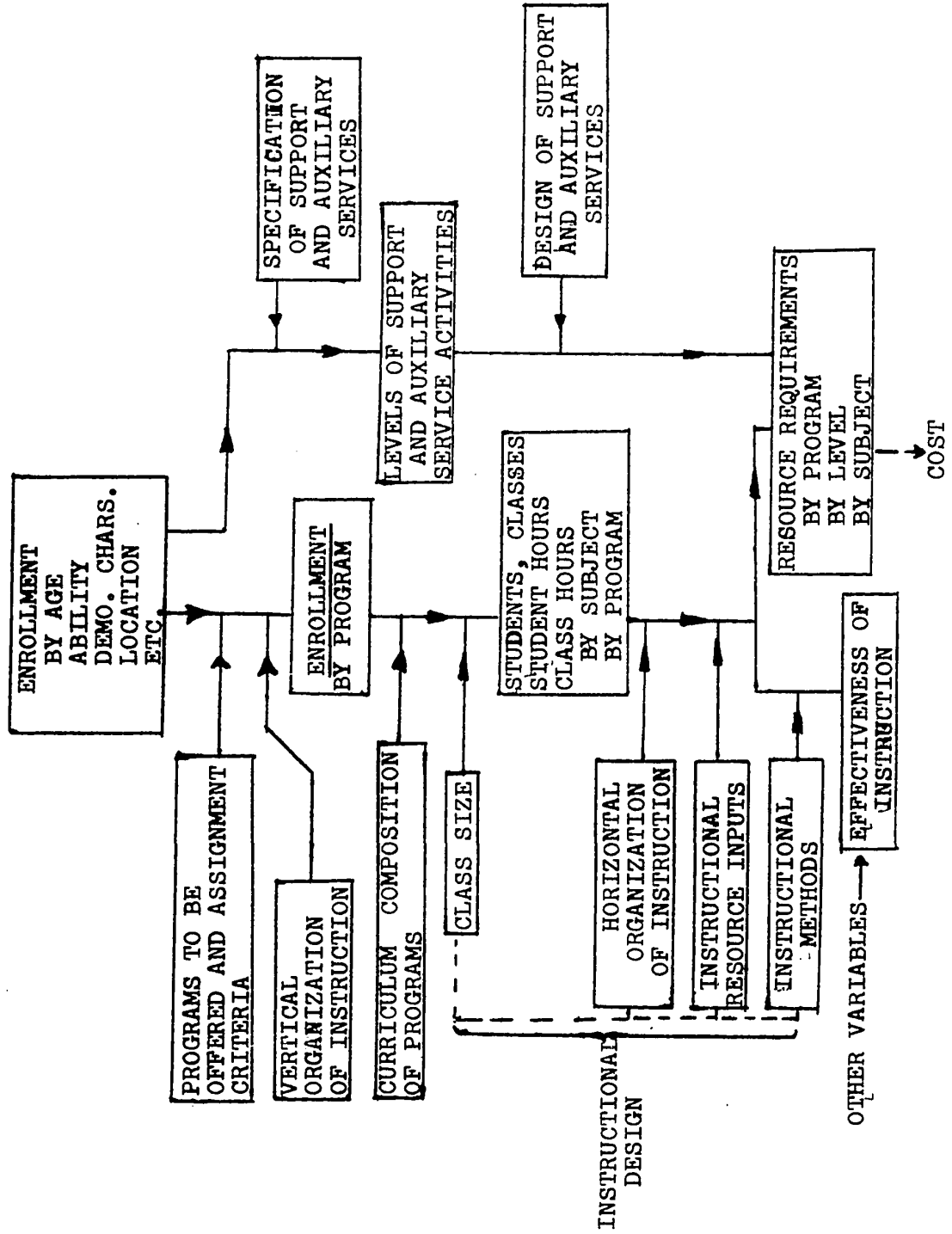
Major Decision Variables in the System

Barro (1969), in Fig. 2 provides a more detailed representation of the relationship between the educational programs and resource requirements of a school district. The illustration shows how a number of decision variables define the district's instructional and other programs, and how this set of specifications then determines levels of program activity and resource requirements in Fig. 2.

Next we examine in some detail the principal variables that enter into the systems and we attempt to lay out the logic of the relationships among them.

SCHOOL SYSTEM DECISIONS, PROGRAMS, AND THEIR IMPLICATIONS

FIGURE II



Selection of Programs, Vertical Organization of the Schools,
and Assignment of Students to Programs

In this section assume that the projections include information on future enrollment by age and by a number of other characteristics that might be relevant to program planning, such as prevalence of exceptionalities, certain demographic variables, and residence location within the district. These projections provide the data according to which students may be assigned to various programs.

Generally, a school district will provide different educational programs to different subgroups of the school population. One dimension of this differentiation is the vertical organization of instruction. Students are grouped vertically into grades or into other age/achievement groups, which in turn are usually combined into several broad levels. These may consist of elementary, junior high school, and high school levels; primary, middle, and secondary levels; or other arrangements. A second dimension of differentiation, in a program structure reflects specialization of instruction for students identified by certain significant characteristics. Four broad grounds for program differentiation are identified; ability or achievement; mental, physical, or emotional handicaps or exceptionalities; disadvantageous extra-school environments; and different student options with respect to career goals.

Therefore, a school system may be pictured as offering an array of programs to groups of students differentiated by

age or grade and by these four kinds of characteristics. However, not every public school system provides the same programs or defines them in the same way. One type of decision to be made by a school district is, what specific programs are to be offered and by what criteria or specific rules students are to be assigned to one program or the other?

Barro (1969), in Figure 3 shows how such a set of program specifications might be represented for a hypothetical school district. Each row represents a category of students for which the educational program is fully or partially differentiated from the regular instruction program. The columns represent the different levels of instruction. For illustration, these are shown as the most common groupings--preschool, kindergarten, lower and upper grade elementary, junior high school, high school, and junior college. All grade levels or any other form of vertical organization, such as the set of overlapping age-group secondary schools, could be shown in the same way.

Barro (1969), points out that an important characteristic of the programs shown on the chart is that some differentiations by type of student may exist only at certain levels. Vertical progression through a program is semi-automatic. In connection with some of the programs for remedial exceptionalities, crossovers to the standard program are a main indicator of effectiveness.

In the overall system diagram, once the district has

FIGURE III

SPECIFICATION OF PROGRAMS, VERTICAL ORGANIZATION OF INSTRUCTION, AND RULES FOR ASSIGNMENT OF STUDENTS FOR A HYPOTHETICAL SCHOOL DISTRICT

PROGRAM	PRESCHOOL	KINDER-GARTEN	GRADES 1-3	GRADES 4-6	GRADES 7-9	GRADES 10-12
REGULAR STUDENTS		AGE				
DISADVANTAGED	AGE INCOME LOCATION					
GIFTED				ABILITY ACHIEVE., PERSON- ALITY		
PHYSICALLY HANDICAPPED		MEDICAL DIAGNOSIS				
EDUCATIONALLY HANDICAPPED		ACHIEVE., PERSON- ALITY, PSYCH.				
OCCUPATIONAL TRAINING OPTIONS					STUDENT CHOICES, GUIDANCE	
COLLEGE PREPARATION OPTIONS						STUDENT CHOICES, GUIDANCE

specified the programs it will operate, including the vertical organization of instruction, and the rules to be used in assigning students to programs, it becomes possible to translate the projections of enrollment by student characteristics into projections of enrollment by program.

Curriculum Composition

An important reason for differentiating programs for different groups and levels, from the point of view of resource planning, is that, in general, they involve different kinds or different mixes of instruction, which have different resource requirements and costs per student. First of all, the curriculum may be different for each program. To find out what the resource implications are of having so many students in each program, it is necessary to define what activities and what resources each program comprises. Part of this definition is a specification of curriculum composition. This consists of an itemization of the subjects or courses of instruction to be included in the program for each level and type of student and a statement of the amount of time allotted for each subject.

Barro (1969), advises that there are several problems of measurement to be resolved in specifying curriculum composition. If instruction is departmentalized, as it usually is in high schools, it is relatively easy to specify the curriculum composition because we can count the number of students enrolled in each subject and the number of hours

spent, and produce a set of figures representing the amount of activity in each area of instruction. The natural unit of measurement is student hours spent in each subject per week or per month or per school year.

According to Barro, it may not be feasible to describe a district's curriculum by a time distribution, as for example, where instructional activities are highly individualized or organized in an interdisciplinary manner. This need not interfere with the resource and cost analysis process, but it is likely to pose difficulties in relating educational resources to outputs.

A method of representing curriculum composition is shown in Figure 4. In the illustration, programs by type of student and by level are shown across the top, and subjects are arrayed vertically. The entries in the table represent instructional time (in class-hours per school year) allotted to each subject within each program. The entries in the bottom row indicate the total time spent in school during the school year by students in each program. These entries subsume certain policy variables related to the overall operating posture of the district, such as the number of school days per year and the hours of daily attendance for students in different programs and levels. The illustrative entries in one column of the table show a hypothetical curriculum in upper-grade elementary school. Students attend school 6 hours per day, 180 days per year, for a total of

FIGURE IV

CURRICULUM COMPOSITION BY PROGRAM
(In class hours per year)

Programs by Subject Area	K	Regular			
		1-3	4-5	7-9	10-12
Intellectual skills					
Language and communication skills					
Reading			180		
Written language			75		
Oral language			60		
Quantitative skills			120		
Learning About the World					
U.S. and other societies			150		
The physical world and living things			60		
Literature and the arts			--		
Skills for everyday life			--		
Physical, social and emotional development					
Physical education			60		
Self-expression			120		
Occupational skills					
Total	540	900	1080	1260	1260

1080 hours per year. About one-fourth of the time, 255 hours, is used for lunch and recess and is included in the total. Although these activities are not specifically set forth in the table, they cannot be ignored, since they are resource-using activities. The remainder is distributed, as indicated, among the various areas of instruction.

Given this kind of a quantitative specification of curriculum composition, it is then possible to carry out the next translation, shown in Figure 2, previously cited, which is to convert enrollment into student-hours by subject and by program.

