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ABSTRACT

Presented are papers and discussion summaries from the first research management conference for mental retardation research centers (Denver, 1974). Basic concepts and application principles of management by objectives are analyzed in a two-part paper by E. Douglas Hodo. Reviewed in a paper by Richard Surles and Norm Ellis is a decision system for management planning and evaluation. Richard L. Hopkins presents an overview of changes in grants management practices in the National Institutes of Health from 1950 to the present. Elements of standardized reporting procedures are discussed by Michael J. Begab. A final paper by Benjamin Dowd considers aspects of organizational theory, including assumptions and definitions, analytical models of the organization as a social system, and behavioral science models of personal and organizational effectiveness. Among six appendixes are bibliographies on management by objectives and on planning, programing and budgeting systems.
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RESEARCH MANAGEMENT SYSTEMS FOR
MENTAL RETARDATION RESEARCH CENTERS

PROCEEDINGS OF A CONFERENCE

EDITED BY

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JOHN F. KENNEDY CENTER FOR RESEARCH ON
EDUCATION AND HUMAN DEVELOPMENT
GEORGE PEABODY COLLEGE FOR TEACHERS
NASHVILLE, TENNESSEE

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PREFACE

The mental retardation research centers and the National Institute of Child Health and Human Development jointly share the responsibilities for the nation's major research effort on mental retardation. The research center concept for mental retardation research represents a unique national effort to understand, control, and annihilate mental retardation. The research programs of the national research centers provide a multi-disciplinary approach to the problems related to mental retardation. NICHD staff members and research center administrators have a strong responsibility to develop and maintain an organizational structure that will permit the highest degree of scientific productivity, efficiency, and economy. NICHD staff members and research administrators are extremely conscious of this responsibility and are continually seeking ways, techniques, and procedures to improve the efficiency of the MR research centers. This research management conference represents one of the ways in which NICHD and the MR research centers are working together to improve communications and to develop improved management procedures.

These papers and discussion summaries in this volume constitute the proceedings of the first research management conference for MR research centers, held in Denver, Colorado, April 25 - 26, 1974. The purpose of these published proceedings is to provide an outline of the basic concepts that were presented during the conference and to serve as a stimulus for improving management techniques in our national MR research centers. While these proceedings represent an identifiable output of the conference, the volume by no means represents the total output of the conference. In addition to the papers presented by the management consultants, NICHD staff members, and research administrators, many hours were spent discussing and debating management issues relevant to MR research centers. The discussion summaries at the end of each major presentation are an attempt to preserve the managerial ideas that emerged during the discussion sessions. It was, of course, impossible to capture all of the relevant ideas that were discussed and debated by the conference participants. The interactions that occurred among the participants in the formal and informal sessions of the conference cannot be reported in these proceedings, however, there were many lively, inquiring and stimulating informal interactions that occurred during the conference. The research administrators gratefully acknowledge the continuing support that the National Institute of Child Health and Human Development (NICHD) has given to the management functions for mental retardation research centers. We are indeed fortunate to have strong management support from Theodore D. Tjossem, Michael J. Begab, and Richard L. Hopkins. At this time we are especially grateful to NICHD and to these staff members for the professional services contracts that made this conference and these proceedings possible.

I am also grateful to the program committee, composed of Charles V. Keeran and Edward Linzer, for their assistance in planning the program and in implementing the conference. The program committee, in return, is also grateful to each of the research administrators who participated actively in the interactions that occurred during the conference.

My most urgent gratitude is due to the three outside management consultants who authored papers and were available for continuous consultation during the conference. These persons were E. Douglas Hodo, Richard Surles, and Benjamin Dowd.

Finally, I am extremely grateful to Doreen DiDomenico, Norma Morris and Nell Ayers for their enormously valuable service in the preparation of these manuscripts for publication.

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OPENING REMARKS

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I would like to take this opportunity, on behalf of myself and the National Institute of Child Health and Human Development, to welcome each of you to this research management conference for MR administrators. Many of you know that the research centers program is now approaching its tenth year of operation. Many of you will recall the language of PL 88-164 which initially set into motion the mechanism for the establishment of the mental retardation research center program. Over the past years the mental retardation research center program has been confronted with the development of various pioneering activities in that we have had no precedence from which to draw the formulation of policy or procedures. The MR research program has been one of the pioneer programs in center-concept development. In fact, many of the other center programs that have evolved out of NIH have been patterned much like the MR research center program. I believe that it is highly appropriate for us at this point in our history to reflect on our past experiences to determine where we are today and where we ought to go in the years to come. I believe that it is a timely point in our history to re-examine our policies and procedures which each of you follow in trying to satisfy some of the quantitative and qualitative requirements and expectations of NICHD.

Each of you as research administrators have a somewhat different style of administration. You occupy a different position in the hierarchy of organization, you have different responsibilities and functions, yet I feel that if I were to say anything that applies to all of you, I would say that in many respects you represent the heartbeat of the mental retardation research center program. In your role as research administrators, you have established effective communication systems among the directors, research scientists, and the NICHD staff. Each of you play a very important and unique role in your respective research centers. Some of the differences that may exist in your respective roles may be related somewhat to insufficient standardization in reporting procedures from NICHD. I believe that this research management conference is a first step in trying to develop some common elements of activities, common reporting procedures, and a rationale that all of you can attend to in terms of our expectations and the expectations of Congress and, ultimately, the public who is constantly looking over our shoulders. I hope that in the course of the next few days we will come to a better understanding of what an administrator will need to manage his internal operations and what NICHD needs to do to support the managerial effort. I am hopeful that this first research management conference will be successful enough to generate future discussions and activities related to standardized reporting procedures and the implementation of new managerial techniques to mental retardation research centers.

CONFERENCE ORGANIZATION: OBJECTIVES AND RATIONALE

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Introduction

The accelerating complexities of the mental retardation research centers demand new dimensions in establishing organizational structure, information systems, decision-making systems, and communication systems. The administrators of the mental retardation research centers have a strong need to keep abreast of modern management techniques in order to assure that each center is being operated at the maximum level of productivity. While each research center is unique and has its own set of established organizational goals, there is still a common core of administrative and management functions that are essential to the operation of all 12 research centers. Some of these functions may be listed as program planning; effective decision-making; coordination of center programs; coordination of center activities with departments on campus, between campuses, and with community and governmental agencies; evaluation of center programs; communication of information; budgeting; planning; expenditure control; expenditure forecasting; cost analysis; and space utilization.

When one begins to search the literature in the field of research management, one is quick to discover that very little research has been conducted in areas related to the management of research centers. The mental retardation research administrators have an excellent opportunity to pioneer research in the development and implementation of management systems for research in the mental retardation research centers. This research management conference could provide the first step in the development of a continuing system of education for administrators and research in the area of applying the systems approach to the management of mental retardation research centers.

Conference Rationale

Management theory and practice have undergone radical changes in the past two decades; these changes are certain to continue and indeed to accelerate. It is no longer enough that the administrator be skilled in a functional specialty or that he only understands the traditional functions of planning, organizing, and controlling. Something more is needed, such as systems approach to management coupled with the ability to participate in the design and utilization of business management techniques. The systems approach is the new philosophy of managerial life. The 1970s are ushering in a new concept in management--the age of systems.

The development of effective managerial systems is vital for the organizational survival of the mental retardation research centers. The administrators of the mental retardation research centers have recognized the strong need for the development of innovative organizational structures that provide scientists with the ability to be creative and productive. There is, however, a distinct

difference between the scientist and the administrator. The scientist usually operates at the technical level and utilizes his specialized knowledge and skills for task performance. The administrator of a research center operates at the organizational level between the technical level and the institutional level or top management. His primary function is to relate the technology to the broader institutional requirements. The administrator frequently faces conflict between the needs of the research scientist in the technical system and the constraints imposed by the institutional system or the fiscal system.

The managerial system frequently depends upon the nature of the task. There is a continuum between basic and applied research and development. In basic research the system should provide for the greatest creativity, flexibility, and autonomy for the participant. Basic research requires a work environment with a high level of self-motivation and limited external control. Ideally, the managerial and the psycho-social systems provide a climate where the professionals integrate their activities toward the goals of the organization.

As the task of scientific groups move toward applied research and development, a more structured managerial system is effective. In these activities, goals are shorter range and are directed to specific accomplishments. Consequently, there is less reliance upon self-control and autonomy and there is more organizational control than in basic research. However, even in applied research and development departments, a highly mechanistic managerial system is inappropriate. A significant amount of professional autonomy and independence leads to a higher level of participant motivation and greater effectiveness.

The role of the research administrator is to do all that he can to establish a framework wherein the basic scientist and applied scientist can have as much freedom and autonomy as possible to conduct his professional work. In the establishment of this type of an organizational structure, the administrator frequently has a role conflict. The research administrator is seen as a man in the middle, caught between the frequently conflicting goals of the research scientist, the research organization, and the parent institution. These two conflicts can be classified as: 1) intersender conflicts created by his position between the technical system and the higher institutional system; and 2) personal role conflict based upon his own norms and values. The research administrator becomes the moderator between the technical system and higher management with pressures exerted from both sides. He is often caught between two reference groups with different values and objectives.

The research administrators of the national center for research in mental retardation are interested in the development of an organizational structure that would be designed to identify administrative problems within the 12 mental retardation centers and to develop problem-solving techniques for these problems. This conference is designed to be a step toward the development and implementation of the systems approach to research management in the mental retardation centers.

The global objectives of this conference are to establish the framework for a system that will provide the MR research center administrators the opportunity to discuss management problems and review techniques for improved management in the research centers. More specifically, the conference will address the basic problems related to standardized reporting procedures and new management techniques.

The content of the conference is divided into four sessions as shown in the following outline:

Presentation Outlines and Learning Objectives

OPENING SESSION

I. Management by Objectives for Research Organizations

A. Presentation Outline

1. Basic Concepts of MBO
2. Relationship of MBO to the Management Process
3. Translation of Organizational Objectives into Objectives for Subunits of the Organization and into Objectives for Individuals
4. Personnel Benefits of MBO
5. Resistance to MBO
6. Implementation of MBO
7. Proposed Model of a MBO System for Research Centers

B. Learning Objectives

1. Be Able to Describe the MBO Approach to Management in Terms of Structure and Dynamics
2. Be Able to Describe the Steps in the Process of Implementing MBO
3. Be Aware of the Behavioral Issues Which Arise in the Implementation and Maintenance of a MBO System
4. Be Able to Analyze Their Own Job in Terms of the MBO Framework
5. Be Able to Improve Their Performance by Taking a MBO Approach to Their Own Job

SECOND SESSION

II. Management Planning and Evaluation Systems for Mental Retardation Research Centers

A. Presentation Outline

1. Basic Concepts of Strategic and Operational Planning
2. The Planning Process and Its Relationship to Evaluation
3. Matching the Planning Process with the Organization
4. Techniques for Assessment of Environment: Trends, Threats, Opportunities and Constraints
5. Selection of Operational Strategy

B. Learning Objectives

1. Be Able to Understand and Use the Planning Process in MR Centers More Effectively
2. Be Better Equipped in Assessing the Environment: Trends, Threats, Opportunities, and Constraints
3. Be Able to Select Appropriate Organizational Planning Strategies for MR Centers

THIRD SESSION

III. Standardize Reporting Procedures for Mental Retardation Research Centers

A. Presentation Outline

1. Uniform Statistics of Improved Reliability, Timeliness, and Usefulness to National Agency and Research Centers
2. Improved Standards of Reporting
3. Identification of Information
 - a. Identifying Data
 - b. Administration and Organization
 - c. Program Content Form
 - d. Personnel Information
 - e. Fiscal Data
 - f. Grant Information
 - g. Others
4. A Plan to Collect and Synthesize Management Information That Will Reflect the Effectiveness and Efficiency of the MR Research Program

B. Learning Objectives

1. Be Able to Identify Management Information Needed for Accountability
2. Be Better Equipped to Respond to Information Needs Related to the Efficiency and Effectiveness of a MR Research Center
3. Be Able to Comply with Standardized Reporting Procedures and to Issue Periodic Reports

FOURTH SESSION

IV. Effective Leadership Styles for Research Management

A. Presentation Outline

1. Basic Theories of Behavioral Sciences
 - a. Douglas McGregor
 - b. Rensis Likert
 - c. Chris Argyris
 - d. Abraham Maslow
 - e. Robert Blake and Jane S. Mouton
 - f. Others
2. Behavioral Science Models of Personal and Organizational Effectiveness
3. Managerial Styles

B. Learning Objectives

1. Be Able to Explore Personal Assumptions and Models for Managerial Effectiveness
2. Be Able to Conduct a Self-Appraisal as an Administrator
3. To Become a More Effective Administrator

The design of the conference is not centered around individual problem solving techniques, but is centered around the development and discussion of established management principles. As can be seen from the conference outline, the major topics are related to management by objectives, management planning and evaluation systems, and effective leadership styles. Discussion periods will be available in order that we may apply the material presented to our individual research centers.

As one major mission for the conference, we want to develop a plan that will help identify a wide range of parameters that can be used to measure the productivity and efficiency of the research centers.