Instructional Design: Instructional Resource Inputs

The variables in the system that have the most direct relationship to resource requirements and cost, and perhaps to instructional effectiveness, are those included in what we shall refer to as instructional design. Krathwohl (1965) discusses the dubious appropriateness of using the term "design" for an exploratory study. However, Barro (1969) uses this term and defines its use for a particular purpose. Therefore, as this model is derived from Barro and his sources, the term design is retained in this chapter. This term is used broadly, states Barro (1969:77) to comprise all the variables that describe how instruction is provided. Specifically, instructional design includes the horizontal organization of instruction, specifications of class sizes, specifications of resources inputs in each area of instruction,

and specification of instructional methods. These variables are closely linked, which is why we apply to them the blanket term "instructional design." A program alternative that affects the method of instruction often calls for coordinated changes in a number of the instructional design variables.

Barro (1969), goes on to state that horizontal organization refers to the set of specifications that tell us how students at a given level of instruction are assigned to groups or classes and how the groups are assigned to teachers and classrooms for instruction in different subjects. Some possibilities for alternative forms of horizontal organization include self-contained classrooms, full or partial departmentalization, team teaching or other flexible grouping arrangements, and so forth. The important variable, group size, or class size, tell us how many students are exposed as a unit to each form of instruction. This, obviously, is a central variable in any kind of resource analysis since it acts as a "scale factor" analysis of variable (input and output projector) with respect to many of the specifications of resource inputs.

Decisions about the organization of instruction may have a bearing on both educational effectiveness and cost. However, the effects of organizational arrangements on resource requirements and cost are accounted for by the class size specifications and the variables that express instructional resource inputs. The form of organization may need to enter explicitly into efforts to relate program specifications to

effectiveness.

Resource in specifications, states Barro (1969), define the number of units of resources or resource services associated with a unit of each form of instruction. The important thing to note about these resource ratios is that the denominators are different for different categories of resources. That is, requirements for teachers are related to the number of class hours; requirements for equipment may be related to the number of classes, regardless of how many hours they meet; requirements for textbooks may be related to the number of students, regardless of either class size or the number of hours of class meetings. Therefore, as indicated in Figure 2, the class size and curriculum composition specifications are transformed to generate indexes of instructional activity in all of these units of measurement--students, classes, student-hours, class hours.

The question of the appropriate level of aggregation of data, arises here because it is possible to distinguish a great many different kinds of instructional resources. We could identify many categories of teachers, based on their qualifications, specialties, length of experience, and proficiency. In principle, both cost and effectiveness of instruction would be affected by a district's choices among these different types of teachers. Likewise, we could distinguish many types of materials, various categories of classroom equipment, different kinds of classrooms, and so on.

If we did, the arrays of numbers needed to describe a program would become unmanageably large and computations based on them would be slow, cumbersome, and costly. Keeping in mind that the purpose of the system model is to contribute to long-range planning, which calls for a capability to assess relative results of alternative programs, there is little to be gained by elaborating resource detail beyond that required to represent major groupings of resource detail beyond that required to represent major groupings of similar resources. For instructional personnel, for example, it may be sufficient to distinguish, say, regular elementary teachers, regular secondary teachers, specialized teachers, and paraprofessionals. For most purposes, average salary levels within each group will lead to adequate representations of program cost unless there is a deliberate policy of assigning more qualified or more experienced teachers to specific programs, levels, or subjects. For other inputs, it may be sufficient to characterize requirements for materials and equipment only by dollar values of consumption or inventories per student per class. However, for some problems it may be desirable to identify classes of equipment, such as audio-visual, science, and music.

Barro advises, that "once resource categories are defined, instructional resource inputs can be represented in a tabular form "(1969:79-80). This table shows the resource input ratios associated with one particular program, which happens to be the regular program at the high school level. Subjects of instruction are arrayed vertically. The columns

provide space for entering class size and resource requirements for each subject. The resources shown include several categories, teachers, materials, textbooks, several classes of equipment, and different types of instructional rooms. This set of categories is only suggestive and may or may not be the most useful for a particular district. Entries in the table are resource input ratios in the appropriate units; for example, one teacher man-hour per class-hour and \$20 for textbooks per student for instruction in English.

Note that in some cases there will be more than one set of resource input specifications for a subject, as is shown in Figure 5 for a hypothetical high school chemistry course. The reason is that there are two forms of instruction, classroom and laboratory work, each of which has a different class size and different requirements for teachers, materials, and other resources. In contrast, when describing resource requirements of self-contained elementary classrooms, it is not necessary to have specifications for each subject because the basic set of resources--one teacher and one classroom per class--applies across the board. Therefore, a single set of specifications would be needed only where special resources, such as specialized teachers or facilities, are involved.

Another design similar to Figure 5, would be needed for each program and level. However, this would not constitute as large a set of numbers as it might seem because some

FIGURE V

INSTRUCTIONAL DESIGN
Class Sizes and Resource Inputs (Regular Programs--Grades 10-12)

Selected Subjects of Instruction	Class Size	Teachers (hrs/class hr)		Materials (\$/Student /Yr)	Textbooks (\$/student)	Equipment (\$/class)	Facilities (hrs/class/yr)	
		Regular	Specialists				Secondary	Classrooms
Language and communication skills	30	1			20			1
English	18	1			12			1
...								
The physical world and living things	30	1		3	8	3,000		1
Chemistry - classroom	60	1	2	15	5	10,000		1
Chemistry - Laboratory								
...								
Literature and the arts	100		1	2	5	1,500		1
Music appreciation								
...								
Physical development	120	1						
Physical education								
...								
							Science	
							Other	
							Secondary Classrooms	
							Special Subject Rooms	
							Auditorium, Gym, Cafeteria	1

aggregation is possible and there is considerable duplication of courses or subjects among programs, which permits their resource specifications to be handled by cross-referencing.

Summary

In sum, a school district may be described by a model that includes the variables shown in Figure 6. A particular program for a school district is defined by assigning values to all of these variables. An alternative to a given program is created by changing the values of one or more of the decision variables.

As noted, not all the decision variables enter into the estimates of system cost. Those identified constitute a sufficient set of inputs for estimation of cost. All the variables listed in the table enter in some way into determination of effectiveness. In terms of this array of variables, the role of analytical techniques may be stated very simply: The function of resource analysis is to translate the values of predetermined variables plus specified values of decision variables into estimates of resource requirements and costs. Effectiveness analysis has a parallel function to that of cost analysis but one that is further from realization. It is to translate the variables into estimates of educational achievement and overall educational effectiveness.

In resource analysis (Barro:98) it has been noted, that in some instances the mathematical statements consist

FIGURE VI

VARIABLES IN THE MODEL OF A SCHOOL DISTRICT

<u>PREDETERMINED VARIABLES</u> Projected enrollment	<u>DECISION VARIABLES</u> Program and assignment criteria ^a	<u>INTERNAL VARIABLES</u> Enrollment by program
Existing physical plant	Vertical organization ^a	Levels of Instructional activities
Prices and other constants	Curriculum composition ^a	Levels of support and auxiliary activities
	Class size ^a	Resource requirements
	Horizontal organization	Levels of overhead activities
	Instructional resource inputs ^a	<u>Target Variables</u>
	Instructional methods	Budget estimates
	Subject content	Effectiveness estimates
	Salary Schedule ^a	
	Building design ^a	
	District configuration ^a	

^aVariables necessary for determining program cost.

of accounting-type summations. In other cases it will be appropriate to derive statistical expressions that relate resource requirements to the program characteristics.

The Analysis of Effectiveness

The theoretical model has been delineated previously in this chapter. A question that seems to remain is: How can you apply the processes of PPBES described to this point in such a way as to evaluate performance in a given school system? Possible answers to this question will be explored in Chapter IV when the theoretical framework will be applied to the Vegreville Business Education Program. However, before this theory can be applied several key concepts seem in need of clarification, namely: effectiveness and efficiency.

Virgin and Dilling refer to Druckers' basic distinction between the two terms. He defines efficiency as "getting things done right, producing a high quality of our work output" (1972:34).

On the other hand, "Effectiveness . . . is getting right things done" (1972:35).

The theoretical model has concentrated on effectiveness and efficiency. One may logically conclude that a concentration on effectiveness may result in maximizing efficiency in any system or set of procedures. Therefore, the second part of this chapter concentrates on additional insights regarding an analysis of the effectiveness components of PPBES.

Rational planning for better education requires that the analysis of effectiveness of an educational system be as rigorously developed as the analysis of the resources they require. By encouraging the use of systematic techniques for planning, program budgeting should lead to the expansion and improvement of ways to relate the quantity and quality of the educational product to the resources used to create it. Program budgeting would thus encourage some freedom from the tyranny of the budget, because it supplies decision-makers with defensible criteria other than cost, often a dominant factor in decision making.

Carpenter and Rapp (1969) state that these criteria may be grouped under the general term effectiveness. As opposed to cost, which is a measure of the resources that go into a program element, effectiveness assesses what comes out. Effectiveness is sometimes measured in terms of performance, like the number of students served in the cafeteria daily, but it can also have very broad and qualitative interpretations. For example, the general satisfaction of the community with the school system is an extremely important aspect of the school's effectiveness. Rapp (1969) states that, effectiveness may be observed from two points of view: (1) ways in which the effectiveness of various aspects of a school district's program can be measured and (2) analytical techniques for using these measures.

Effectiveness of Program Elements

Carpenter (1969) states, that the effectiveness of a program element is an assessment of how much the program element has contributed to the attainment of its objective. For example, the elements in the primary programs largely aim to develop the skills, knowledge, and understanding of the students. To assess their effectiveness, then, the extent of this development must be assessed--the extent of change, not just the end result.

Carpenter continues by stating that an integral part of the design of a program budgeting system is the choice of dimensions of the effectiveness of program elements--the ways in which program elements will be assessed and the format in which assessments will be displayed. This will ensure that needed information will be readily available for decision-making. Carpenter and Rapp further state that there are several ways to measure academic success. At the bottom of the hierarchy are teacher-made tests, for which it is difficult to obtain assessments of reliability, even though they may be excellent tools for the diagnosis of learning problems. They also say that the next order includes district-constructed tests, given to all students in a specific course. The third and final level is the standardized achievement test.

The Development of Cost-Effectiveness Relationships

Rapp (1969) states that measures of effectiveness

of program elements are of little aid in making decisions unless they can be related to the resources that go into those elements. The public schools offer an outstanding opportunity to find out whether relationships between resources and effectiveness in educational programs can be developed. Ideally, they should assign an effectiveness (or range of effectiveness) corresponding to the provision of varying amounts of each major resource and be sufficiently refined to permit discrimination among the effects of major independent variables. If such relationships can be discovered, states Rapp, then program budgeting and other techniques of system analysis offer hope of finding ways to both more and better education.

The controversy over the Coleman report (1968) suggests that the educational community is far from agreeing on what characteristics of school systems, including the students, are dominant in determining educational effectiveness, let alone what the nature of the relationships are.

Coleman states that the American public schools are being pressured from all directions at the same time, resulting in the demand for increased availability and quality in education. The only way out of this situation is through more effective use of resources. To discover how resources may be used more effectively will require systematic research on the relationships between cost and effectiveness within the public schools. The schools should provide the medium for research and, at the same time, the channel for implementation

of successful research.

Becker, Weisbrod, and Hirsch (1962), state that it is possible to construct measures of the effectiveness of education that are highly aggregated. For example, in an economically advanced country such as the United States, it has been shown that the amount of lifetime earnings that an individual may expect is positively correlated with the number of years of formal education that he has completed. If it is granted that the value of education to an economy is measured by the amount of individual income that it will make possible, then it might be said that a measure of the economic effectiveness of education is the increase in lifetime earnings that the individual can expect. This measure has been used and discussed in several papers on the economics of education, such as those by Becker, Weisbrod, and Hirsch (1962). The benefit of each additional year of education is taken to be the amount of increase in income in dollars. It is often implied that if this increase is greater (or less) than the cost of those additional years of education, the education is (or is not) worth the expense. Becker goes on to say that this kind of analysis measures both the resources and the results of education in dollars. Economists call it cost-benefit analysis, and because the benefit is a measure of the economic value of education as whole, it is, in that sense, more comprehensive than assessments of effectiveness, which are often related to specific

activities within the educational establishment.

Becker further states it would certainly be useful if it were possible to assign a dollar value to years of education, because this would shape decisions about the length of education that is economically beneficial to the society.

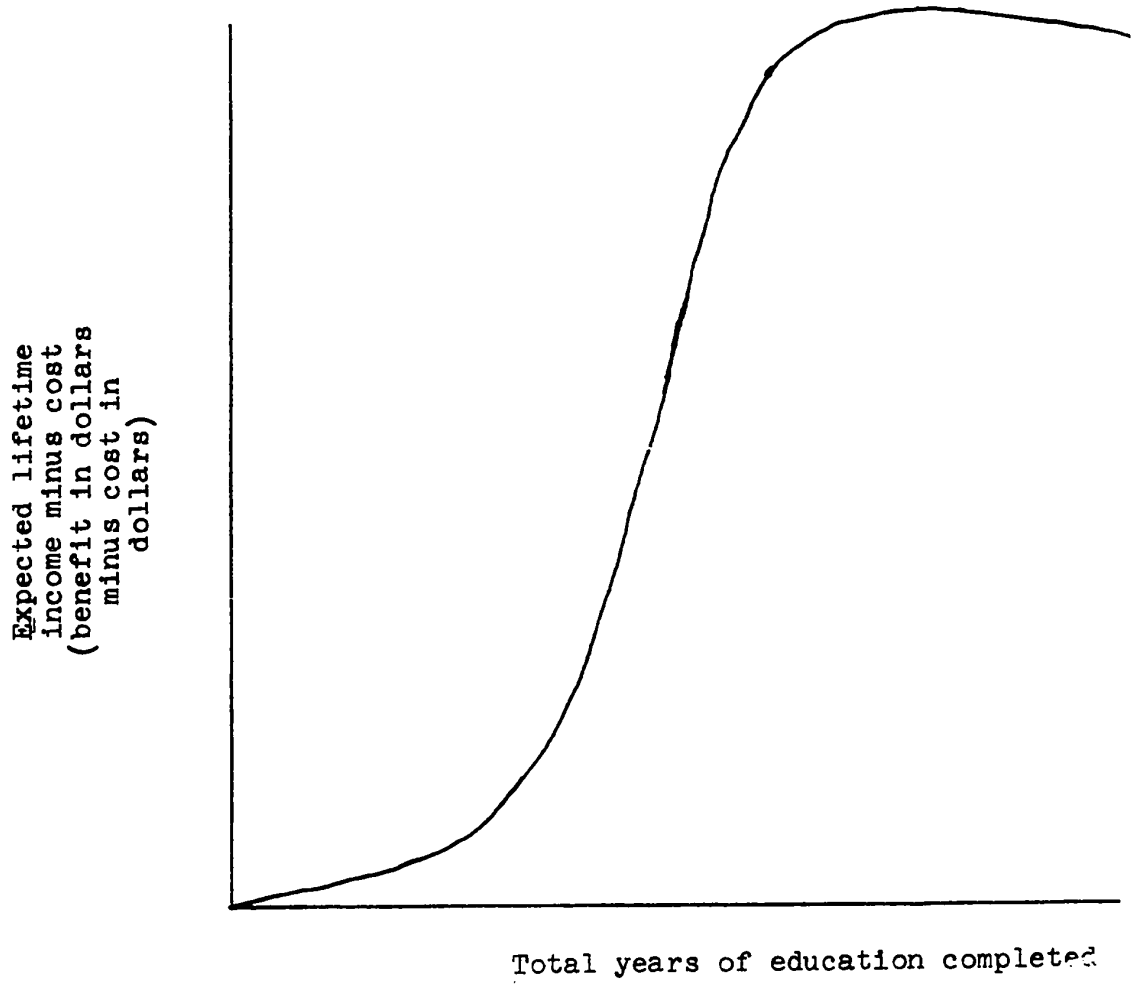
General Principles for Assessing Effectiveness

Hirsch and Marcus state some guiding principles about assessing effectiveness. These Principles are:

1. The gauge of effectiveness is tied to the problem.
 - i) The output is a direct expression of the objective.
 - ii) The means for generating the output is the problem of concern.
2. Systems being compared should be the same in all respects that would affect output, except those being examined.
3. The assessment should consider all of the major outputs.
4. Correlation only suggests causality (1966:147).

First, the way in which benefit or effectiveness is gauged is closely tied to the question that is to be answered; that is to say, there may be no universally useful ways to assess effectiveness. Hirsch states that the assessment must be of an output that either expresses the objective directly or is to closely related to it that it can be substituted for it. (Figure 7). In the example, the objective is to increase the total return to the economy.

FIGURE VII
A HYPOTHETICAL BENEFIT-COST RELATIONSHIP



This is translated into the total lifetime income of individuals, which is presumably with overall economic gain.

Marcus (1966) also states that the problem must be concerned with the means by which the output is produced. In the example, the question was simply what number of years of schooling is of benefit to the economy? If the question had been, how can personal income be increased: Means other than education would have to be included.

Morton additionally states that the second point is that the systems being compared should be the same in all respects that are relevant to the problem, except in those aspects being tested. The students are one of the major components of a school system. As Weisbrod (1965) points out, students who complete more years of schooling are different in their capabilities, on the average, than students who complete less, so their increased lifetime income might be due partly to these different capabilities as well as additional education. The only way to actually compare the several groups would be to select sets of students who had the same kind of capability and then compare the lifetime income of those who had completed more school with that of those who had completed less. Then, if there were an increase in lifetime income, the point would have been proved. However, their capabilities as an integral part of the educational system often leads to faulty analysis.

In general, effectiveness is assessed so that

different means of attaining a goal can be compared. Answers may be required to such questions as, is the system doing well or poorly? In which case the system would be compared with some stated or implicit goal. In another case, the system may be compared with its own past performance; or with another essentially similar system, like another school; or with a different way of producing the same output. In any case, he states, the purpose is to compare, and comparability between educational systems is especially difficult to achieve because of the multifaceted nature of nearly all educational activities.

The third principle is that any assessment of benefit should consider all major benefits that would be affected by the decision, even if some are not even grossly quantifiable. He also states that nothing is said about the increased enjoyment and appreciation that an education can bring to everyday life, and yet this is a value with which educators are rightly concerned (Weisbrod, 1965).

Finally Weisbrod, states that although correlations, such as lifetime income with years of schooling, suggest causal relationships, to feel dissatisfied with having to rely on them is justifiable. In the example, the additional income that goes with increased years of schooling, may also be due to greater native talent, a higher social and economic position at the start, greater ambition, and so on. So, although it is extremely difficult to control all the explanatory variables of interest, this is still the ultimate goal

and one worth working for. He further states that to achieve it will require a greatly increased body of rigorous research in education.

Measuring the Outcomes of the Plan

As we examine the outcomes of our instructional design, we should prepare to answer the question, "How effective and efficient has the program been in achieving the desired objectives for the student group?"

Effectiveness

Kemp (1971:96-103) states that we should begin our evaluation by answering the question: "How well did the students do?" This means that we should determine how many students accomplished the stated objectives within the time set. Or, to be more specific, determine the percentage of the students who reached an acceptable level of achievement for each objective. This kind of data can be interpreted as the measure of the effectiveness of the instructional design plan for this group of students.

An example would be if all students accomplished all objectives, the effectiveness of the program was excellent.

Realistically, it is very likely that because of individual differences among students and our inability to design ideal learning situations, we cannot hope to reach the absolute standard of 100 percent, but must settle for a somewhat lower level of student accomplishment. There may

be factors that would make the cost of achieving our goals almost prohibitive. Sometimes settlement takes place for a somewhat lower level of accomplishment until someone develops a revision of the program that will make it possible to reach the desired level of performance with reasonable effort.