MANAGEMENT BY OBJECTIVES FOR RESEARCH ORGANIZATIONS: PART I

E. Douglas Hodo
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Introduction

There are management attitudes still in vogue today which are causing the morale and productivity of many organizations to nose-dive like a bird without any tail feathers. We call this management style Theory X because it is so heavily authoritarian in that one of the basic tenets is that work, in and of itself, has to be unpleasant, and workers, by definition, must be manipulated into producing. At the same time, the boss feels that the organization should exploit workers before the workers take advantage of the organization by loafing on the job and, eventually, stealing from the organization. On the other hand, there are executives classified as more enlightened who are substituting, for Theory X attitudes, a climate of work commonly referred to as Theory Y. This theory holds that workers, when challenged, will move out and do the work because they want to do it. They do the job because they are self-motivated. Theory Y proponents feel that job enrichment means more production, or another way to put it, more productivity.

Perhaps you have been associated with the boss who frowns deeply when he hears laughter coming from another part of the office under his "jurisdiction." The response is immediate. It brings deeply-rooted emotions of long-standing distrust for those who laugh on the job. Something is wrong. The second time the laughing is louder and longer--that brings the boss to his feet as his knuckles turn white from gripping the desk in an attempt to restrain himself from blowing his top. He rises slowly to cross the office, stops at the door, beckens to one of the jovial junior officers to whom he has been intending to assign some additional work. This outburst cinches the decision. Although our man would not admit to the accusation, he is deeply entrenched in Theory X.

Theory X has been described by some as "the most prevalent attitudinal disease of the modern organization." Proponents maintain that work is basically unpleasant and when executives who operate in that realm find employees who appear to be enjoying themselves, their immediate reaction is one of suspicion and concern that the employees are goofing off instead of working and the supervisor moves to head-off enjoyment in the future. By unconsciously, but systematically, taking away enjoyment modern organizations drain quality, variety, and richness from the lives of its employees.

There are many people today that believe that work is really unpleasant and that all workers, regardless of their level of responsibility from the top to the bottom, really do not like work. Basically, this is just one of the segments of a constellation of related attitudes which was called by Douglas McGregor as Theory X. Many employers today believe that workers not only are lazy but they have to be forced to do the work by almost a Simon LeGree type of pressure through threats or stern warnings. The basic Theory X manager also thinks that workers cannot be trusted, that they are people who will do anything they can to get out

of work. By the same token, the Theory X manager thinks that authority is the only method by which workers can be cajoled into doing something. Someone has to make the workers work. Someone has to control them, direct them and take care of them. The manager usually regards workers as less intelligent, even less gifted, and almost always less mature than himself and this is just one of the many ways in which Theory X attitudes were expressed.

However, this is not always the case. As we know, the worker of 1974 is much better educated and better informed than his predecessors. The result is that turnover is high, and production is low, and this is due not to the laziness of the worker but because of the boredom of thousands of jobs that they fail to excite and challenge or even stimulate the bright workers.

However, to blame the perpetration of Theory X attitudes on management alone really over simplifies the problem. Workers themselves contribute to keeping Theory X attitudes rolling along. The worker believes that his job is just as painful and unpleasant as being chained to the oars of a slave ship and, therefore, he controls his energy and does as little as possible without getting the supervisor aroused. This in turn means that the supervisor attempts to bring down the time motion study people from upstairs in an effort to institute tighter controls and stronger pressures on the worker. The conflict, mistrust and competition which eventually emerges between the supervisor and the worker brings the prophesy to fulfillment. This in turn means that it makes a job more painful and more unpleasant, which means that the supervisor in turn institutes more controls.

The self-fulfilling prophesy succinctly stated goes something like this. "An individual who expects something to happen can often create the expected results and he does it sometimes consciously but, more often and more likely, unconsciously."

Symptoms of Theory X Attitudes

Theory X attitudes can creep into almost every segment of an organization. They influence personnel policies directly. Indirectly they can have a substantial impact on worker productivity and motivation. Therefore, I feel that it is important to attempt to recognize the symptoms and understand how Theory X attitudes can drain incentive, morale, productivity, and any other segment of the organization that you want to look at.

Climate

The climate of a Theory X organization is usually very sober, very serious, intense, and is often built upon a foundation of fear. This foundation of fear has a very broad base because the pyramid grows from the bottom up. The worker fears the manager, the manager fears the division director, and the division director fears his vice president, and the vice president fears the president. The fear is not difficult to diagnose in an organization. All you have to do is look around as executives pass through the office. Conversations stop, workers become very attentive to detail, there are very few spontaneous greetings, and tension is prevalent. There are no smiles and no laughter. There is a high rate of turnover in every area of the organization, especially at the low levels where workers have very little to lose if they should quit.

Lack of Communication

The fear which pervades the entire organization certainly restricts communications. Theory X executives believe that workers are not as bright as the managers so they don't ask the workers for any ideas or suggestions and by the same token, workers are afraid to make suggestions because their ideas are frequently seen as criticisms of the existing system. The more top executives rely on and emphasize their authority, the more difficult it becomes to maintain communication, and the more difficult it becomes for them to understand what is really happening at the worker level. So we see that communication breaks down and from that it becomes a total disaster.

Lack of Innovation

There is an old saying that there are no more curious animals walking around than people and monkeys. In spite of all the pressures that we as humans operate under to do a job in a prescribed manner, many of us engage in trial and error experiments in an effort to change our jobs just to bring about variety. This is especially true where workers work in a very monotonous, repetitive situation. I have very often seen that workers will find a more efficient, faster method for completing their work given the opportunity. However, in a Theory X organization, the worker keeps the tricks of the trade to himself, and he certainly does not allow management to find out what these are, because if the new technique were given to management, more than likely production targets would increase. So Theory X organizations have a way of becoming stagnant and rigid, and this has been called candidly "dry-rot" because people tend to just sit and rot away. Without communication, then, innovations occur less frequently. Costs are not easily reduced and any attempt to increase production is met with very stern resistance on the part of workers.

The Devine President

Another of the outstanding methods of being able to distinguish Theory X attitudes is the belief that the manager or director has super-human qualities. When he moves through the various areas of the organization in a physical setting, people are literally frozen in their tracks as they watch him go by, and when he speaks at the very infrequent management meetings, more often than not, his words are recorded on stone tablets for preservation on the side of the building. No one has the intestinal fortitude to question or disagree with one of his basic tenets. This is the reason why management meetings are held rather infrequently and in a Theory X organization they are not very informative as well.

Centralization

With the attitudes we have described previously that workers are usually regarded as rather stupid and lazy and management as having the almost devine insight given from above, it follows that authority should be jealously guarded, and this is why the Theory X executive finds it very difficult to delegate authority to people who are below him. He believes that if he can pull the power to himself and focus as many decisions as possible on himself, then his problems

will be alleviated to a large degree because the correct decisions will be made initially, in that he makes them all. The organization chart then will show that the Theory X executive has far too many people reporting directly to him.

Closely Held Information

Theory X executives are also fearful of sharing information with employees beyond what is shown in the annual reports and without proper information, employees cannot determine what the objectives of the organization are. It is hard to know where you are going when a board is being held in front of your face. Without some real direction, employees lose sight of what the picture is or could be and they find it very difficult to correlate their work or the work of their departments with the rest of the organization. Like a good football team, you have to have an end zone to run to; a basketball team has to have a basket to shoot for. The activities of workers become aimless and without direction when they operate without clearly defined objectives. One thing that I found out in business is that if you share information with employees, they feel that they are on the inside and their whole attitude changes.

Employment

Theory X attitudes also influence employment practices in many ways. The executive who is very dogmatic in his management style tends to hire people in his own image and the specification that he sets down for people that he intends to hire are often so idealistic that the achievement of them is nigh on to impossible. Because the Theory X executive finds it hard to trust his employees, he often fills key positions from outside the organization rather than from inside. The reason for this is that the faults of the new man are not too well known if known at all. So he is better able to fit the idealistic specification set down by the manager. In the long run, this contributes to the rather feverish swapping of middle managers which is indulged in by Theory X organizations as they use people who are trying to move up the ladder.

Training and Management Development

Theory X organizations usually spend very little time and/or money on training and management development. They think that the reason a person goes to seminars or to executive development programs or things such as where we are this morning is strictly as a waste of time, as a place where people just go to goof off. They do not feel that the social interaction as well as the shop talk that takes place at these seminars is worth much. So what happens is that the supervisors that attend these type meetings usually find that they are way behind as far as current practices are concerned and feel that they have been looked down upon and do not intend to go again. Both parties see the form appraisal as a search for faults and a critical review of these traits which are holding the man back. In other words, the people who go to management development seminars or training seminars out of a Theory X organization feel that they are being castigated for the poor positions that they are in. Many organizations provide a form for the supervisor to give his opinion of the employee's attitude, of personality and appearance. The General Electric Company, in a series of research

studies, discovered that productivity of employees actually falls off following this kind of performance appraisal. GE also found out that praise has little or no positive impact on performance. On the other hand, criticism has a negative effect causing resentment on the part of most employees, and that goal setting, management by objectives (MBO), provide the most healthy and productive climate.

It is one thing to be able to identify Theory X symptoms. I think most of us can accomplish that. Completely reversing them is certainly more difficult. It may be that man like other animals establish pecking order systems where every member of the group tries to establish his place in the hierarchy of power. It may be that modern organizations merely provide new settings for the ancient tribal organization forms. We have our chiefs, our warriors, our craftsmen, our witch doctors, and even go through the rituals. Some have suggested that we have created initiation ceremonies in the form of psychological testing. We may have replaced spears with briefcases. The board room now substitutes for the council and for the elders, and ties and calendar watches have replaced feathers and bone necklaces. Probably when anthropologists focus on modern business organizations as we know them today, we may be able to better assess the true historical roots of business organizations. At the present time, organizational theory lacks this prospective. Even though organizational theory is in its infancy, evidence suggests that Theory X attitudes are rapidly losing creditability.

It is becoming more widely recognized that when people enjoy their work, they do it better. They also do it faster. Given 10 things to do, they will do those they most enjoy first. Other things will be put off till later. Often the tasks that are put off are not the difficult or challenging ones. They are the boring, repetitive, routine ones.

It is also becoming increasingly clear that employees succeed because of their strengths-in spite of their weaknesses. Accordingly, performance appraisal systems which focus on criticism and the identification of weaknesses are off-target. To use an analogy, they are like trying to make every member of a football team perfectly rounded. This lineman must work on passing, that half-back on kicking field goals. The more logical approach is to build on a manager's natural strengths, make them better, and mold a team that combines various skills. These and other insights rip huge holes in Theory X.

Theory X organizations can best be treated by introducing Theory Y attitudes. These include: The idea that work is pleasant, the belief that workers are self-motivated when challenged, and that workers are intelligent, creative, and able to offer substantial assistance in solving problems.

Some theorists seem to believe that Theory Y is an abstract, nearly impossible to achieve state of kindness, milk and honey. In the abstract, it may be, but practical elements of Theory Y are achieved daily at top executive levels. Top executives often treat one another as peers. Somehow they feel that rigid position descriptions and formal performance appraisal are not appropriate for them. (They establish targets in a participative climate.) They are open with information, seek one another's advice to solve problems and are often less rigid about keeping work hours. Under these conditions, they are also self-motivated. Many work longer and harder hours than their subordinates, not because they have to; because they have enough information to understand the organization, and are motivated by the feeling of making meaningful contributions. They are usually committed to the

organization, think of it as partly their own. Unlike the worker who is anxious to escape from his boring, routine, unchallenging job at the earliest moment, the executive is interested, excited, challenged by competition and the sense of real participation.

Unfortunately, many executives fail to translate the same Theory Y attitudes practiced at the top to lower level workers. They think of workers as expendable, on trial, in need of control, etc. They distrust workers, and in many cases, the suspicion is a natural outgrowth of too little knowledge of the worker's situation. Kept in the dark, the worker could care less about excellence in workmanship. When he is treated like a serf, he acts like one.

There are probably no quick or easy methods for strengthening Theory Y attitudes, but executives who are willing to make the attempt should try the following general methods:

Decentralize. Create as many small centers as possible. This approach will allow maximum participation from workers in goal setting and problem-solving. The smaller the organization, the easier it is for the worker to identify with team objectives. He also can see the impact of his contribution more clearly. His interest in the organization is lost when he becomes lost--another anonymous worker.

Management By Objectives. Throw out the old critical performance appraisal forms. Also, throw out rigid position descriptions. Replace them with goals and objectives prepared by the employee each year as an integrated part of planning activities.

Management Information Systems. Develop solid systems for collecting and disseminating information. Without fast feedback of data to employees, Theory Y has a hard time surviving. The system must be simple enough so that workers understand it. It must be accurate, and it must provide frequent feedback which clearly shows progress toward agreed-upon objectives. He should know when his unit is doing well. He should worry about the same things as the director and feel the same pride and sense of accomplishment when things go well.

Job Enrichment Training. Team building and training in participative management should take place in all centers. Jobs which could be performed by trained chimpanzees should be redesigned, made more complex, more challenging. Workers themselves should actively participate in eliminating dull and demeaning jobs. There are thousands of such positions in modern organizations.

Reward for Results. Prompt and consistent rewards should be provided in the form of information, recognition, promotions, and awards for those who achieve measurable results. Support and assistance should be provided, rather than punishment, for centers which fall behind.

Theory Y attitudes should also be expressed by management in their day-to-day behavior. They should break down artificial status symbols and encourage ideas, suggestions and problem-solving from below. Whenever rigid or dehumanizing policies are recognized, they should be changed.

The Role of Technology in Theory Y. Just as technology has released most men from backbreaking physical effort, so can the development of information

systems free him from the psychological pain of being treated as a serf. As the responsibility for planning, budgeting and for achieving measurable results is pushed further down in the organization, larger numbers of employees can share in the excitement, competition and challenge of life. Therefore, results must be accurately measured and reported so that the worker, as well as the president, can see progress or lack of it, clearly, quickly, and reliably. Much needs to be done in consolidating budgeting, planning and goal-setting activities. The accounting and EDP functions must expand their services to provide easily understood reports to all subunits and centers, not just the top. They must assist in creating forecasts, guide in the development of budgets, and provide continuous monitoring and feedback of information systems.

Summary

The time is rapidly approaching when Theory X authoritarians, like the unskilled workers they controlled, will be replaced. The development of simple, accurate and reliable management information systems which show results are providing better controls than fear and manipulation. As it occurs, the quality of life will improve. Rather than attempting to guide a massive effort with a handful of selected top executives and a staff of stern supervisors, new information systems will allow goal setting and measurement of results in smaller functional units and centers scattered in logical segments throughout the organization.

We will also be able to attract and challenge many of the bright young men who are currently avoiding careers in research. We will be able to offer challenges that have measurable impact on output. We will be able to encourage innovation, greater sharing of responsibilities, and working environments that challenge and contribute to richer, more interesting and more enjoyable careers. In time, we may also begin to laugh and enjoy the company of our fellow workers without hitting Arthur Bigsby's panic button.

MANAGEMENT BY OBJECTIVES FOR RESEARCH ORGANIZATIONS: PART II

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Management by Objectives

No organization is stabilized. It either progresses or declines. There is no status quo, either in organizations or in family life. There is, however, a factor that we did not pay much attention to years ago called "time." Contemporary managers look on time as the key to success. Because of time, we, as individuals, either progress as managers or we decline.

Because of the emphasis on "time," current management research is directed, in part, at how to maximize productivity in the time allotted for work. This research indicates:

- 1) What a manager expects of his subordinates and the way he treats them largely determine their performance and career progress.
- 2) A unique characteristic of superior managers is their ability to create high performance expectations that subordinates fulfill.
- 3) Less effective managers fail to develop similar expectations, and, as a consequence, the productivity of their subordinates suffers.
- 4) Subordinates, more often than not, appear to do what they believe they are expected to do.

Management by objectives (MBO) supports these research results. It has expectations built into it which the subordinate can see and the subordinate himself designs. The MBO Contract is the tool that leads to progress and performance. Of course, the opposite is true. When less effective managers fail to generate expectations the productivity of their subordinates suffers. As with any managerial system, the subordinate more often than not appears to actually do what he believes is expected of him.

How do you view your job? Do you not actually view it from what you believe it involves. Sure, your boss may give directions, but how you interpret these directions is the way you actually approach your job.

History

Where did this idea of MBO come from? Back in World War II, because of a food shortage, we had food rationing. A man by the name of Dr. Kurt Lewin observed how ladies spent rationing stamps to buy groceries and other staples that were in short supply. He noticed they very carefully planned each meal on a weekly basis (immediate and long-range planning, if you wish). He viewed how they planned to spend their ration stamps for each meal and then went to the

store, purchased the items, brought them home, and very carefully planned each meal to stretch their limited resources. He called this procedure buying by objectives. Later it was turned around and developed as Management by Objectives.

MBO has been around a long time as a title. What is so different about MBO and its contemporary theory compared to some of the things we have been doing in management for years? We can approach this difference from two points of view--philosophical and pragmatic.

Philosophical

From a philosophical approach we have both technological and social trends.

Technological. Large corporations are becoming more interdependent than competitors because of their technology. The same is true for research centers. They must become more interdependent to compete. Successful administrators today and in the future are those that can cope with change. Frederick Herzberg indicates that in the last 25 years we have progressed the same distance technologically as we did in the past 500 years. In 25 years, in our lifetime, we accomplished the same rate of advancement as approximately 10 generations did during the previous 500 years. What does this mean when it comes to management and coping with change? It means we, as administrators, need to learn how to cope with change. Many of the publications in management today indicate the people who are going to survive in the "Management Jungle" are the ones that can best cope with change. All organizations are changing. In one New York bank, they did away with the president's position and established the office of the president made up of three people--a troika. Why 3? Well, someone has to break a tie decision.

Social Trends. Over 50% of our workforce is under 30 years of age at this time. Warren Bennis indicates 50% of the nation living in urban areas will have attended college by 1975. The workforce is becoming younger and younger; these are highly educated people, not in experience, but in exposure to information. Because of this exposure, they come to the workforce with a greater amount of information than we had at the same chronological age. These are different young people--they sort of demand a different way of life, demand a greater piece of the action when they come to work. They want more participation and they want more autonomy.

Pragmatic

No individual can control all activities of a large modern organization or conglomerate. But, if he can control the results or output, he can manage the largest organization in the world. This is one of the keys to Management by Objectives--managing output and results. Traditional management appears more concerned with input and process. We always thought if we could control the input and process, the necessary output would result. This traditional concept, like a lot of management principles and management techniques that have been taught for years turn out to be old wife's tales or half truths at the most when viewed in light of contemporary research.

Conventional management indicates the administrator, who knows the job, gets together with the personnel people and writes a job description for a vacant position. After all, they are the people that really know what is to be done. Then personnel hires a person to fill the job. After about a week on the job, the individual says, "Wait a minute, I do not perceive that my given job is the same as the job description." Is this true? There is a very interesting survey that indicates if you took a supervisor and his subordinate, set them in separate rooms, and asked them, "What are the key job responsibilities of the subordinate's job?" Their answers would generally form a 25% mismatch. If you asked them, "What are the key problems in carrying out the job," you have a 50% mismatch. When you come to, "What is the creativity and initiative required of that job," you get a 95% mismatch.

How does MBO handle this situation? After the individual is hired, using the job description, the manager describes the job to the subordinate. After a week or two, the subordinate writes what he believes the job entails and what he sees is expected of him. He is saying, in essence, "This is my job, and these are the things I expect to accomplish." He then gets together with the manager and they set standards and objectives through a negotiation--contract process. As the individual progresses under the contract, more and more responsibility is delegated according to the results he achieves.

Planning, organizing, performing, controlling, and reviewing are still taught as basic functions of management. Let us look at these functions from a subordinate/supervisor relationship. Who does the planning according to traditional management? Who does the organizing? Who decides who will do it? The manager, of course! Who performs the work? The subordinate does. Who will make sure that it is done right? The manager will. And who will summarize the results? The manager will. In other words, of these five functions of management, four are the responsibility of the manager and one the subordinate. How can a subordinate feel he has a piece of the action when most of the functions are done by someone else. Contrasting these traditional concepts with contemporary research indicates the following:

<u>Traditional</u>	<u>Emerging Concepts</u>
1. Set goals for subordinates, define standards and results expected.	1. Participate with people in problem solving and goal-setting.
2. Constant quality control of subordinates' performance.	2. Largely a self-responsibility. Day of reckoning at "Progress Review."
3. Bureaucratic procedures and policies to keep people in line.	3. Self-discipline from results/responsibility.
4. Stimulate subordinates by forceful leadership and emotional appeals.	4. Allow people to set goals.

<u>Traditional</u>	<u>Emerging Concepts</u>
5. Development of new methods from above.	5. Opportunity for innovation and change delegated to subordinate.
6. Promotions come as a result of subordinate conforming to corporation policy.	6. Advancement through results.
7. Limited opportunities for boss-subordinate interaction.	7. Opportunities for interaction through personal review.

MBO Philosophy

An effective and workable MBO system places emphasis on results rather than activity. It encourages the subordinate to develop a management style that is output oriented rather than emphasis on input and process. It is not a system to help the manager do things right, but to help him find the right things to do. A viable and functional MBO program has the following specific characteristics:

- 1) Simple - The process is limited to a minimal number of forms and administrative activity.
- 2) Confidential - Only the subordinate and his immediate boss have knowledge of the contract contents.
- 3) Personalized - The contract is originally developed by the subordinate and negotiated with the boss from this basis.
- 4) Flexible - It is understood that the contract may be renegotiated when the job changes or additional factors affecting the nature of the job are added or withdrawn.

A MBO system of management should not be tied to compensation or a monetary reward system. First, individuals would be prone to hold back and play it safe with little or no stretching in their contract. Second, in any lean year where funds were not available for such rewards, MBO as a management tool would become ineffective.

MBO is not a perfect management system. There are both advantages and disadvantages to the system. However, the advantages usually outweigh the disadvantages. Some of the advantages of a good MBO system would include:

- 1) Forces managers to manage.
- 2) Allows manager more time to plan.
- 3) Permits subordinate to keep track of his own progress and control his destiny.

- 4) Encourages creativity.
- 5) Improves relationships during performance review.
- 6) Insures management effort is productive.
- 7) Clarifies role conflict and ambiguity between boss and subordinate.

MBO forces management into planning, measuring, and judging results as they relate to established goals.

On the other hand, some disadvantages should also be noted. Some of these disadvantages are:

- 1) It can be an administrative burden. If the MBO process is going to be another administrative kind of paper mill on top of everything--let us try something else. It is not worth the extra effort. As the process is currently outlined, I do not believe it is. It is a simplified process. It is a tool that you can use to do a better job.
- 2) Minimum satisfactory performance can be maximum output. If your contract indicates just what you did last year, and no more, forget it. A viable contract has a stretching factor. People either progress or they decline. There is no such thing as the status quo. If minimum satisfactory performance is all you expect, you are going to decline.
- 3) Goals are changed too frequently without justification. If you allow your subordinates, or your boss allows you, to change your program too often without real justification then you slip back into this minimum satisfactory performance mode.
- 4) Too much emphasis on quantifiable objectives. There is a difference between measurement and quantification. Some areas such as claims, and some staff areas are very difficult to quantitate. However, if we use a measurement indicator on their activity, we can still prepare meaningful MBO objectives.

MBO Implementation

The individual responsible for implementation might be the person responsible for development. The schedule for implementation in terms of months should be something similar to the following:

- 1) Provide individual training and guidance--first two levels of management--4-5 months.
- 2) Implement MBO--first two levels of management--10-12 months.
- 3) Expand MBO to include--next two levels of management--10-12-levels, etc.

The most effective method to implement MBO is to follow a preset plan. Such a plan might include the following items:

- 1) MBO should be implemented from the top on down. The leaders must give the MBO program conceptual approval.
- 2) The concept will utilize a simplified process and format. The MBO contract is a single page format with the front page like a legal contract. The next page has three columns: Key Result Areas, Indicators, and Objectives. An example of the second page of the contract is shown in Figure 1.
- 3) Establish and maintain an environment of trust and confidentiality. The contract is a confidential document between you and your superior or between you and your subordinate. No one else should see it. The confidentiality must be maintained. If it is not, the program will fail. One reason it is confidential is that you might have two subordinates, both in identical jobs, but have different experience. One may out produce the other. The one that is lagging behind will have his contract written differently. His stretching factors may be different.
- 4) Emphasize MBO orientation and training at all levels.

In order for a successful MBO program to work, research centers need:

- 1) A long range plan outlining objectives, short range action plans, and individual objectives to meet gap requirements.
- 2) A management information system. Most research centers utilize this and it is a very necessary part of an MBO process. Feedback is necessary to know how well you are doing. MBO literature indicates when corporations enter MBO, some reports, specifically machine runs from a computer, are no longer needed. However, some reports that are more meaningful are developed.
- 3) A monthly administrative/management meeting.

One must also be aware of the pitfalls that can occur while implementing an MBO system. Some common pitfalls are:

- 1) Lack of understanding and commitment by key managers.
- 2) Implementing too rapidly.
- 3) Inadequate MBO orientation and training.
- 4) Failure to mesh short-term with long-term objectives.
- 5) Burdensome emphasis on paperwork and procedures.
- 6) Tying MBO to a system of rewards, too.
- 7) Failure to hold scheduled progress reviews.