Efficiency

Two aspects require attention in evaluating efficiency. The first is a measurement of student performance principally in independent programs. Kemp (1971) states that this measurement is the ratio of the number of objectives a student achieved to the time he took to achieve them. For example, John satisfied seven objectives in 4.2 hours of work and study. By dividing the number of objectives that John achieved by the amount of time it took him to accomplish them, we find that his performance index is 1.7 ($7 \div 4.2$). Jean achieved the seven objectives in 5.4 hours. Her performance index is therefore 1.3. Hence the higher the index, the more efficient the students performance level. This type of information will be of value in evaluating both student efficiency and the relative efficiency of the methods and materials in the instructional design plan. Also, subjective decisions must be made for accepting the level of a performance index or the need to raise the index through the use of other activities and materials.

Cost

Another aspect of efficiency that may be looked at is that of cost. Before the efficiency of a program can be assessed, you must determine how much it costs per student to reach the accepted effectiveness level. The cost per student can be called the instructional cost index. In order to determine it is necessary to tabulate all factors that are chargeable to the design plan for the instruction given to a particular student group. This cost is in two parts: (1) developmental costs of planning and pilot try-outs, and (2) operational costs incurred during actual implementation.

According to Kemp (1971) the developmental costs could be relatively high and should be considered separately from the ongoing costs for the program. But once calculated, the developmental costs should be amortized over a period of time. That is, a portion of the developmental costs (for example, one-fifth of the total amount for each of five semesters or school years) is added to the operational cost total. Then the instructional cost index for any semester is calculated by dividing the sum of the operational cost total and the proportion of the developmental cost total by the number of students satisfactorily completing the work.

The developmental costs consist of such items as: planning time; staff time; supplies and materials; outside services for preparing or purchasing materials; construction or renovation of facilities; equipment, installation of

equipment; testing, evaluation, redesign, reproduction; in-service education for educators, aides and others who will participate in the program during implementation (cost for time); overhead costs, such as utilities, furniture and room or building costs, or depreciation allowance; and miscellaneous-office supplies, telephone, travel and other items.

The operating costs consist of such items as: Administrative salaries (based on percentage of time) chargeable to the project; salaries of faculty for the time spent on the program-working with groups and individual students, planning daily activities, evaluating program, revising activities and materials; salaries for aides, maintenance technicians, and others; repair of damaged equipment; depreciation costs of equipment; overhead costs for utilities, facilities, furnishings, custodial services; evaluating and updating materials; and costs for personnel time and materials.

Now, to determine an instructional cost index, first total the dollar amount for all factors listed as developmental costs. Next divide this sum by the number of years over which the developmental costs are to be amortized. Then, total the costs for the operational phase. Finally, to this amount add the prorated developmental cost and divide the final total by the number of students in the program (the number of students may vary from one semester to the next). The resulting figure is the instructional cost index.

Of course, there are other and more comprehensive ways of making cost-effectiveness calculations that weigh

various elements and include other factors, but this method is sufficient to give a fair approximation of the instructional cost per student.

The index number itself has no meaning. Therefore, calculations should be made in the same way for traditional program costs in a comparable subject area. It should be noted that it is difficult (and usually unfair) to make a comparison between a new program with carefully structured objectives and a traditional program based on generalized, vague objectives. It would seem more appropriate to compare a unit of study for two like classes as two math classes if they have been systematically planned and implemented.

After the costs for a number of different topics, units, or courses have been assessed, then it would be likely to determine whether operating costs for a specific topic are too high, or relatively low, or acceptable. These calculations should be repeated each time a specific unit or course is taught so that any change in the cost index can be determined and the reasons for the change evaluated.

Up to this point, we have been examining quantitative, analytical ways of evaluating a new program. Let us recognize that there are also many nonquantitative outcomes of an instructional program. Just as recognized the elusive, difficult-to-measure objectives in the affective domain, so we should realize that subjective evaluations of the effectiveness of an instructional program are also possible. Consider

the observation of the behavior of students, and replies to the information and attitude of questionnaires and rating scales by students, teachers and staff members at the end of a unit or at the conclusion of the course as this may indicate the degree of success for the various phases of the program.

Also, consider follow-up courses of students-their study habits in the following semester, their accomplishments in subsequent courses, their vocational interests in the subject area that may possibly have been motivated by their achievement in the program. These are a few of the ways to make subjective judgments of the success of your instructional design plan when in operation.

Evaluation of New Programs

It is noted that "as the PPBES processes permeate the school systems, activities such as objective-setting and definition of evaluative criteria will increase noticeably (Hyndman et. al. 1972:200)." Some attention to objective setting has been discussed at considerable length in Chapter II. It is therefore the concern of this portion of this chapter to introduce a culminating model that suggests methodology for the evaluation of new programs in regarding to PPBES. The reason for this final insertion is that a sound and complete theoretical framework is required to permit the extrapolation of guidelines on PPBES, and allow their

projection upon the business education program Vegreville School System.

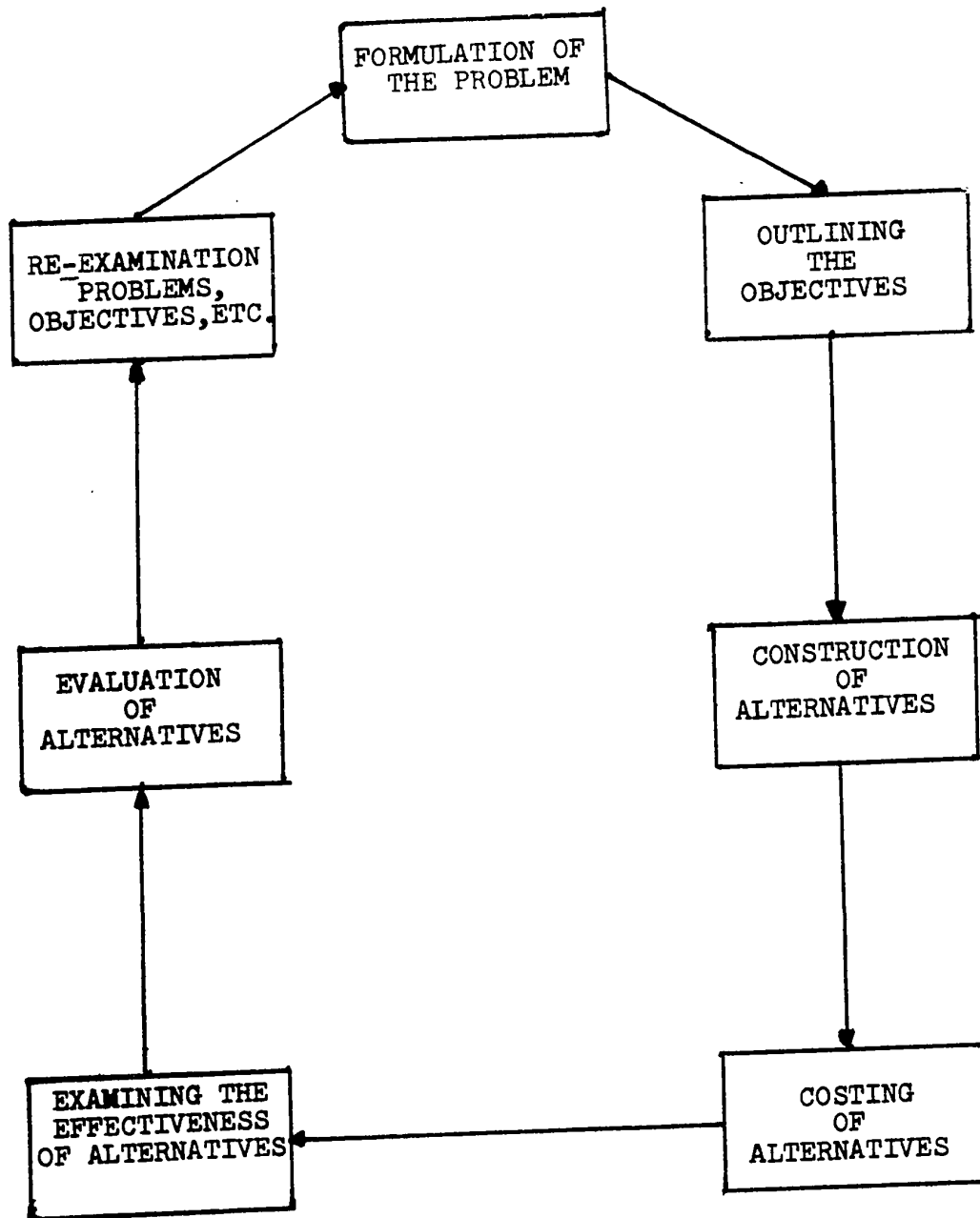
According to the Alberta Department of Education's committee on evaluation, evaluative procedures carried out by evaluation teams have the following objectives:

- (a) To evaluate the total school system or portions thereof and its program(s) with reference to the aims and objectives for elementary and secondary education as established by the Department; and the philosophy and objectives set by the school system and/or individual school(s) or any of its constituent parts.
- (b) To assist the school system, or any portion thereof, in bringing about those changes that appear desirable to sustain and increase learning effectiveness.
- (c) To stimulate and promote self-evaluation; to make available support and consultation during this process.
- (d) To assist in gathering and interpreting information for use in decision-making and planning on the part of trustees, and school system and regional office personnel.
- (e) To provide an opportunity for two-way communication, relative to educational matters, between and among the Alberta Department of Education consultative staff, school personnel, and school board.

The procedures carried out include a needs assessment, which attempts to assess discrepancies between objectives and actual achievements, thus delineating decision areas of concern, and problems to be analyzed (Hyndman, Hawkesworth, Dube et.al. 1972:199).

Considering the previous objectives, the following scheme presents one possibility for the evaluation of new programs.

FIGURE VIII
EVALUATION OF NEW PROGRAMS



Summary

This chapter is divided into three separate parts. Part I presents an ideal model on PPBES. Part II examines effectiveness as this concept relates to the thesis topic. The chapter concludes by briefly suggesting a scheme for the evaluation of new PPBES programs.

Chapter IV will describe the Vegreville Business Education Program and guidelines will be drawn for Chapter III and applied to that system.

CHAPTER IV

DESCRIPTION OF VEGREVILLE BUSINESS EDUCATION PROGRAM

Introduction

Chapter III presented the ideal model of PPBES with emphasis on the effectiveness component of this system. One possible method of evaluation for this system is discussed.

This chapter presents an overview of the business education program currently operational in the district of Vegreville. Further guidelines are suggested to facilitate the implementation of PPBES to this business education program.

The Business Program

This program provides students with specialized instruction in courses leading to a career in the business world. The students obtain a general business training, develop a desired sense of responsibility, accuracy, adaptability, and organizational ability, and an understanding of the function of business as well as proficiency in office practice and procedure.

There are two certificates that students in this Business Education Program may qualify for upon successful completion of the courses offered. These certificates are the Junior Certificate and the Senior Certificate.

Junior Certificate

The requirements for a Junior Certificate are:

1. A minimum of 40 credits in Business Education courses.
2. An average of 60% in all courses.

Senior Certificate

The requirements for a Senior Certificate are:

1. Completion of requirements for a High School Diploma.
2. A minimum of 55 credits in Business Education courses, of which 20 credits must be in the third year courses.
3. An average of at least 60% in the final year.

Since long-range planning and time is an element to be considered for each of these Business Education Programs, these two programs may be undertaken by any students who fulfill these requirements.

Business Education Program (Junior)

A two year period is required to complete this program. The credit requirements to be achieved are expressed for "year I" and for "year II".

<u>Year I</u>	<u>Credits</u>	<u>Year II</u>	<u>Credits</u>
Academic Studies	20	Academic Studies	15
Business Education Courses	20	Business Education Courses	20
Total Credits	40	Total Credits	35

Business Education Program Senior)

A three year period plan is outlined and is to be completed by students if they are to qualify for the Senior Certificate. Three years are required to complete this program. The credit requirements to be achieved are expressed for "year I," for "year II," and for "year III."

<u>Year I</u>		<u>Year II</u>		<u>Year III</u>	
	<u>Credits</u>		<u>Credits</u>		<u>Credits</u>
Academic Courses	20	Academic Courses	15	Academic Courses	10
Business Education Courses	20	Business Education Courses	25	Business Education Courses	30
Total Credits	40	Total Credits	40	Total Credits	40

The curriculum in business education at the Vegreville Composite High School includes 21 separate subjects. The course designation "10" indicates a first-year course, and the designation "20" indicates a second-year course, and the designation "30 or 31" indicates a third-year advanced course. The course titles in the Vegreville business education program are as follows:

Composite Senior High SchoolCourses:

Accounting 10
 Accounting 20
 Accounting 30 (advanced)
 Business Fundamentals 10 or
 Business Foundations 10 (new)
 Business Machines 30
 Business Organization and
 Management 30
 Data Processing 22
 Law 20

Merchandising 20
 Office Procedures
 Clerical Practice 20
 Office Practice 30
 Record Keeping 10
 Shorthand
 Shorthand 20
 Shorthand 30
 Shorthand 31
 Typewriting 10
 Typewriting 20
 Typewriting 30
 Economics 30

Business Education Objectives

Course 1: Accounting 10, Senior High School

Program Budget Objectives:

1. To emphasize the importance of maintaining adequate accounting records in business and in personal affairs.
2. To provide a basic training in accounting for a small business and for personal use. These include cash control and payroll.
3. To provide the foundation for more advanced training in accounting.
4. To develop traits of neatness, accuracy and the ability to interpret and analyze accounting records of a small business.
5. To introduce common business terms and accounting procedures in realistic settings.

Course 2: Accounting 20, Senior High School

Program Budget Objectives:

1. To emphasize the importance of maintaining adequate records in a merchandising business.
2. To provide a basic training in typical accounting duties encountered in a merchandising business.
3. To provide a broader foundation for more advanced training in accountancy.
4. To develop an understanding of the preparation of financial statements and their significance in the accounting cycle.

5. To emphasize the function of accounting records as an aid to management and the need for intelligent interpretation of accounting records.

Course 3: Accounting 30, Senior High School

Program Budget Objectives:

1. To demonstrate how bookkeeping records can serve management in controlling and planning business operations.
2. To encourage attitudes of inquiry and logical interpretation of financial statements.
3. To study adaptations of other accounting systems.

Course 4: Business Fundamentals 10 or Business Foundations 10 (new)

Program Budget Objectives:

1. To acquaint the student with fundamental business practices and thereby help him to be a more skillful consumer of the goods and services of business.
2. To provide an introductory course in business practices and thus assist the student in discovering aptitudes, abilities and interests which will help him in making educational and vocational plans.
3. To acquaint the student with the relations that exist between business and society and show the importance of the part which business plays in the daily life of everyone.
4. To show the interdependence of individuals, business and government.
5. To develop an appreciation of the need for service, courtesy, business etiquette, cooperation and other desirable citizenship traits.

Course 5: Business Machines 30

Program Budget Objectives:

1. To familiarize the student with the various types of office machines, their relative advantages, their basic uses, and operating procedures.

2. To specialize in the use of a few of the machines.
3. To give training in setting the decimal points correctly for the various processes, and in using common sense methods of checking results.
4. To develop facility in work with fractions and percentages.
5. To give training in cutting stencils and master copies.
6. To give training in operating the common types of duplicating machines.
7. To provide experience in the use of dictating and transcribing machines.
8. To insist on business standards for accuracy and neatness and to get the job done in a reasonable time.

Course 6: Business Organization and Management 30 or Business Foundations 30 (new for 1974)

Program Budget Objectives:

1. To provide an opportunity for students to learn how business is organized and operated so that they have better concepts of their duties and functions as employees, or operators of their own business.
2. To learn how to evaluate and apply facts when making business decisions.
3. To make students aware that business is dynamic and that they must learn to be adaptable and to make their own rules and practices to meet new situations.

Course 7: Data Processing 22 or (20 new Sept. 1973)

Program Budget Objectives:

1. To provide an introduction to unit record and electronic computer data processing.
2. To familiarize the students with the terms and routines of data processing and what the worker in an automated office needs to know.
3. To acquaint students with data processing procedures and concepts, manual, mechanical and electrical.

4. To develop a basic competence in the application of systems and in elementary programming of electro-mechanical and electronic data processing equipment.
5. To provide career guidance and background information for students who may wish to enter the field or proceed to advanced study.

Course 8: Law 20

Program Budget Objectives:

1. To give the student a knowledge of the fundamental principles of law that govern the conduct of business activities.
2. To cultivate traits of good citizenship, especially those of respect for the rights of others, honesty and justice.
3. To develop a respect for, and obedience to, the law.
4. To develop an understanding of the functions and purposes of law in our democratic society, including the development of our legal system and the courts that administer justice.
5. To assist the student in knowing his rights and when to seek legal advice.
6. To emphasize the need and use of precise English.
7. To develop in the individual student the ability to see both sides of a problem.
8. To familiarize the student with commonly used legal papers and documents and with the use of those which do not ordinarily require the services of a lawyer.

Course 9: Merchandising 20

Program Budget Objectives:

1. To present occupational opportunities in the distributive fields in the business community.
2. To develop in the student the ability required for initial performance on the job.
3. To provide a basis for further study and experience.
4. To develop an appreciation on the part distribution plays in our free enterprise society.

Course 10: Office Procedures (Clerical Practice 20)

Program Budget Objectives:

1. To provide instruction on basic skills required for initial office positions.
2. To develop desirable personal traits and work habits acceptable to office standards. The ability to work cooperatively with others must be emphasized. The above will require a year-long reinforcement.
3. To integrate new and previously learned skills by means of realistic office assignments.

Course 11: Office Procedures (Office Practice 30)

Program Budget Objectives:

1. To provide instruction in basic skills required for initial office positions.
2. To develop desirable personal traits and work habits acceptable to office standards. The ability to work cooperatively with others must be emphasized. The above will require a year-long reinforcement.
3. To integrate new and previously learned skills by means of realistic office assignments.

Course 12: Record Keeping 10 (New course)

Program Budget Objectives:

1. To develop an understanding of, and an appreciation for good records in personal finance, in social organizations and in single-proprietorship business of trading and non-trading concerns.
2. To develop a familiarity with common business terms and their uses.
3. To inculcate habits of neatness, accuracy and legibility.
4. To provide a course in record keeping that will build interests and discover the aptitudes of the students in this subject.

Course 13: Shorthand

General Objectives of Shorthand

1. To provide the opportunities for students to develop the ability to write shorthand and transcribe at a level that meets initial employment standards.
2. To provide the opportunities for students to develop an understanding of the business environment, employment requirements, and standards of behaviour acceptable to the business community.
3. To provide an educational setting wherein the student has opportunity to apply the learnings from other disciplines with special emphasis on communication skills.

Program Budget Objectives:

- Shorthand 20 -- write practiced material dictated at 70 wpm.
 -- write unpracticed material dictated at 50 wpm.
- Shorthand 30 -- write practiced material dictated at 90 wpm.
 -- write unpracticed material dictated at 80 wpm.
- Shorthand 31 -- write practiced material dictated at 80 wpm.
 -- write unpracticed material dictated at 70 wpm.

Course 14: Shorthand 20

Program Budget Objectives

1. The student should be able to demonstrate mastery of the principles of shorthand theory through response to the dictation of basic textbook vocabulary.
2. To read fluently from engraved plate shorthand and from his own notes.
3. To write in shorthand and transcribe practiced material dictated at a minimum of 70 wpm.
4. To write in shorthand unpracticed material dictated at a minimum rate of 50 wpm.
5. To use the tools and materials of writing and transcribing in an efficient manner.
6. To work cooperatively and congenially with others, and to accept responsibility for completion of a task.