KEY RESULTS AREAS WORKSHEET

Duties and Actions	Grouping of Related Duties and Actions	Key Results Areas	%T
<p>1 Recruit and assist in hiring clerical, professional (college recruiting) and managerial personnel for the company.</p>	<p>1 1 - Recruit and assist in hiring --Clerical --College --Management</p>	<p>1 Manage manpower-recruitment (internal and external) program.</p>	<p>20</p>
<p>2 Design and conduct training and management-development programs.</p>	<p>10 - Aid to education program.</p>		
<p>3 Manage the manpower recruiting and development department of 15 people.</p>	<p>2 2 - Design and conduct training. 4 - Administer college-trainee program.</p>	<p>2 Manage manpower and management-development program.</p>	<p>20</p>
<p>4 Administer college-trainee programs.</p>	<p>3 3 - Supervise recruiting and manpower development staff.</p>	<p>3 Supervise, plan, organize and maintain an effective department.</p>	<p>40</p>
<p>5 Plan budget for department and control expenses.</p>	<p>5 5 - Budget and control expenses.</p>		
<p>6 Assist in management of personnel department.</p>	<p>4 6 - Assist in management of personnel department.</p>	<p>4 Provide assistance and consultive service.</p>	<p>20</p>
<p>7 Research and keep abreast of changes in the field.</p>	<p>8 8 - Consult and assist department heads.</p>		
<p>8 Consult with department heads on recruiting and manpower-development matters.</p>	<p>5 7 - Research and keep abreast. 9 - Maintain salaried records.</p>	<p>5</p>	
<p>9 Maintain all salaried-personnel records.</p>	<p>6</p>	<p>6</p>	
<p>10 Assist in planning and administration of aid to education/contribution programs.</p>			

Figure 1

Goal Setting

The heart of managing by objectives lies in establishing tangible, measurable and verifiable objectives in key areas of performance. Although overall organizational goals generally constitute a starting point, a distinction is made between those goals which are specific targets (e.g., the number of tests run for a given period) and those nebulous statements which remain unchanged from year to year (e.g., "sound relations"). Once specific overall goals have been established, the step-by-step process of translating them into required action throughout the organization begins.

Upper-level directors formulate the specific objectives they plan to attain. These are generally concerned with each leader's (or group's) own area of responsibility and are consequently somewhat narrower in scope than the overall organizational goals. Once approved by top management, the objectives of each leader are communicated by him to his subordinates. The subordinates, in turn, go through essentially the same procedure of translating their superiors' goals into required action and formulating objectives in their own areas of responsibility. Once again, the goals of each subordinate represent only a part of his superior's goals, are narrower in scope, are more detailed, and generally cover a shorter time period. The process is repeated at every level of management until a clear and integrated hierarchy of objectives exists throughout the entire organization.

Action Planning

While a clear set of objectives reflects the "ends" of managerial performance, well-conceived action plans provide the "means" for their attainment. Action planning involves determining what, who, where, and how much is needed to achieve a given objective. It is a practical way of providing a connecting link between the statement of an objective and a more complete program of implementation.

Self-Control

Inherent in the process is the notion that the individual, not his superior, will control his own behavior and the activities required to implement the action plan and to achieve the objective. Self-control required meaningful participation in the goal-setting and action-planning process, resulting in a better understanding and a higher level of commitment to the objectives. The individual must also be given the feedback and information he needs to assess progress and to take corrective action on his own.

Periodic Reviews

Systematic reviews designed to assess progress and performance in terms of the established objectives are fundamental to the success of the process. Problem areas are identified and obstacles removed so that additional levels of success and new objectives can be established. Periodic reviews, or "coaching" sessions, should be held as frequently as practicable during the goal period. They may be conducted on a one-on-one basis or in small groups.

The above elements are brought to life and tied together by a series of interdependent activities. The dynamics of the process itself are the result of the following iterative steps:

Step 1. Formulate long-range goals and strategic plans. These are generally based upon a critical review and analysis of the fundamental purpose of the enterprise. "Why does the organization exist?" "What kind of an organization is it?" "What kind of an organization is it trying to become?" Strategic planning helps to identify those areas needing improvement of performance and results.

Step 2. Develop the specific objectives to be achieved within the given time period. These are generally in key areas which reflect overall organizational performance. For the business enterprise, for example, objectives would be established for profitability, productivity, market standing, and areas similar to those outlined by Peter Drucker, in his book The Practice of Management.

Step 3. Establish derivative objectives and subobjectives for major departments and subunits. For example, overall goals may be further defined by the department in terms of such things as number of persons tested, evaluated, counseled, etc.

Step 4. Set realistic and challenging objectives and standards of performance for members of the organization. These are generally aimed at improving individual or group performance in terms of key result activities, problem-solving activities, and innovative or creative activities. Personal growth and development objectives may also be included in the goal statements.

Step 5. Formulate action plans for achieving the stated objectives. This essentially involves specifying the activities or the events which must logically occur to achieve the objectives effectively and efficiently.

Step 6. Implement and take corrective action when required to ensure the attainment of objectives. Necessary for this step are the existence of criteria and standards against which to measure performance, a relevant data base and feedback loops, and whatever other mechanisms are required to facilitate self-control.

Step 7. Review individual and organizational performance in terms of established goals and objectives. This involves periodic, systematic reviews to measure and discuss progress, identify and resolve problems, and revise objectives and priorities as may be required by new or additional information.

Step 8. Appraise overall performance, reinforce behavior, and strengthen motivation through effective management training and development, compensation, and career planning. This step is essential to the effective development of human resources and must be made an explicit part of the MBO process.

In summary, a good MBO program is simple, confidential, personalized, and flexible. It should emphasize results rather than activities. It should concentrate on results and output versus activities, input, or process.

The three action stages in MBO are: 1) the boss and subordinate agree and state specific results to be accomplished by target dates. This is through negotiation; 2) the subordinate then attempts to achieve these objectives; and 3) at designated future dates, progress reviews are conducted.

Progress reviews should be held every four months or more often if necessary for training purposes. Later on, when everyone is familiar with the MBO process it could be extended to every six months. Five years from now, when all personnel are thoroughly familiar with MBO, once each year may be sufficient. However, with new people, you will want to have this review more often.

Traditional management training and practice concentrates on input and process. Hopefully the necessary output and results will come forth. Administrators can be classified as an input-oriented type of individual with output orientation. If you are an input oriented manager you will devote 15% of your time to A, 20% of your time to B, and 65% of your time to function C. Your boss, who normally looks at the output or results of your work, views 65% of your activity as output A, 20% - B, and only 15% - C. What generally happens when you make the transition from a managerial style of input to output is that this minutiae falls to the next lower level of supervision. In other words, it forces delegation to subordinates.

It has been the primary purpose of this paper to review the functional concepts of MBO, investigate the implementation process of MBO and to stimulate thought on how a MBO system may be utilized in a mental retardation research center. I am sure you realize that in the short period it is impossible to completely exhaust the concepts of MBO.

Discussion

The discussion which followed the paper presented by E. Douglas Hodo centered primarily around the advantages and disadvantages of MBO and how the MBO system could be implemented into the mental retardation research program.

It was pointed out by the conference participants that MBO, as an operating philosophy, is excellent, but unless every member of the organization is tuned into the central mission and central goals of the organization, the system is likely to be ineffective. The MBO system demands a commitment from everyone in the organization if the system is to be effective. It is, however, possible to implement MBO over a functional area of the organization if total commitment cannot be obtained. It was suggested that the mental retardation research center program consider implementing a MBO system both at the institute level and at the mental retardation research center level. The means suggested for implementing the MBO process was related primarily to the core support grant and the program project grant. It was suggested that these grant applications be written with identifiable and quantifiable goals that could be accomplished in the time period of 3 to 5 years. In addition to the establishment of goals and objectives at the center and program level, it was also suggested that each scientist identify his goals and objectives and to relate these individual goals and objectives to the total goals and objectives of the organization. Such a tightly organized instrument would make it possible to better identify individual effort, research center effort and the total effort of the mental retardation research program.

As an operating philosophy, the MBO system appears to be an excellent managerial system, however, the conference participants were quick to identify several problems with the MBO system as it relates to research activities. It was pointed out that research objectives are not always easy to quantify and to identify. It is not always easy to develop a 3 to 5 year plan in a time period when funding is at best somewhat uncertain.

It was further pointed out that researchers must have the flexibility to change their research plans based on previous research findings. The MBO system, if carried out properly, should be flexible enough to accommodate changes in goals and objectives based on research findings.

The ideas and concepts presented by E. Douglas Hodo stimulated considerable discussion throughout the entire conference. The question of whether or not MBO is relevant to MR research centers was debated throughout the conference. It was finally concluded, by the majority of the participants, that the MBO system should be carefully considered as a managerial technique for research centers.

ORGANIZATION/SETTING AND PLANNING/EVALUATION: A DECISION SYSTEM

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Introduction

The result of the introduction and use of appropriate planning and evaluation systems by administrators of mental retardation research centers should be high quality information--information that is clear because those who must use it must understand it; timely because it is available when it is needed; reliable because different people using the system see the information the same way; valid because it is developed in a way that captures reality; adequate because it is a full account of the "thing" to be described; and wide-ranging because the major policy and program alternatives with a high probability of success are posed or new goals are suggested.¹

The major theme of this presentation is that planning models and evaluation methodologies cannot produce high quality organizational information independent of consideration of the organization and its setting.² An excellent planning model will not produce the same results from organization to organization, unless the organization and setting are the same. For example, the research center with a staff of 20 with 3 or 4 major research projects will probably need different planning and evaluation procedures from the center with a staff of 100 with 15 research and service programs.

In order to develop this theme and its consequence, the presentation will progress in the following three steps. First, a discussion will occur of the organization and setting relationships which the mental retardation administrator (herein called MR administrator) should consider when using planning and evaluation procedures. Second, a decision system will be developed which can be used by the MR administrator when selecting planning and evaluation procedures, and third, the potential of the system will be depicted by examining two specific planning and evaluation models.

Organization and Setting

The intent of this section is to describe the organization and setting in terms of the major types of relationships and some of the consequences of these relationships for the MR administrator.³ Specifically, the following types of relationships are described: (1) the relationships between the MR administrator and the research center; (2) the relationship between the MR administrator and the parent agency; and (3) the relationship between the MR administrator and other external organizations, e.g. funding agencies. The relationships described do not refer to any particular research center or MR administrator. The descriptive effort is to answer the question: Given a position like MR administrator what does the literature of organizational theory and research say about the relationships of that position?⁴

The MR administrator occupies a position which is essentially located between two organizations, the parent agency (frequently a university) and the MR research center. A person in this position usually has the responsibility of representing each organization to the other, and the responsibility of representing certain aspects of both organizations to external audiences. On the one hand, the MR administrator is seen as a member of the MR research center with the responsibility of facilitating internal administrative matters and representing the research center to the parent agency in such a way that the center can conduct its affairs as it thinks best. On the other hand, the MR administrator is seen as a member of the parent agency with the responsibility of seeing that the general expectations of the parent agency are not violated by the research center. In addition, the MR administrator is expected to represent the parent agency and the research center to external organizations such as federal funding agencies.

The administration of internal matters of a research center contains some issues regarding administration that are not found in other organizations. The research people and service delivery people within centers are more oriented toward pursuing knowledge or delivering services than they are oriented toward creating orderly administrative system.⁵ Differences and disagreements between and among research units and delivery systems are likely to be of a technical nature and settled by debate, group meeting or simply isolation from the source of the differences or disagreements. Research propositions and the establishment of delivery systems often require extensive time for development and this orientation does not lend itself either to the "day-to-day" or urgent organizational decisions.

The relationship between the parent agency and the research center presents a different set of conditions for the MR administrator. Since he represents both organizations under differing conditions, neither organization is certain of his primary reference or loyalty. If he is extremely successful in having the research center's expectations met by the parent agency, then the parent agency is likely to grow suspicious. If he is seen as over zealous in presenting the parent agency's expectation, then the research center is likely to question his allegiances.

It is also necessary for MR administrators to represent the parent agency and the research center to external organizations. The essential problem here is that most of the representation must be mediated through the agency being represented. For example, if the parent agency is being represented, the MR administrator usually must "go through" the parent agency. The process of "going through" has many forms. One form is the procedure of approving a report. Few people can resist changing a document placed on their desk for approval, and it does not take many "changes" before the deadline for the report is not met and the MR administrator has not represented the parent agency or research center appropriately. Another form of "going through" is when the reports to external agencies prepared by the MR administrator are presented by someone in the parent agency or research center. It is an unusual person who can present and interpret a report without intimate knowledge of its preparation. Given a poor presentation, it is even more unusual to find someone who thinks it was his presentation of the report which was the reason for the poor presentation.

The representation of the parent agency and the research center to external organizations is additionally complicated by the contacts the parent agency and the research center personnel have with external organizations. For example, it will be an embarrassed administrator who attempts to provide program accountability data for a grant without knowing that an addendum written as a memo three months after the grant was approved, significantly changed the nature of the grant.

The MR administrator, then, is in a position of having to represent an organization--the research center which resists management and regulation--to other organizations--organizations which want systematic information about the intentions and actions of the research center but who both encourage and reinforce the discretion, interactions and complexity of the research organization.

Decision System

The complexity of the organization and setting relationships has led some administrators to seek assistance from the relatively new area of "planning and evaluation." The representatives of this new area provide technical assistance to the administrator in such areas as operation research, MBO, PERT, and cost benefit/effective analysis. However, what appears to be a perfect marriage between administrative needs and areas of expert content has often produced an illegitimate child which will not be supported by either the administrator or the expert. That is, planning and evaluation experts have been frustrated in their attempts to implement a system or technique and administrators have been less than satisfied with the results.

A major reason for this less than mutually rewarding relationship is that some planning and evaluation practitioners have chosen to present a particular planning and/or evaluation model as "appropriate" for any organization and many administrators have been willing and wanting to agree. There has been a tendency to avoid recognizing that most of the planning and evaluation models or procedures were developed for a particular type of organization and its setting and for problems relevant to that organization.

A decision system is needed which will assist the administrator in selecting appropriate planning and evaluation procedures and guide the planning and evaluation consultant as to organizational needs, resources and constraints. Such a decision system follows and is presented in four major steps. Each step is a component of the total decision system. First, the dimensions of a matrix--accountability and control--are defined.⁷ Second, the first two of five major decision questions and their descriptions are listed. Third, the second two major questions are listed and, fourth, the fifth question is presented and discussed.

The dimensions--accountability and control--selected for the decision matrix had to meet two criteria. First, the dimensions had to be important for understanding task assignment and accomplishment. Second, the dimensions had to be comprehensive enough to accomplish the desired purpose, while at the same time, the dimensions had to be few in number because the relationships between dimensions became more complex as their number increases. In the practical world of organizations the consequences of relationships between more than a few dimensions are difficult to ascertain.

The nature of accountability and control have been implicit in the attempt to generally describe a position like the MR administrator. Accountability refers to the necessity of demonstrating that some aspect of an organization or the entire organization is doing either what it purported to do or that what it is doing should be done. Control is defined as the probability of determining the kind and content of the interaction between and among positions.⁸

The matrix is a decision-aiding and decision-forcing component of the total decision system. The total system consists of five questions and a matrix. The answers to the first two questions are classified in such a way that one can locate a task in one of four cells in the Decision Matrix. Each cell in the matrix will have implications for selecting alternative planning and evaluation procedures.

The first question is: Is the source of accountability for this task external or internal? External accountability means that the source of the criterion of success is determined by someone in a position other than the person asking the question. Internal accountability refers to the situation in which the criterion for success is determined by someone within the organizational position asking the question. The system is forcing in the sense that there are only two answers to the question--external or internal. In areas where the source of accountability is mixed, one must decide the dominant source.

The second question is: Is the nature of control over the dimension of a particular task high or low? High control means that one has enough power, authority, or generalized means that the probability is high that they will determine the kind and content of interaction concerning this task. Low control means that there is a low probability that control is held by the person asking the question. Again, the system is forcing: There are only two answers--high or low. Given these dimensions, the questions and the four possible answers to the questions that the following matrix is derived:

ACCOUNTABILITY AND CONTROL
FOR THE MENTAL RETARDATION ADMINISTRATOR

CONTROL

		High	Low
ACCOUNTABILITY	External	I	II
	Internal	III	IV

Each cell in the matrix is a statement of the control and accountability dimensions of a position in terms of some particular task or group of tasks. For example, Cell I--External Accountability/High Control--is defined as a situation in which a position occupant (MR administrator) is confronted with a criterion of accountability set by others. In terms of control in Cell I, the position occupant has the means to control the interaction between the position and others. To clarify, Cell I may present difficult or easy accountability but the position occupant has the available organizational means to respond to the accountability demands but an inability to influence the criterion of accountability.

This matrix and the previous remarks are a decision-aiding system in that the accountability and control dimensions of a particular task are classified into Cells I, II, III or IV. This classification creates the last two major questions. First, given a classification into a particular cell or task, what are appropriate planning and evaluation procedures? Second, given a classification into a particular cell, is the task tolerable? If the answer to the second question is "No", then one could either attempt to eliminate the task or move to a situation of accountability and control that is tolerable enough so that the task can be attempted. For example, given a particular task, it might be decided that the task is not tolerable under Cell II and it must be moved to Cell I before it will be undertaken.

The first four questions and the matrix were developed to deal with the great differences between and among positions which have the same title, such as MR administrator. Their development makes possible a fifth question: What differences does variation in accountability and control make in planning and evaluation? The answer to this question is provided in the next section of the paper by relating two different planning and evaluation models to the Control/Accountability Decision Matrix.

Matrix Application: Two Examples

To provide an example for the analysis of the relationship between planning and evaluation procedures, and accountability and control, two planning and evaluation systems--the Program Evaluation and Review Technique (PERT) and the Goal Achievement Planning and Evaluation System were selected. These two were chosen because they represent extremes in complexity and structure. However, both have characteristics common to most systems in that both require the delineation of functions, tasks and desired results.

PERT relies on the definition of tasks, activities and events which are then placed in a diagrammatic format. Formulas are provided for the determination of times and space relationships, and vast amounts of data can be collected when the technique is applied in complex situations.

The Goal Achievement System can be as specific or as general as the user would like. The system, as described herein, contains 11 word elements which can be used in planning a task and evaluation. No elaborate methods are offered for displaying or computing data and, if required, they must be developed and related to the planning elements.

The remainder of this section is devoted to a description of each system with the system being related to the Decision Matrix immediately following each description.

PERT and Its Methodology

Program Evaluation and Review Technique (PERT) is a methodology for planning many diverse activities regardless of their nature or scope. Its usefulness in the internal management of research and development activities has been documented.⁹

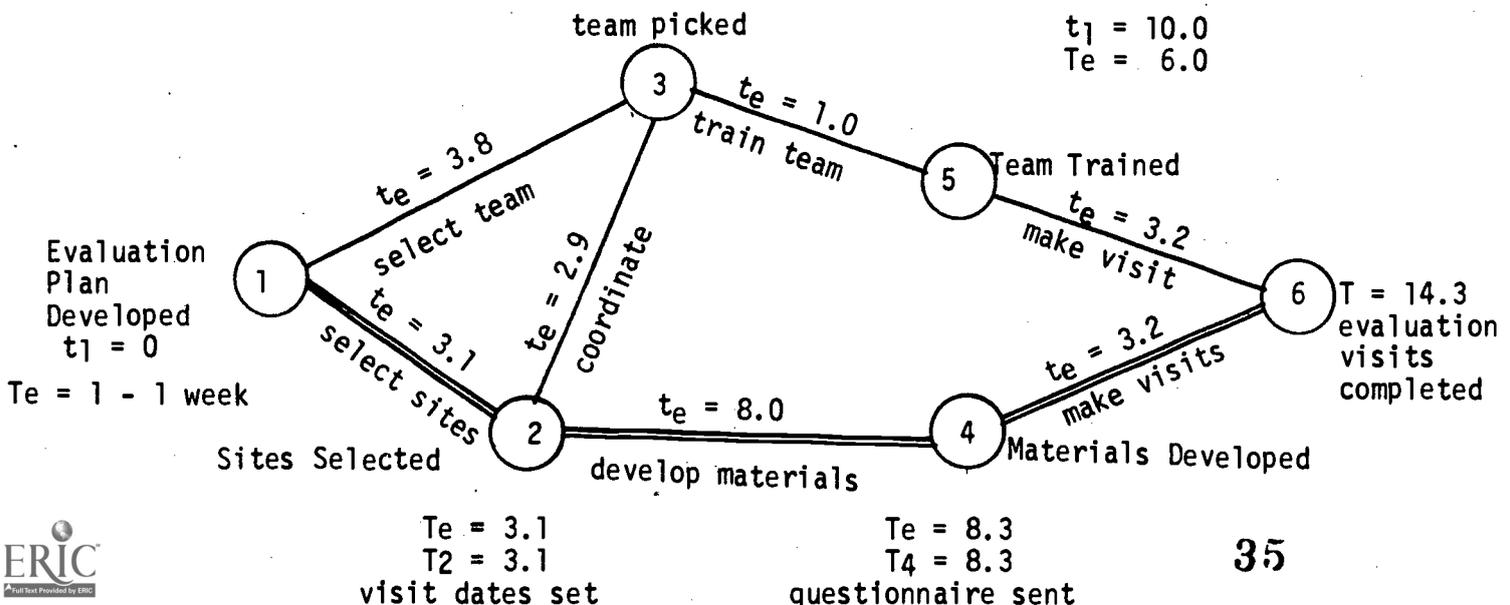
At the heart of the PERT System is the concept of an "event network".¹⁰ Networks are made up of two basic parts: events indicated by a circle or rectangle, and a set of activities symbolized by arrows.



The events are points in time at which activities begin or end. Activities consume time whereas events occupy zero time; that is, they are assumed to be instantaneous.

Activities would include such things as collecting data, analyzing data, writing progress reports, securing resources and selecting target population. Events would include items such as status report completed, data collected, resources allocated, targets selected and advisory group approved. Events essentially represent the objectives of the project.

Using events and activities, one can build a network which specifies what must be done, in what order it must be done, and how parts in the project are related to each other. The following illustrates a PERT network. The task being "PERTed" in the example is the undertaking of evaluation site visits to a service program.



As indicated previously, the circles indicate events, e.g., "team trained" and the lines activities, e.g., "developed materials."

In reality, PERT is a more complex system than indicated to this point. In practice, three estimates of completion time are required and a formula is used to arrive at an Expected Elapsed Time. The Earliest Expected Time is also computed and indicated as "Te."

PERT, then, employs procedures which enable an administrator to predict the likelihood of completion of a project on schedule. Such procedures are more precise and reliable than a purely intuitive approach; however, in order for these predictions to be useful for the duration of the project they must be systematically updated. Frequent reports are required from each area of the project, giving details on which activities and events have been completed. The resulting reports give pertinent information to the manager and appropriate subordinates, indicating whether significant events (milestone events) are completed, in process, or planned. Also available are revised Earliest Expected Times for events and new probability calculations. Theoretically, the manager is able to pinpoint difficulties and reallocate resources as needed to keep work progressing more smoothly.

PERT and the Decision Matrix

Given the previous description, it is now possible to relate PERT to the Decision System. The review will be done by describing the utility of PERT under the conditions of high or low control and internal or external accountability represented by the four cells of the Decision Matrix.

In Cell I high control/external accountability, conditions exist which can make PERT a highly desirable system. The administrator is in control of the resources in his environment and can control the sequence of activities, demand reports and change timelines. Moreover, since he has accountability to an audience external to his organization, extensive data could be supplied by the PERT system to demonstrate that demanded results are being achieved.

Since PERT was originally developed for use by the Navy, as a project control mechanism for weapon systems, it is not surprising that it is reviewed favorably under the conditions of Cell I. Weapons systems were developed by a variety of geographically dispersed subcontractors. As a result of this dispersion and the complex nature of the subcontractors for a single weapons system, it was necessary to closely control the various product development stages. PERT was used to appraise Navy officials of problems of production and scheduling; thus, if the work timetable of one subcomponent changed, all timetables could be shifted to reflect a change in the overall deadline. Moreover, PERT supplied Navy personnel with data on performance for use in accountability to higher military authorities and to Congress.

With modifications, PERT might be useful under conditions of low control/external accountability, high control/internal accountability or low control/low accountability; however, such modification can be costly and alter the system so that its utility becomes questionable.

In Cell III--high control/internal accountability--PERT is most useful as a planning or management tool. It allows the administrator to clearly specify the nature of the task and his expectations for completion; however, if not modified, it may also supply unnecessary data. In Cells II and IV, the condition of low control necessitates that the administrator carefully consider how to collect the necessary data for accountability. This is particularly true for Cell II since external accountability demands have to be met. In both situations, the essential problem is collecting the necessary data. For example, in Cell IV--low control/internal accountability--there are no formal means to implement the system and data would have little utility since no control exists for change. Moreover, the time and effort put into developing the system under these conditions would take energy primarily from tasks for which one has high control and/or external accountability.

In conclusion, PERT is a planning structure which requires a knowledge of desirable ends or outcomes and a knowledge of the events and activities to reach these ends. It is best used for tasks of high complexity requiring the participation of a variety of performers from a variety of settings. PERT assumes that an implementor has high control over his environment and can use the data supplied to correct or reschedule events and activities as well as to satisfy accountability demands from other decision makers. PERT may be useful to an implementor under other conditions for planning, management or evaluation, but modification of the system is necessary if wasteful time and energy is to be avoided. Time can be wasted in undertaking the modification especially if a more appropriate system is available.