Course 15: Shorthand 30

Program Budget Objectives

The student should be able:

1. To demonstrate mastery of writing a general business vocabulary in shorthand.
2. To write in shorthand and transcribe practiced material dictated at a minimum of 90 wpm.
3. To write in shorthand and transcribe unpracticed material dictated at a minimum of 80 wpm.
4. To use the tools and materials of writing and transcribing shorthand in an efficient manner.
5. To demonstrate good work habits and behaviour compatible with business standards.

Course 16: Shorthand 31

Program Budget Objectives

The student should be able:

1. To demonstrate mastery of the principles of shorthand theory through response to the dictation of basic text-book and general business vocabulary.
2. To read fluently from engraved plate shorthand and from his own notes.
3. To write and transcribe practiced material dictated at a minimum of 80 wpm.
4. To write in shorthand and transcribe unpracticed material dictated at a minimum of 70 wpm.
5. To use the tools and materials of writing and transcribing shorthand in an efficient manner.
6. To demonstrate good work habits and behaviour compatible with business standards.

Course 17: Typewriting 10

Program Budget Objectives

1. During the first few days of typewriting the teacher will be well advised to capitalize on the natural interests of the student and his desire to attain skill and proficiency.
2. During the first few weeks of the course the student will develop those techniques and habits which will determine to a great extent his future ability as a typist.
3. It is very important that the teacher supervise, the correct posture of the student, the correct stroking, the manipulative control of the parts of the machine, eyes on the copy, and other basic habits of every student in the class.
4. Experience will show that persistent teaching and demonstrating of the correct typing techniques will establish the pattern of fingering and the errors will decrease with the elimination of the awkward movements.

Course 18: Typewriting 20

Program Budget Objectives

1. That the student should attain the skills required to meet standards of employment.
2. That the student acquire mastery of the various techniques in connection with the operation of the machine for business purposes.
3. That the student attain a proficiency in typewriting so that he can produce a reasonable quantity of mailable copies within a reasonable time as determined by office standards.

Course 19: Typewriting 30

Program Budget Objectives

1. To develop production competence in this terminal vocational course.

Course 20: Economics 30

Program Budget Objectives

1. To help master the ideas and principles of economics.

2. To help develop an understanding of the kinds of problems that belong in the category of "economics" and of economic analysis.

Suggested Guidelines for the Implementation of PPBES to the Existing Business Education Program in Vegreville.

A three phase program for the application of methods and procedures in PPBES to the existing business education program is suggested. The three phase program consists of:

- Phase I - the initiation year
- Phase II - the implementation year
- Phase III - the operational year.

Description of Phase I - First Year.

Recommended methods and procedures for the initiation year may consist of the following steps:

1. A project director should be appointed. It has been stated that, "PPBES, in one form or another, and perhaps under a different label, is likely to emerge as a very significant element in the whole of education over the next decade" (Ristaue, 1971:6). If this is so then it may be suggested that administrators in Vegreville acquire a first hand knowledge of the principles of PPBES. This would facilitate the selection of the project director possibly from their midst.
2. The selection of instructional program in business education could serve as pilot study.
3. Organization of a comprehensive in-service program for all members of the school system in Vegreville. Initially,

administrators and selected members of the teaching staff could receive specialized training.

4. Develop a program mission statement. For our purpose, this statement may be defined as a reasonably set of behavior objectives which would govern the program.
5. Foster acceptance of goals and objectives of the program by the instructional staff. In the district of Vegreville, if guideline #2 is carefully attended to, this should increase the possibility of this acceptance which is fundamental to the initiation of the PPBE system.
6. Alternate ways of accomplishing program goals and objectives may be included. However, further comment is reserved in this regard until Chapter V.
7. Identify measures of effectiveness that will relate to program goals and objectives.
8. Refine and analyze program objectives and attempt to formulate a program structure. This process of analysis and refinement would be most beneficial in the long range success of the program.
9. Accept the program structure and the major measurable objectives.
10. Analyze the current budget related to the accepted program structure and the desired program budget.
11. State the program budget format.
12. Analyze the program in terms of the following variables, enrollment figures, equipment requisitions, recommended program changes, space allocations and the teaching assignments.

13. Cost allocation to program and subprograms.
14. Prepare the program budget for program I using current budget projections.
15. Develop measurement instruments and procedures relating to requirements of the major measurable objectives.
16. Develop a policy to provide for an interaction and feedback activity on the initial year's program budget.
17. Collect the initial data relating to the major measurable objectives.
18. Write the initial PPBES reports.
19. Appoint necessary individuals to interaction groups.

Description of Phase II (Implementation - Second Year).

1. Complete the gathering of the data relating to the major and measurable objectives.
2. Write the PPBES reports and distribute to personnel involved.
3. Conduct inservice-program for personnel in other district programs (incorporate if possible all other instructional and non-instructional programs).
4. Follow the same procedures with new programs as used with program I, namely, steps 4 - 9 inclusive.
5. Hold regular meetings with interaction groups relative to program I PPBES reports.
6. Collect reports and the recommendations from the interaction groups.

7. Accept, modify or reject recommendations of the interaction groups.
8. Communicate to interaction groups the action taken on their recommendations.
9. Modify and review the objectives of program I.
10. Consider current and projected budget needs of program I.
11. Contemplate desired changes in the program budget format.
12. Finalize the program budget format to be used with all programs.
13. Consider current and projected needs of all programs.
14. Analyze all programs and allocate the costs as required by the final budget format.
15. Develop the program budget for program I and other programs in Phase II.
16. Review measurement instruments and procedures and expand them to include Phase II programs.
17. Review the policy on interaction, feed-back activity.
18. Finalize the interaction, feed-back procedures.
19. Appoint individuals to interaction groups for Phase III.
20. Gather preliminary data on program operations.
21. Write the initial PPBES reports for all programs.

Description of Phase III (Operational:-third year).

1. Review PPBES methods and procedures used in Phase I and II, finalize the methods and procedures desired and adopt them as part of operational policy.

2. Complete the data gathering relative to program achievements.
3. Write and distribute PPBES reports according to established policies.
4. Hold meetings with interaction groups.
5. Receive reports and recommendations from interaction groups.
6. Accept, reject or modify recommendations.
7. Communicate action taken to interaction groups.
8. Analyze, revise and study programs as desired.
9. Modify and refine statements of program objectives.
10. Consider the budget needs of all programs in terms of program budget for the subsequent year.
11. Analyze programs and allocate costs.
12. Construct a master program budget.
13. Develop individual program budgets as needed.
14. Appoint individuals to interaction groups.
15. Gather preliminary data on program accomplishments.
16. Write initial PPBES reports.
17. Review programs and subprograms as established and provide for inter-program relationships.
18. Finalize the methods and procedures to be used in PPBES in subsequent year based on experiences in Phase II and III.

Summary

This chapter overviews the business education program in the district of Vegreville. The guidelines outlined in the second part of the chapter are theoretically derived from the authorities in the field of PPBES. In the event that the administrators of this district decide to consider implementation of PPBES it is suggested that the system be considered in a three phase installation: Phase I- the initial year; Phase II- the implementation year and Phase III - the operation year. Success of the entire application of PPBES to the Vegreville district will be highly dependent upon efforts expended to enlist support for the programs.

This chapter draws conclusions arising from the study and speculates on implications of PPBES with particular recommendations arising out of the theoretical model of Chapter III.

CHAPTER VI

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, IMPLICATIONS

The final chapter of this thesis presents a summary of the study, conclusions, some recommendations and implications.

Introduction

PPBES is still in its developmental stage. Its limitations, particularly those related to the analytical aspects of PPBE System, are readily apparent, and may somewhat inhibit the ability of a PPBE system to serve as a powerful educational planning and decision-making device.

Its limitations, however, are outweighed by the potential advantages of PPBES. The strength of a PPBE system, even in its present state of development, is that it can provide a rational framework for educational planning. It applies scientific method (systems philosophy) to the educational planning and decision-making processes.

Finally, it should be noted that a PPBE system may be "phased-in" gradually and may complement rather than serve as a substitute for the traditional line-item budget.

Summary

In the final analysis, PPBES is but one important tool of management for those who guide the development and

the operation of school districts. Unless PPBES is viewed from that perspective, its function and purpose can be distorted. PPBES does not replace human judgment nor does it eliminate from the educational system those operations which are largely humanistic in their orientation. The realities of each situation can reveal numerous influences and causal factors which effect what is done and what is not done in the educational enterprise--political, social, economic, and philosophical realities continue to interplay and act on the school district. PPBES will provide data which can influence and/or answer questions posed by various groups and individuals. It can help the educational enterprise to communicate more effectively its basic purpose to those inside and outside of education through the establishment of objectives which are stated in clear and generally understandable terms. By showing where its economic resources are being used, by offering evidence of its accomplishments, and by substantiating its need for additional resources, the school district can to a degree negate undesirable and unjustified pressures.

The study addressed itself to problems encountered in adopting PPBES in education. Its focus on specific concerns and needs of individuals who participate in the process of initiating and developing PPBES, as well as, its systematic application of research techniques to the experiences and results of the experiment, add to the expanding body of knowledge of PPBES in education.

Conclusions

An experimental project for the Vegreville Business Education program possibly may include persons with expertise in business education, PPBES, and research. A project of this nature if considered, may possibly become an example of applying PPBES concepts to this operating school district program, although in a real sense it may only be "a good start in attempting to initiate the PPBE system. Also, teachers may find it possible and desirable to participate. Their perceptions of the PPBE system may be significant in providing a needed sense of direction for the business education program itself, and possibly, lead to the development of the program budget and the rudiments of a PPBE system.

The writer has noted from the material examined that PPBES has considerable potential for good in the educational enterprise in Vegreville. It causes school district personnel and others to engage in a critical examination of activities. It enhances communication, and also provides for an effective involvement of people in processes relating to decision-making on program operations.

Many activities carried on by the school which respond to a desire to improve their curriculum are embodied in PPBES and are combined into a systematic operation.

Familiarity with management techniques, such as, program analysis, determining alternatives, cost-benefit analysis, and needs forecasting, will be of value to teachers,

administrators, and others who become involved in PPBES in Vegreville.