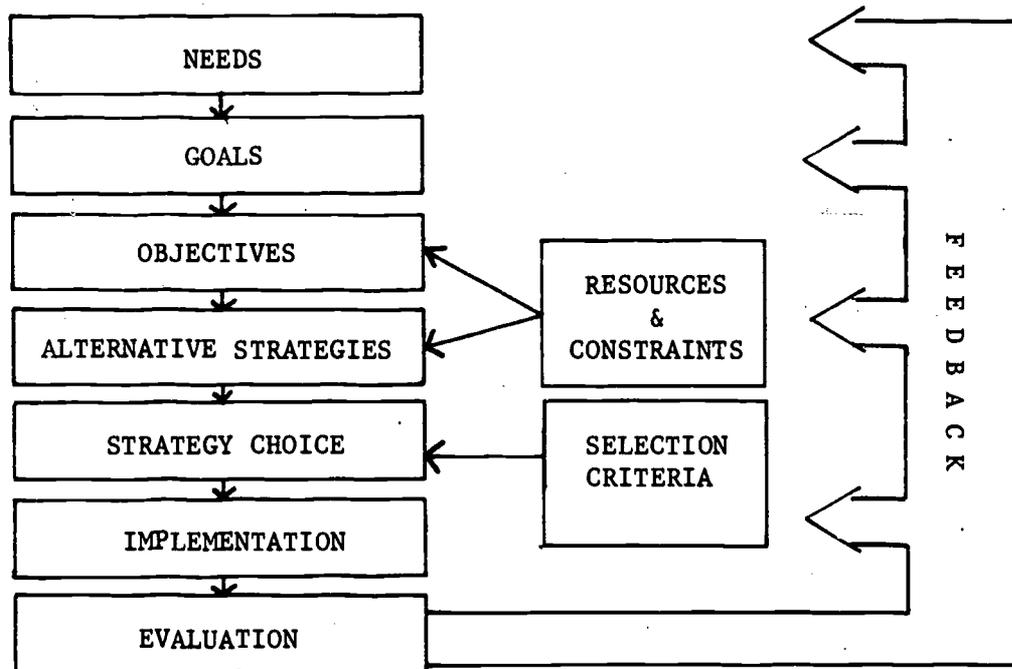
Goal Achievement and Its Methodology

The Goal Achievement Planning and Evaluation System allows the user to collect and structure data on a program to a degree of specificity desired by him or program leaders. Data can be collected around some key word elements and structured to depict the nature and purpose of work in such a way that information requests require minimum interference with the function and tasks of the program. The end product for the data collection is information about a number of program variables which can then be used to describe, define or advocate for a program to external audiences.

One model of the Goal Achievement Planning and Evaluation System includes 11 essential variables.¹¹ They are depicted in the following figure as interrelated components of a system for planning and evaluation.

The needs in the model alert the user to change potentials. Needs then generate goals. Goals require specified objectives. Objectives can only be met or realized within the boundaries of resources matched against constraints. Strategies for reaching objectives, selected from alternative approaches, lead to a choice of actions, an implementation activity, an evaluation of the success of the strategy, and feedback of evaluation data to adjust goals, improve resources, sharpen objectives or reduce constraints.

GOAL ACHIEVEMENT PLANNING AND EVALUATION SYSTEM



In effect, the model describes a series of structures, indicates that those dimensions are interrelated, and allows the planner to fill in the "blank" with information that fits his needs. It is intended as one way an administrator might begin to conceptualize what has to be or has been accomplished.

The model can be utilized when undertaking planning of organizational goals or it can be used to aid a researcher in examining elements in a problem area crucial to him. Given clearly specified goals and objectives, comparison is possible over time to determine if or when goals and objectives have been met.

Goal Achievement and the Decision Matrix

Relying on the description of the Goal Achievement Model, it is possible to describe the system utilizing the Design Matrix. Unlike PERT, the Goal Achievement Model can be used under more varying conditions since it is less specific and less detailed. Moreover, it is difficult to describe the Goal Achievement Model as most applicable under any one set of conditions. However, it is important to note that when extensive, detailed data is required, the model necessitates the creation of a data collection system.

In Cell I--high control/external accountability--elements of the general framework can be made as specific as the administration deems necessary. For example, once a goal has been determined for a program component, specific objectives can be set for that component which include measurable indexes for successful task completion. Once the task is underway data collection procedures can be established for accountability purposes.

In Cell II--low control/external accountability--the system can be used by the administrator in an unobtrusive manner to describe the purpose and objectives of work. Consistent with the desire for unobtrusiveness, data collection for accountability might include only public documents relevant to the project so that data requiring input from staff over which the administrator has low control is kept at a minimum. The documents or portions of the documents can be used to demonstrate to the external audiences that program goals and objectives are being met. For example, an administrator may have little control over curriculum development in a project serving handicapped children but has had to provide data on the curriculum to a funding source. By utilizing the planning model he could describe the intentions of the program and then systematically collect and display information resulting from activities.

In Cell III--high control/internal accountability--the system can be used (much in the manner of the Management by Objectives Systems) with a single role occupant or with an entire staff to set goals, objectives, etc. In this case, the model serves primarily a planning function because the administrator has the control necessary to set goals and objectives.

In Cell IV--low control/internal accountability--everything discussed regarding planning and collecting data in Cell III applies to Cell IV. However, the administrator is now in a position to determine if any data collection effort should be made because accountability is internal and the administrator can establish the success criteria.

The Goal Achievement System is a general orientation; thus, it generates many specific models. One well known example of its application is the model introduced by Robert McNamara when he was Secretary of Defense--the Planning, Programming Budgeting System (PPBS).¹² Basically, PPBS requires that policy makers specify the purpose for work and the desired outcomes of work and that all plans, objectives and strategies must be relevant to overall organizational goals.¹³

Planning, Programming and Budgeting became the device McNamara used to centralize planning and policy decisions. National security objectives were related to strategy, strategy to forces, forces to resources, and resources to costs. The PPB System under McNamara's direction consisted of a 5-year projection of forces, systems and activities needed, including their approval costs, as well as a procedure for modifying all plans.

PPBS, as applied by McNamara, was used when the administrator had control of policy and goals, little control over the implementation of means, and a high need for accountability data (in McNamara's case, the the President and to Congress). Basically the system described the military environment in terms of goals, objectives and strategies and then compared outcomes with intentions. In effect, PPBS was used to gain some policy control in an area where little had existed.

In summary, the Goal Achievement System is a flexible structure containing key word elements which can be used to meet planning and evaluation needs. The system can be applied to small problem situations, such as how to schedule travel reimbursements, or to complex problems, such as what goals and outcomes are desired

for an organization. It is most applicable to independent problem solving and least to scheduling and sequencing events and activities among and between major tasks. In addition, the system does not provide any mechanism for determining how or what data will be collected.

Conclusion

The examination of the two preceding planning and evaluation systems has been in terms of their relationship to dimensions of accountability and control. The utilization of the dimensions provides the opportunity to consider planning and evaluation systems in light of their appropriateness under varying situations. It is believed that such a review can be done for other planning and evaluation systems and the Control/Accountability Matrix can assist an administrator in structuring his review of such systems in relationship to his organizational needs without elaborate preparation.

Given the nature and complexity of most modern organizations, especially research organizations, no single planning and evaluation model can be expected to solve all organizational planning and evaluation needs. A variety of strategies and models are required and the implication of each must be considered in light of the organization and its setting--the characteristics of its personnel, the nature of its work, and the methods of problem solution. The planning and evaluation person who attempts to sell a single model as "the" solution will probably be doing a disservice to himself, the area of planning and evaluation and the administrator. In fact, it is maintained that a particular model or technique suggested to an administrator should be considered as only one example of a range of models or techniques all of which may be irrelevant unless consciously adapted by the administrator to fit his organization and its setting.

The essential point for administrators generally, and for the MR administrator in particular, is that interaction in the organization and its setting is so complex that no particular planning and evaluation model will meet all administration needs. The MR administrator will probably use a large variety of planning and evaluation procedures, using different ones at different times and places in the organization.

Footnotes

1 The points used in the paper to describe high quality information are the same dimensions used by Wilensky to describe high quality organizational intelligence. Harold L. Wilensky. Organizational intelligence: Knowledge and policy in government and industry. New York: Basic Books, 1967.

2 James Thompson, among others, has devoted considerable attention to technology and structures. The thesis of this paper is a specific application of his general propositions. James D. Thompson. Organizations in action. New York: McGraw Hill Book Co., 1967.

3 The essential concept dealt with here is boundary positions and their consequences. Many people have used this concept; however, this paper drew most directly from Katz and Kahn, and Kahn et al. Robert L. Kahn, Donald M. Wolfe, Robert C. Quinn, and J. Diedrick Snolk. Organizational stress: Studies in role conflict and ambiguity. New York: John Wiley and Sons, 1964; Daniel Katz and Robert L. Kahn. The social psychology of organizations. New York: John Wiley and Sons, 1966.

4 Robert Merton. The role set: Problems in sociological theory, The British Journal of Sociology, VIII, June 1957, 106-120.

5 Harold L. Wilensky, op. cit.

6 Stacy J. Adams. The structure and dynamics of behavior in organization boundary roles, University of North Carolina, Chapel Hill: unpublished, 1972.

7 The core of notion of accountability in this paper is the same as that presented by Glass. Gene V. Glass. The many faces of 'educational accountability', Phi Delta Kappan, June, 1972, 636-639.

8 This definition of control is a modification of Weber's classic definition of power. M. Weber. Essays in Sociology. Trans. H. H. Gerth and C. W. Mills. New York: Oxford University Press, 1946.

9 This point was made by Cook in a study undertaken for the U. S. Office of Education. Desmond L. Cook. Program evaluation and review techniques: Application in education. HEW, Office of Education, 1966.

10 This discussion of PERT is intended only to highlight the system. The work by Cook, previously cited, and work by Baker and Eris provide detailed information on the operation of the system. Bruce N. Baker and Rene L. Eris. An introduction to PERT/CPM. Richard S. Irwin, 1964.

11 The concept of the Goal Achievement System is taken directly from Gallagher, et al. Gallagher and others based much of their conceptualization on the work of R. E. Stake and D. L. Stufflebeam. James Gallagher, Richard Surles and Andrew Hayes. Program planning and evaluation. Frank Porter Graham Child Development Center, the University of North Carolina, Chapel Hill, North Carolina. Feb. 1, 1973; R. E. Stake, the countenance of educational evaluation, Teachers College Record, April 1967, 523-540; D. L. Stufflebeam, Toward a science of educational evaluation, Educational Technology, June 30, 1968, 5-12.

¹² Kaufman provides an insight into McNamara's rationale in introducing PPBS to the Defense Department. William W. Kaufman. The McNamara strategy. New York: Harper & Row, 1964.

¹³ An overview of the workings of PPBS can be found in an edited work by Novick. Novick was employed by Rand Corporation and is often credited with the conceptualization of PPBS. David Novick (Ed.), Program budgeting. Cambridge, Mass.: Harvard Press, 1965.

Discussion

A lengthy discussion among the conference participants occurred as a result of the paper presented by Richard Surles. External and internal accountability systems were defined in more detail and applied to the role of the MR administrator. An attempt was made by the participants to analyze their roles within their own organizational settings. A type of case study example was used to illustrate the unique position that the MR administrator plays within the research center. Considerable time was spent discussing the role of the administrator in the MR research center, the university complex, and his relationship with various funding agencies. A large segment of time was also spent in discussing the role of the administrator in collecting, synthesizing, and reporting useful data to various funding agencies.

The questions of external and internal accountability were summarized as follows: The first question is, "Is the source of accountability for this task external or internal?" External accountability means that the source of the criterion of success is determined by someone in a position other than the person asking the question or performing the task. Internal accountability refers to the situation in which the criterion for success is determined by the positional structure who has authority and control to formulate the question.

The second question is, "Is the nature of control over the dimension of a particular task high or low?" High control means that one has enough power, authority or finesse that the probability is high they will determine the kind and content of interaction concerning this task. Low control, on the other hand, means that there is a low probability that control is held by the person asking the question or seeking the data.

It was pointed out by the participants that the MR administrator falls in the category of the low-control/high-accountability model. This means that the MR administrator is exposed to external accountability with low internal control. It was pointed out by NICHD administrators that a great deal of demands are placed on MR administrators. These demands originate from a large number of sources, including the university, the researchers within the MR center, various funding agencies, community agencies, and various others. These demands on MR administrators are external commands over which the MR administrator has little or no control. The MR administrator, under this type of condition, is constantly in a position where he must respond in a low control situation to criteria for accountability that is established by someone else. All of these various organizations place pressure on the MR administrator. This model then becomes one of external pressure with high accountability but with little or no control.

Other conference participants indicated a preference for the credibility model as opposed to the accountability and control model. It was pointed out that the MR administrator may have little or no control in terms of line staff authority, but could, over the years, develop a credibility model with various program directors. In this model, the MR administrator is seen as an important person in the research structure. He is seen and recognized for his talents as a facilitator of research systems. In this type of organizational model, the MR administrator has no official organizational control but, because of his high credibility with his fellow researchers, he is able to secure cooperation and information from research scientists. Much discussion at this point centered around the so-called "Begab Report" which was a request for information concerning center-wide activities in the year of 1970. Several administrators took the opportunity at this point to discuss the techniques they used in capturing the necessary data for the "Begab Report." Almost all MR administrators indicated some difficulty in capturing the necessary data because most centers did not have an appropriate management information system that could readily produce this type of data. Most of the research centers are not attuned to the need for quantitative information that is necessary to justify the continuation of mental retardation research programs. Most researchers feel the need to develop a progress report on their scientific achievements, but find it difficult to relate their scientific reporting techniques to the kinds of data needed by the so-called "Begab Report." This may indicate that many of our MR research scientists may not have a center mission orientation. The MR research scientist must understand what the expectations are if he is to be a part of a mission-oriented research center. The researcher must realize that he has certain obligations to the information system if he is to share the resources of the center concept. It was suggested that all MR researchers should agree to participate fully in the target or mission orientation of the MR research centers. It was indicated that in many cases scientists come from a department frame of reference, and may find it difficult to identify with mission-oriented research centers.