The development of PPBES objectives some of which are measurable and quantifiable for an instructional program, is a difficult and time consuming task which can be done effectively only by teachers who are provided with adequate time in which to accomplish the desired task.

The program structure must be flexible and subject to constant change and revision based on activities as they will be experienced in PPBES in Vegreville.

An effective involvement of teachers in the operation of the PPBE system for Vegreville particularly in the feedback and interaction process, may minimize the danger expressed by teachers over the potential of PPBES and behavioral objectives to dehumanize education and cause the teaching-learning process to become mechanistic.

The teachers may respond to the opportunities to assume leadership roles in PPBES and to involve themselves meaningfully in PPBES activities in order to help retain those ideals which are important to students and to professional educators.

The behavioral objectives are desirable as a basis on which to develop those objectives which are measurable and quantifiable in PPBES.

Educational goals and objectives which are not readily measured and quantified but which are deemed by professional

educators and others to be significant also need to be embodied in PPBES.

At Vegreville, a school wide program structure is desirable. It will provide for an interaction within, as well as among, programs, if and when it is adopted.

PPBES is a significant tool of management in education but it must be used with discretion and considered professional judgment; the misuse of any data by persons who do not understand PPBES must be avoided.

The time element necessary for developing PPBES and providing for the involvement of key personnel must be acknowledged by those responsible for the initiation and implementation of PPBES.

Cost-benefit and cost-effectiveness analyses may become part of the final activities in PPBES; yet, attempts to measure dollar values of educational benefits should be undertaken with full understanding of the limitations of available data.

The writer also noted that PPBES may not necessarily reduce expenditures for education even though it encourages the educational enterprise to be more efficient and more effective.

Determining the effectiveness of program outcomes is a key activity in PPBES and may present difficult problems that must be resolved if objectives are to be relevant and realistic. The objectives, in the affective domain, require

special efforts if realistic statements of desired ends are to be made and measurements of effectiveness are to be accomplished.

It seems to be clearly incumbent upon teachers in all subject fields to relate their activities and their programs to improve levels of communication and accountability. The demand of the educational enterprise for greater public financial assistance brings with it a demand from the public that education be more accountable. To fear accountability is really to misunderstand it: given the opportunity to effectively participate and to help define the parameters of operations, teachers may have a successful experience with PPBES.

PPBES may possibly be a vital change in terms of the future direction of the educational enterprise; and change does not always occur painlessly. Nevertheless, it seems possibly to the writer and to others that the teaching-learning process will be enhanced by the kinds of data and activity provided through PPBES, to the end that students will benefit from improved attention to real needs and the extent to which needs are embodied in program objectives and then accomplished. The writer perceives that in the whole of education PPBES, in one form or another, and perhaps under a different label, is very likely to emerge as a very significant element, within the next decade.

Recommendations

The recommendations are expressed in terms of action

to be taken and considerations to be given by various persons and groups who wish to assume roles in the process of helping to make education more effective through utility of PPBES. Emergent recommendations from a review of the entire study and its conclusions and implications are embodied below:

(1) School districts should be encouraged to experiment with PPBES as a possible activity which would enhance effectiveness by means of a review and analysis of programs, accomplishments and costs.

(2) Provision should be made to provide for an effective and on-going involvement of teachers in PPBES. Additional representatives of the community in general, should be included in Interaction Groups.

(3) A study should be arranged for the possibility of introducing PPBES into the Vegreville Composite High School within a very reasonable period of time, in order to enhance the present system.

(4) An inservice education of teachers should provide an exposure to concepts of PPBES and to techniques of developing measurable and quantifiable objectives.

(5) Guides, manuals, and any necessary reference materials dealing with PPBES activities in relation to teacher needs, should be published and distributed.

(6) Opportunities for lay persons and professionals of diverse backgrounds and interests to become more familiar about PPBES should be made available by means of activities

such as workshops, institutes, and courses.

(7) Further study and research should be encouraged relative to the development and use of measures of effectiveness as they relate to all levels and aspects of program operations.

(8) Units of measurement should be devised for analyzing costs related to program operations and outcomes in innovative situations.

(9) The Vegreville program budget should be studied and examined in view of its use by lay citizens, and school committee members, and the business community members.

(10) Precautions should be extended to those who attempt to perform cost analyses on program outcomes and who attempt to price objectives. Also, it should be noted that unrealistic and undersirable conclusions may be avoided if limitations of analyses are clearly established.

(11) Procedures employed to measure the effectiveness of educational objectives should be frequently examined and refined. Also, new methods of measurement and new standards of achievement should be sought after as part of the interaction, feedback process.

(12) The school board should appropriate the necessary funds and other resources to provide for the staffing desired for PPBES development.

(13) Other models of experiments, relating to PPBS in education should be also studied and examined by the school

district so that the best features of each are considered during the initiation phase of a PPBES model.

During the writing of this thesis on business education and the development of a possible PPBES model for methods and procedures the writer has been left with perceptions of the value and potential benefits of PPBES in education.

As mentioned earlier in this thesis PPBES is a scientific management tool of some complexity and magnitude. This tends to create an aura of immensity about it. However, if it is taken step-by-step, PPBES possibly may unfold into a practical, workable system of directing, managing, and guiding essential activities in education. PPBES has the potential as a system in which the involvement of people in activities relating to the decision-making process is a significant aspect.

Ziel, (1964) has stated that the last few years have shown that Canadians are indeed rethinking their commitment to education. He also stated that in order to fulfil obligations to the pupil and society, a realistic, effective program of vocational and technical academic and business education must get its direction from a philosophy that is attuned to needs. He further went on to say that business, industry and education are distinctive components of our productive society. In light of all this and of the literature of the proponents for PPBES, the writer envisions that the approach suggested in PPBES, may possibly provide a solution

to some of our current problems in education.

Education is business that is people-centered. PPBES helps to preserve the ultimate objective of all educational activity, thereby enhancing learning experiences for the student as an individual.

In view of the possibilities of the many benefits that may be derived from PPBES the writer endorses that PPBES is very deserving of experimentation and implementation in education.

The writer also recommends that further studies be undertaken in the near future on the possibilities of PPBES for education.

Implications

This study revealed a possible model for PPBES which appears to be unique in several ways: it encourages methods and procedures to be tested in one instructional program, it helps offset concerns of teachers regarding PPBES by stating a meaningful involvement for them, and it provides direction for the implementation and operation of PPBES. This possible Business Education model for methods and procedures in PPBES seems to meet an identified need for those who anticipate development of PPBES in education. This model holds various implications for school administrators, for teachers, for school board members, for teacher educators, and for all persons who wish to experience a meaningful involvement in the process of helping to make education more efficient and effective.

School administrators of the Vegreville Composite High School will be challenged to provide suitable leadership to PPBES activity and to help attract and allocate resources which will be necessary to support the development and establishment of PPBES. Teachers will have opportunities to assume participating leadership roles, and those roles will call for special skills and abilities for relating to educational objectives. Teacher educators will be encouraged to provide relevant experiences relating to PPBES requirements for inservice education of teachers. The school board members will be challenged in the use of new kinds of data which analyze operations of education and in applying these data in the decision-making process. Lay citizens will be provided with accountability information relating to educational programs; their challenge will include that of being informed and intelligent users of information.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Abramson, D. A. Curriculum research and evaluation. Review of Educational Research, Volume XXXVI, no. 3, June, 1966, 388-395.
- Akerly, H. E. For better public relations use a performance budget. Nations Schools, February, 1951, 37.
- Alkin, M. C. Towards an evaluation model: A systems approach, working paper no. 4. Centre for the Study of Evaluation of Instructional Programs. Los Angeles: University of California. August 1967, 12.
- Atkin, J. M. Behavioral objectives in curriculum design: A cautionary note. The Science Teacher. May 1968, 27-30, 32.
- Atkin, J. M. Behavioral objectives: Key to planning. TST forum. The Science Teacher. October, 1968, 86-87.
- Barro, S. M. Modelling resource utilization in a school district. Program Budgeting for School District Planning: Concepts and Application. Rand Corporation, (RM-6116-RC). November, 1969, 64-98.
- Becker, G. S. Investment in human capital: A theoretical analysis, The Journal of Political Economy. Vol. 70, no. 5, 1962, 147.
- Bloom, B. S. Taxonomy of Educational Objectives. Classification of Educational Goals. Handbook I: Cognitive Domain. David McKay, Inc., 1956, 48-51.
- Buchmiller, A. A. Program Budgeting, Implications for Educational Budgeting on a State Level, Department of Public Instruction, Madison, Wisconsin. December, 1963. (Mimeographed)
- Carpenter, M. B. The analysis of effectiveness. Program Budgeting for School District Planning: Concepts and Applications. The Rand Corporation, November, 1969, 121-127.
- Carpenter, M. B. Program Budgeting as a Way to Focus on Objectives in Education. The Rand Corporation, p-4162, September, 1969.
- Chamberlin, G. L. A Program Budget for Education, Unpublished doctoral dissertation, Stanford University, 1967.

- Chambers, G. A. The concepts of planning-programming-budgeting systems, State School Systems Development, Volume 1, no. 4, Winter, 1968, 223-236.
- Coleman, J. S. Equality of Educational Opportunity, Office of Education, U.S. Department of Health, Education, Welfare, Washington, D.C. 1966, 130.
- Coleman, J. S. The Evaluation of Educational Opportunity. The Rand Corporation, Santa Monica, California, August, 1968, 3911.
- Coulson, T. A systems approach to budgeting can open communication bottlenecks, College and University Business 44:5, May, 1968, 68-72.
- Coster, J. K. Program evaluation. Review of Educational Research, Vol. XXXVIII, no. 4, October, 1968.
- Curtis, W. H. Association of School Business Officials, First Year Final Progress Report, Project to Develop Program Planning-Budgeting Evaluation System Description. Research Corporation of the ASBO, Chicago, Illinois, December, 1968.
- Department of Educational Administration, Ontario Institute for Studies in Education, and Systems Research Group. Systems Analysis for Educational Management. Toronto: Department of Educational Administration, 1970.
- Department of Education, Program of Studies, for Senior High Schools of Alberta. Edmonton, Alta., 1970.
- Department of Health, Education and Welfare. The Secretary's Newsletter, Volume 1, no. 3, Washington, D.C. July, 1967.
- Dmetrick, A. Teacher Education Goals. The A.T.A. News. Volume 7, no. 10, February 28, 1973.
- Education, Government of Alberta, Alberta Department of Education. Program Accounting and Budgeting Manual, Edmonton, Alta. 1972, 3,4,7, 197-210.
- Fayol, H. General and Industrial Management, Handbook of Organizations, Rand McNally. London: Pitman, 1949, 389.
- Fisher, G. The World of Program Budgeting, The Rand Corporation, p-3361, Santa Monica, California May, 1966, 11.