Some research scientists have the attitude that they are there to do "their own thing" and they do not want to be bothered by external requests for information like the "Begab Report." This attitude is incompatible with any type of center information system that is needed to supply information to NICHHD or for internal center management. Some type of structure is definitely needed in the MR research centers to assure center management and NICHHD that each scientist will agree to participate in supplying quantitative information for reporting and evaluation purposes. For the most part, reporting quantitative data is a nonrewarding task for most researchers. Quite often, researchers place their primary importance and obligation to their research project and to their teaching activities. Under these types of arrangements, the researcher may not allocate an appropriate amount of time for data collection for center reports and quantitative reports for NICHHD.

In many MR research centers, scientists have applied for and received multiple funding. In some of these cases, the MR research scientist may feel little or no obligation to supply the research center with quantitative data. The researcher may feel allegiance only to his particular funding agency which, in many cases, may be agencies other than NICHHD. This kind of researcher presents a real problem in terms of center management. In order to develop the kinds of information system that are needed in MR research centers, one must be able to tap sources that have the raw data. This would, obviously, include each individual scientist with his individual research grant. It is quite obvious that the development of

an information system must be carefully coordinated between the research scientist and center management. The scientist is the only person who knows scientifically where his work will lead and what the payoffs are. However, the fiscal data, external connections, equipment, space, facilities and other support units may be the responsibility of other persons in the MR research center. It is, therefore, important for all members of the research team to know and develop some type of appreciation for the need to gather quantitative information and to know how it will be used and to what advantage it will bring the center. The collection of data for most centers has primarily been centered around the credibility theory.

One of the major speakers for the conference indicated that the MR administrator is an information specialist and that the administrator should have the necessary clout, expertise, credibility and control within the organization to capture the needed information from the various sources. It was further pointed out that the sources of data must be identified and procedures must be developed to tap those data in a timely and efficient manner. Research scientists must be cognitive of the information needs of NICHD as well as information needs for the university and center management. Information systems must be developed that are quantitative in nature, easily accessible, and timely. All research centers need information systems that can provide NICHD with quantitative data for use in Congress and as evidence of center productivity.

It was also pointed out by a number of MR administrators that the real mechanism for compliance with information from research scientists is a tight control on space. Several MR administrators indicated that they developed a lease plan whereby a researcher must agree to participate in center activities if he is to have access to the resources of the center. Several administrators discussed in some detail their space control systems as well as other services including central secretarial services, computer center services, and other research support units.

Another conflicting idea was interjected at this point. Some of the conference participants indicated that we really do not have MR research centers in the true sense of the word. But, we do have a loose confederation of research projects being housed in buildings which are basically controlled by the universities. In such cases, the locus of control is obviously at the university level rather than at the center level. In this type of situation, the director is not really a director but a coordinator who has very little authority or control over space and other research support systems. Under this type of situation, the issue of control becomes problematic.

In summary, the conference participants agreed that some type of standardized information reporting procedure should be developed for the national mental retardation research centers. The standardized reporting procedure should be quantitative in nature but written in such a way that Congress could understand and appreciate the accomplishments of the center programs. It was suggested that NICHD consider taking the position that each grant application be written, utilizing the basic concepts of management by objectives, cost benefit analysis, and PERT analysis. If applications were written utilizing these managerial techniques, systems could be developed that would help identify mission, task, and accomplishments of the center programs.

NIH GRANTS MANAGEMENT: CIRCA 1950 TO THE PRESENT
A PERSONAL VIEW

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I would like to share some personal views of changes in grants management practices in a federal granting agency--the National Institutes of Health (NIH). This short overview may offer stimulating and, hopefully, provocative comparisons between attitudes toward grants management emanating from the academic sector and the federal sector.

There is a major difference at NIH between management and what I shall call grants management. Management as performed within NIH organizations appears to encompass and to correspond to the management tasks and responsibilities performed by Mental Retardation Center (MRC) administrators. These include fiscal and budget control and development, personnel services, procurement services, space utilization, systems analysis, and the like. Grants management involves the development, implementation and interpretation of regulations, policies, and procedures for the administration of a grant program, including the support for a specific research or research training project. From one viewpoint, a grantor and a grantee are inherently on opposite sides. From our viewpoint, stresses and strains between a grantor and a grantee result from mis- or no communication--given the rules under which the grant must operate.

It is well to remember that most regulations and policies are determined at high levels within the federal sector; i.e., Office of Management and Budget (OMB), Office of the Secretary, USDHEW (OS), Office of the Associate Secretary for Health, USDHEW (H) and the Office of the Associate Director for Extramural Research and Training, NIH (OADERT). One rationale for this approach is to provide for the maximum consistency among granting agencies, which would appear to be to the benefit of the grantee. Unfortunately, the goal of consistency may result in inflexibility at the granting agency operating level and interfere with the achievement of the research program's goal.

Grants managers and MRC administrators do have some characteristics in common: they each have a "life style," despite its uniqueness, and, most importantly, develop a special relationship with their scientific and/or clinical counterparts. We both have an input into program planning, development and evaluation through the use and understanding of the management tools and techniques we are discussing at this conference. Program planning systems, program budgeting systems, management by objectives and management information systems are not unknown to the federal sector. Whether or not they are effectively used in our overweighted ever-changing bureaucracy still remains to be determined. The need for the conference today for MRC administrators suggests that the academic sector may not be too far ahead of the federal sector in its management maturity.

I would now like to turn to the development of grants management at NIH. Before we assess what the future may bring to grants management practices, we may find some utility in reviewing what those practices have been like in the past. Institutions and individuals who have had an impact on defining and developing grants management policies include:

- 1) Scientific members of the research community.
- 2) Institutional representatives of the research community, including the American Association of Medical Colleges (AAMC), the National Association of College and University Business Officers (NACUBO).
- 3) Lay lobbyists of the research community.
- 4) The Legislative Branch of the U. S. Government.
- 5) The Executive Branch of the U. S. Government.
- 6) The Judicial Branch of the U. S. Government.

There are probably many ways to review NIH grants management. I would suggest a sketching of three major periods in NIH history before discussing trends. These are (1) from circa 1950 to 1962; (2) from 1962 to January 1973; and (3) from January to the present.

Characteristics of NIH Grants Management from Circa 1950 to the Present

A. From circa 1950 to 1962: The NIH experienced a rapid, if uneven, growth pattern during this period starting from about \$50 million in 1950 to about \$1.2 billion in 1962. The traditional research grant program began to share its role in the scientific community with the research training grant and other research manpower programs around 1957. The impetus for NIH's development was with the Congress and lay lobbyists for the scientific community, particularly the disease-oriented national organizations. The objective of the Congress was to provide additional funds over the various presidents' budgets to fund all approved projects. It was only in the late fifties did the Executive Branch counter with a policy which required the lowest 10 percent of approved applications to be individually reviewed by the Institute's National Advisory Councils prior to funding.

Grants management policies and procedures were informal, inconsistent, and flexible. Traditionally, the grantee institution submitted the application and received the funds, but it was the principal investigator who generally communicated with a scientist-administrator at NIH with problems or questions. Originally, research grants did not support professional positions, but with the tremendous growth of these programs, grantee institutions could not meet the demand, consequently this prohibition was lifted early. Research grants could carry over up to \$5,000 or 10 percent of the previous year's balance without justification. Indirect costs moved quickly from 0 to 8 to 15 to 20 percent of modified direct costs and finally to "actual" costs. There was an organization, the Division of Research Grants, NIH (DRG), responsible for central receipt and review of applications, policy development, and auditing of grant expenditures. Nevertheless, the research institutes carried on the day-to-day business of administering its programs, and sought assistance from DRG only for exceptional problems. Grantee institutions and NIH institutes were devoid of nonscientist grants administrators, except to meet fiscal requirements. The scientist was supreme in both institutions and how he spent his funds or deviated from his grant's program objectives generally was unchallenged.

B. From 1962 to January 1973: The NIH continued to expand its budget during this period by almost 100 percent--a rather significant increase of almost \$1 billion. Again, the lead for the expansion rests primarily with the Congress and the scientific community rather than the Executive. However, the demand for research and research training funds could not be met even by an ever-increasing budget. In the decade before it was virtually a certainty that all approved grant applications would be funded. However, by 1967 for research grants and, perhaps, 1970 for research training grants, the demand began to exceed the availability of funds. Approved but unfunded grant applications began to grow at an increasing rate. Several factors contributed to the situation: (1) an expanding inflationary trend; (2) the use of more sophisticated (and, therefore, more expensive) equipment and facilities; and (3) the growth of large grants in the form of program projects and centers.

Not everyone in Congress was enamored with the NIH research programs or, at least, the way they were being administered. The House of Representatives Subcommittee on Intergovernmental Relations, known as the Fountain Committee, began to look at NIH operations in 1960 and by 1962 they had held hearings and submitted recommendations to make the NIH more responsive to businesslike practices. The development of nonscientific grants managers was one consequence of the Fountain Hearings. Unfortunately, the NIH scientific leadership allowed each institute to develop its own grants management program. Fortunately for me, the National Institute of Child Health and Human Development (NICHD) established an organizational structure which gave grants management a voice--albeit it may have been and often is a voice crying out in the wilderness. I have attached a recent organizational chart of NICHD. Although Program Services is separate from Extramural Programs and the Center for Population Research in order to maintain a check and balance system, the three areas work together closely on a daily basis. Another fall-out from the Fountain Committee Hearings was the development of formal grant regulations, policies, and procedures. A research grants manual and a research training grants manual were developed and issued to the grantee institutions and to the institutes. The DRG established a grants management branch with the principal objective to go out and educate the grantee institutions. It was not long before policy development and auditing were moved to the OS and NIH was left with policy implementation and interpretation.

C. From January 1973 to the present: While in the past there were times when the Executive placed Congressional increases into reserves, there were times when these increases could not be used wisely. It came as a shock to NIH, therefore, to note that the President's fiscal year 1974 budget message to Congress reduced funds for research grants included in the fiscal year 1973 appropriation. The President's 1974 budget also announced the phase-out of NIH research manpower programs. For the first time, at least in a significant manner, the Executive was attempting to wrestle with the Congress over who would provide fund control and direction to NIH's biomedical research and research training programs.

Thus, dark days were upon us. In order to mount a viable research program, we were forced to "negotiate"; that is, to reduce arbitrarily, noncompeting continuation applications below their committed levels. Individual investigators and organizations within the scientific community who had been ardent NIH supporters now began to find fault with how NIH was spending its funds. For some time, the words "targeted" or "directed" research particularly distressed the research "purist."

Now, however, the demon contract was assailed over and over--"it was a program poorly administered with unequal or no scientific peer review and, most importantly, it was taking funds from traditional research projects." In the same manner, program projects and centers were also viewed by these "purists" as mechanisms which diverted funds from the traditional research project.

In my judgment, there is no simplistic response from NIH which will satisfy the scientific community. That we have to maintain a viable basic research program which will allow the investigator to pursue his own interests and scientific leads is a premise all would agree to. That we have to maintain a viable contract program to support narrower and more specifically developed mission-oriented research is a premise not all would agree to. That we have to maintain a viable program project and center program to take advantage of groups of interdisciplinary or multi-faceted investigators is a premise not all would agree to. The problem appears to be how should a smaller "pie" of funds be cut up to satisfy all who are concerned.

The effect on grantee institutions in fiscal year 1973 and in early fiscal year 1974 of the reduction of research grant funds and the phase-out of the research manpower programs was harmful, at least, from their viewpoint. Pressures began to mount upon Congress and the Executive to take action to protect biomedical research. The pressures were felt within the OS to the extent that a new NIH post-doctoral fellowship program was inaugurated. In addition, an agreement was reached to permit the Research Career Award programs to continue as a special program under research grants. Most importantly, for the grantee institution, was the class action suit submitted by the American Association of Medical Colleges in District Court, Washington, D. C. This suit claimed that the impoundment of NIH funds in fiscal year 1973 was illegal. The District Court ruled in behalf of the plaintiffs. However, on December 19, 1973, the President announced he would make the fiscal year 1973 impounded funds and the fiscal year 1974 Congressional increases available to the NIH for expenditures during fiscal year 1974. The future for the traditional research training programs is in doubt. The extent to which the traditional research grant will be supported vis-a-vis contracts and program projects and centers is also in doubt. It is time to examine what the future may hold for the NIH research programs.

Trends in NIH Grants Management

Trends in grants management may refer to the policies and procedures used by the federal sector to administer individual projects. In this sense, it is likely that grants management policies and procedures will become more uniform and constant throughout the entire federal sector. OMB's Circular No. A-102 dealing with grants to state and local agencies will shortly be followed by another circular (in draft stage called No. A-102-1/2) dealing with grants to academic and nonprofit institutions.

These circulars are not too unusual or difficult to work with. They call for standard application forms and financial status reports (a simpler report of expenditures); standards for grantee financial management systems which would impose requirements on the grantee for a "good" accounting system; and a reduction in the period of retention of records by grantees from 5 years to 3 years. In addition, a more detailed progress report will be required to assist program

officials to measure program objectives, accomplishments and performance by the grantee. A new requirement in the circulars for rebudgeting direct costs is likely to be less liberal than the present NIH policy. In summary, there do not appear to be major departures in the OMB circulars from present DHEW-NIH policies and procedures.