- Fitzsimmons, W. B. A Model for a Public School Program Budget. Unpublished doctoral dissertation, Colorado State College, 1966.
- Foster, C. W. Report of the First National Conference on PPBES on Education. Chicago: Association of School Business Officials, June 10, 1969, 40.
- Gibbs, W. F. Program Budgeting Filters Down to Education, Nation's Schools, Volume 82, no. 5, November, 1968 51-53.
- Golden, L. L. L. Challenges of the 1970's. Saturday Review, March 9, 1968, 104.
- Gorham, A. Department of Health, Education and Welfare, The Secretary's Newsletter, Volume 1, no. 3, Washington, D.C., July, 1967, 4.
- Gorman, W. Notes of a Practitioner. The Public Interest, no. 8, (Summer, 1967) 3-8.
- Gott, J. W. Report of the First National Conference on PPBES. Chicago: Research Corporation of the Association of School Business Officials, Project no. 8-0290, Fall, 1969, 104-112.
- Government Studies Center, Fels Institute of Local and State Government, University of Pennsylvania. General Design for an Educational Planning-Programming-Budgeting System. Philadelphia. Fels Institute of Local and State Government, 1968.
- Greenhouse, S. M. The Planning-Programming-Budgeting System: Rationale, Language, and Idea-Relationships, Public Administration Review, XXVI: 4, December, 1966, 271-77.
- Hagen, J. W. A Three Dimensional Program Budget Format for Public Schools. Unpublished doctoral dissertation The University of California at Los Angeles, 1968.
- Haggart, S. A. Program Budgeting for School District Planning: Concepts and Applications., Rand Corp., California, November, 1969.
- Hartley, H. J. Educational Planning Programming and Budgeting: A Systems Approach. New Jersey, Prentice-Hall, Inc., 1968, 96-212.
- Hartley, H. J. Limitations of Systems Analysis, Phi Delta Kappan, May, 1969, 515-519.

- Hatry, H. P. Program Planning for State, City, and County Objectives, Washington, D.C. 1967, 147.
- Hirsch, W. Some Benefit-Cost Considerations of Universal Junior College Education, National Tax Journal, 19, March, 1966.
- Institute on Governmental Affairs, University Extension, The University of Wisconsin, Developing a Program Structure, Notes on Planning, Programming, Budgeting, Systems, Madison, Wisconsin, 1968, Mimeographed.
- Institute on Governmental Affairs, University Extension, The University of Wisconsin, Guidelines for Selection of Goals and Objectives, Notes on Planning, Programming, Budgeting, Madison, Wisconsin, 1968. Mimeographed.
- Johnson, L. A Publication of the Midwestern States Educational Information Project (MSEIP), Superintendent of the Sheboygan Public Schools, A Staff Paper on Program Accounting, Wisconsin, October, 1968, 7-8.
- Kemp, J. E. Instructional Design, A Plan for Unit and Course Development, Fearon Publishers, Lear Siegler, Inc., Education Division, Belmont, California, 1971, 96-103.
- Krathwohl, D. R. How to Prepare a Research Proposal, Syracuse University Bookstore, Syracuse, New York, 1965, 32.
- Krathwohl, D. R. Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook II: Affective Domain, New York: David McKay Company Inc., 1956. 48-51.
- Lindman, E. L. The Means and Ends of Accountability. Proceedings of the Conference on Educational Accountability, sponsored by Educational Testing Service, Chicago: June, 1971, b-1 to b-8, Phi Delta Kappan, January, 1973, 346-347.
- MacPherson, A. D. A Cooperative Experience in Distributive Education. Direction, Volume 1, no. 2, Fall issue, 1972, 8-11.
- Mager, R. F. Preparing Instructional Objectives, Palo Alto, California: Fearon Publishers, 1962, 3-43.
- Marcus, J. M. Some Benefit-Cost Considerations of Universal Junior College Education, National Tax Journal, 19, March 1966, 147.

- Martin, J. A. Program Budgeting in Municipal Management, The Municipality, October, 1967, 265-267.
- McDermott, J. J. Carlisle District Writes Behavioral Objectives. The Science Teacher, May, 1968, 32-33.
- McGivney, J. H. A More Rational Approach to Decision-Making in Vocational Education--PPBS, American Vocational Association Journal, May, 1969, 63-65.
- McGivney, J. H. The Center for Vocational and Technical Education, The Ohio State University, Program, Planning, Budgeting Systems for Educators. Volume II: A Case Problem. August, 1969, 116.
- McGowan, W. F. How to Apply Programming-Planning-Budgeting to your State. A Report Prepared for the National Conference of State Legislators, Washington, D.C. 1966, 1-2.
- Montague, E. J. Behavioral Objectives, The Science Teacher, March, 1968, 33-35.
- Mood, A. The Operations Analysis Program of the U.S. Office of Education, in Werner Z. Hirsch and Colleagues, Inventing Education for the Future, Chandler Publishing Co., San Francisco, 1967, 184-5.
- Mosher, F. C. Program Budgeting, Public Administration Service, Stratford Press, Inc., New York: 1954, 79.
- National Committee for Support of Public Schools, PPBS and School Management, NCSPS NEWS, September, 1968.
- Nelson, W. C. The Center for Vocational and Technical Education, The Ohio State University, Program, Planning, Budgeting Systems for Educators, Vol. II: A Case Problem. August, 1969, 116.
- Novick, D. Ed. Program Budgeting: Program Analysis and the Federal Budget, Cambridge, Massachusetts, Harvard University Press, 1965.
- Novick, D. Which Program do we Mean in "Program Budgeting"? Report (P-530) May, 12, 1954.
- Ontario Institute for Studies in Education. Strategy for Change, School Progress, 1970, 7-9.
- Poindexter, C. C. Planning-Programming, Budgeting Systems for Education, The High School Journal, Volume 52, no. 4, January, 1969, 206-217.

- Popham, J. W. Letter Outlining Purpose and Function of the Center. The Center for the Study of Evaluation. U.C.L.A. Graduate School of Education, Los Angeles, California. 90024, 192-3.
- Program Budgeting and other newer Management Tools of Higher Education: A Description and Annotated Bibliography, Occasional Paper no. 6, Seattle, Washington: The Center for Development of Community College Education, University of Washington, June, 1968.
- Quade, E. S. Systems Analysis Techniques for Planning-Programming-Budgeting, p-3322, Santa Monica, California, The Rand Corporation, March, 1966. 1.
- Quade, E. S. The Systems Approach and Public Policy, p-4053, Rand Corporation, March, 1969.
- Rapp, M. L. Evaluative, innovative educational programs, in S. A. Haggaret et al. Program Budgeting For School District Planning: Concepts and Applications. MM.R.M.-6116-RC, November 1969, 121-148.
- Rapp, M. L. Testing and Evaluation/Two Views, The Urban Review, Volume 2, no. 3, December, 1967, 5.
- Ristau, R. A. The Development Model for Methods and Procedures in a Planning, Programming, and Budgeting System, University of Wisconsin, University Microfilms, Inc., Ann Arbor, Michigan, 1970.
- Schick, A. The Road to PPB: The Stages of Budget Reform, Public Administration Review, December, 1966, 243-259.
- Smithies, A. Conceptual Framework for the Program Budget, in Program Budgeting, David Novick, Washington, D.C: U.S. Government Printing Office, September, 1965, 54.
- Thompson, D. R. Program, Planning and the Budget, School Business Affairs, November, 1968, 281-284.
- Tough, A. A Systems Approach to Budgeting Can Open Communication Bottlenecks, in T. Coulson and James Skarp. College and University Business, 44:5 May, 1968, 68-72.
- U.S. Congress, Hearings Before the Subcommittee on Economy in Government of the Joint Economic Committee, Congress of the United States, 90th Congress, September, 14, 19, 20, 21, 1967.

- U.S. Senate, Subcommittee on National Security and International Operations, Committee on Government Operations, Planning-Programming-Budgeting. 90th Congress, 1st Session and 2nd Session, 1967 and 1968.
- Unrah, J. Program Budgeting and Other Newer Management Tools of Higher Education: A Description and Annotated Bibliography Occasional Paper no. 6, Seattle, Washington. The Centre for Development of Community College Education, University of Washington June, 1968.
- Virgin, A. E. Four Steps in Evaluation, School Progress, March, 1972, 34-35.
- Weisbrod, B. A. Preventing High School Drop-Outs, Measuring Benefits of Government Investments, Robert Dorfman (ed.) Brookings Institution, 1965, 129-130.
- Wildovsky, A. The Political Economy of Efficiency: Cost Benefit Analysis, Systems Analysis and Program Budgeting, Public Administration Review, Boston, Mass., Volume XXVI, no. 4, December, 1966, 292-310.
- Wilkerson, D. Programs and Practices in Compensatory Education for Disadvantaged Children, Review of Educational Research, Volume 35, no. 5, December, 1965.
- Wilsey, C. E. Program Budgeting: An Easy Guide with the Confusion Removed, American School Board Journal, May, 1969, 16-19.
- Ziel, H. R. Education and Productive Society Conference Proceedings, Pub. W. J. Gage Ltd., Toronto, University of Alberta, June, 1964.

**END OF
REEL**