The important trends in grants management will pertain to (1) factors for determining the level and balance of biomedical research and research training programs; and (2) methods for reviewing research grant applications and contract proposals. These trends are likely to affect the ability of selected grant and/or contract programs and projects to expand research efforts except in predetermined areas.

The major issue is, of course, the annual appropriation for the support of biomedical research and research training. A suggestion has been made that each DHEW bureau develop a President's budget in terms of the single appropriation concept. This budgetary approach would subsume the several institutes under the NIH umbrella. Presumably, only the director of NIH would testify before Congress in defense of the President's budget. Obviously, the emotional appeal of the various institute programs would be lost. It is unlikely, however, given the present climate, that this concept would be accepted at the Congressional level if it were to be developed by the Executive. The NIH in the fiscal year 1975 President's budget was required to develop a budget along program lines rather than by mechanisms. This means that more emphasis was given to specific program accomplishments, directions and objectives rather than to the mechanism; i.e., grant or contract, which would be used to achieve program objectives. While this approach gives deserved emphasis to program vis-a-vis mechanism, it may have the effect of creating an atmosphere of supporting more directed or targeted research as contrasted to basic research. Another important issue involving appropriations deals with the biomedical research balance among the several NIH institutes. As you are aware, the National Cancer Institute and the National Heart and Lung Institute have been given much larger increases in their programs than the other institutes. Many prominent scientists have protested that more dollars in cancer and heart research may develop an imbalance in research support that will prove deleterious to biomedical research progress in the long run.

The final outcome of research training support is a difficult problem to assess. It would appear that the Executive is opposed to the support of an institutional program; i.e., a training grant, and would prefer, as a maximum approach, individual postdoctoral fellowships in demonstrated areas or program need. The grantee institutions and the Congress, on the other hand, (and NIH institutes, also) would prefer to support a broad range of manpower programs from institutional training grants to individual fellowships. We presently have a combination of "old" and "new" manpower programs, although we are not presently accepting applications in the "old" programs.

The continued growth in program projects and centers has had the effect of reducing support for the traditional research project--given a limited budget. The scientific community generally does not support the large grant programs because they feel the scientific quality of these programs is not at a par with the DRG reviewed research project and the programs are more susceptible to direction and even control from a central source, presumably the federal sector. The NIH is conducting a large study to define program projects and centers in terms of how they should be administered, reviewed and evaluated. A subcommittee of

NICHHD's National Advisory Council is presently developing a recommendation on the appropriate allocation of funds between the traditional research projects and program projects and centers.

Perhaps, the quality of scientific review of grants and contracts is behind the issues described above. The dual peer review system developed at NIH is satisfactory to most of the scientific community. It has been studied on several occasions by prominent scientists and interested laymen to determine the effectiveness of the system. These studies have generally been favorable. Factors such as "cronyism" or the "buddy system", and biased geographical, institutional and individual representation have been some of the negative criticisms identified in these studies. Generally, these criticisms have been corrected so that the peer review system is now accepted as a sound measure of scientific quality. The problem is that peer review has been equated with DRG's initial review groups which review the traditional research grant applications. The scientific community, as noted above, are suspicious of the review given program projects, centers and contracts. In my judgment, a large amount of this suspicion is due to the failure of NIH to communicate the procedures used by the institutes to insure that the quality of review of these larger grant programs and contracts is not significantly lower than the review of the traditional research project.

It is extremely important for NIH and the individual institutes to insure that program projects, centers and contracts are reviewed carefully and systematically under the highest standards of scientific quality. It is equally important for recipients of these programs to monitor their own projects and programs to ensure that these standards of scientific quality are maintained.

I am hopeful that the rambling discourse I have exposed you to may help you to better understand where we may be going in the support of biomedical research.

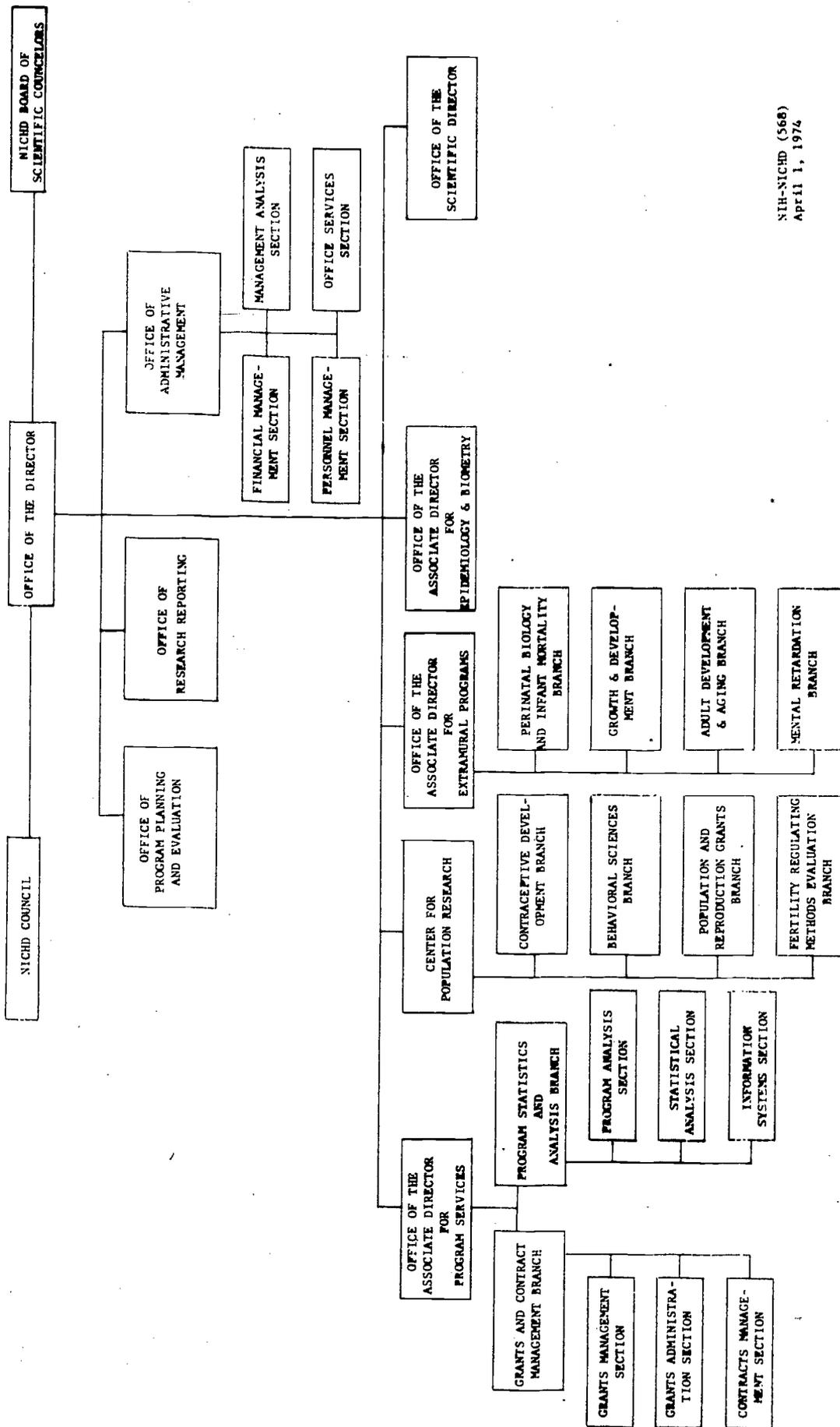
Discussion

The provocative discussion that was generated by the paper presented by Richard L. Hopkins centered around the historical development of NIH grants management and new trends in NIH policy. The organizational structure of NICHHD was discussed in detail from the organizational chart shown in Figure 1.

An in-depth discussion occurred concerning the merits of the grant instrument as opposed to the merits of the contract instrument. The internal review process for both the grant and contract instruments were thoroughly discussed. Some administrators expressed a growing concern over the contract instrument for research. Some administrators questioned the review procedures utilized in awarding contracts. It was quickly pointed out by NICHHD staff members that the contract was an impartial competitive instrument designed for the purpose of filling gaps that are not being approached by the grant mechanism. It was pointed out that the contract is one of the best mechanisms to help solve some of the problems that relate to basic research. Through the contract agreement, a scientist can become directly involved in relevant research related to mental retardation. In some cases, the contract agreement might possibly improve the MR center image with Congress in that output can be directly specified.

This discussion period was extremely interesting for most administrators since many of the administrators had not been privileged to the early development of NIH and did not have a full appreciation for the development of NIH management systems. After this discussion period the administrators had developed a better appreciation for NICHD management and for procedures related to reviewing and rewarding research funds.

NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT



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Figure 1

STANDARDIZED MANAGEMENT INFORMATION REPORTING PROCEDURE

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Introduction

The mental retardation research centers and the National Institute of Child Health and Human Development jointly share responsibility for the nation's major research attack on mental retardation. The responsibility of the centers derives from their acceptance of a construction grant award from the federal government and a contractual agreement to utilize the facility to conduct research on mental retardation and related aspects of human development for a 20-year period. The Institute's role, while administratively defined, is no less binding. We share a common goal to make the program work and to do so with the highest degree of scientific productivity, efficiency, and economy. In this effort we are partners, not adversaries. Only as we reinforce each other's efforts can progress be anticipated. An open-communication system with standardized reporting procedures is essential to this goal. In this way, 12 unique, independent and highly varied programs can be welded into a single, cohesive, national research effort with unity of purpose and goal-directedness.

Everyone present here today has over the years been extensively engaged--and sometimes consumed--in the preparation of various reports both for internal and external use. This essential tool of management is a primary vehicle for program and fiscal planning, decision-making, evaluation, cost-benefit analysis, accountability, and responsiveness. The development, collection, and analysis of management information is in fact the *raison d'etre* for administrators and too often--as far as their mental health is concerned--the bane of their existence.

As administrators of the mental retardation research centers, you and your supportive staff have been called upon to assist in grant applications, progress reports, budget projections, newsletters, and special reports for Institute use, congressional appropriation hearings, scientific consumption, and citizen education, to name but a few. These demands probably pale in comparison to the magnitude of reports required of you for internal administrative purposes. If quantity was an index to quality, center and Institute goals would be well met. Unfortunately, it is not. Current procedures and content are clearly inadequate to this multidimensional task. Were this not the case, this conference would be unnecessary.

There are probably many reasons for our existing deficiencies. Some stem from our own reporting requirements. The National Institutes of Health report forms may be admirably suited to the regular research projects for which they were originally developed and which constituted the core of the scientific enterprise of years past. They are less suited as sources of information on the broadly-based, mission-oriented, complex center or program project grant. Furthermore, the information in these reports is oriented in large part toward fiscal accountability and assuring the funding agency that the contractual obligations underlying

the award agreement have been satisfied. Data of this sort serve important, but limited purposes and because of great variation in the scope and detail of the reports submitted, are difficult to retrieve and almost impossible to systematically analyze.

The limitations in what the Institute asks for are only one aspect of the problem. Many of the centers are not sufficiently staffed to comply with our requests for information of a substantive or program analytic nature. Scientists have not learned to interpret their work to the public--though this is rapidly changing--and science writers receive low priority in research funding. Few centers have organized systems to store and retrieve program information for internal planning or external reporting. Accounting and fiscal management procedures, on the other hand, are most adequate.

Deficiencies in staffing, informational systems and reporting procedures are all remediable, but some of the mechanisms for achieving this goal have already been addressed by others on the program. My concern, however, is with the scientific substance of the report and the goals it must serve. This is best understood by examining the rationale for establishment of the mental retardation research centers and it is to this point and to the ramifications that derive therefrom, that the thrust of my remarks are directed.

Priorities and Expectations

No nation, whatever its commitment to democratic ideals and the wealth of its natural and industrial resources, has found the key to a utopian society for all its citizens. At every level of planning, individual or governmental, choices have to be made. The process of priority setting is a complicated one. It involves values, needs, economics, aspirations, politics, international relations, and the potential for goal achievement. In a heterogeneous society such as ours, values often conflict, needs are subjectively perceived, and these perceptions color our response. More often than not, priorities are dictated by the pressures of special interest groups. In the arena of human services, governmental response is usually reaction-oriented and needs are not perceived until they reach epidemic proportions or are otherwise projected into national consciousness. To the extent that resources have finite limits--real or imagined--each new priority displaces or diminishes preexisting programs. This need not be detrimental to national goals, for many programs are ill-conceived and fail to live up to expectations. Exceptions in fact--realistically defined--are a legitimate criterion for a continued place on the priority list.

For centuries, mental retardation was unranked on national priority lists. Despite its obvious cost to the nation in terms of prolonged dependency, underproduction and underachievement, income maintenance, corresponding social ailments, and the inestimable contributions to human misery, it received little attention. Only as organized parent groups lobbied aggressively for their neglected retarded children and garnered support for their demands from interested congressional leaders and professional societies, did the government sit up and take notice. Effective communication requires good listeners as well as speakers and it was a fortuitous circumstance of history that the President of the United States, because of his personal experience with the problem, was a good listener.

The appointment by President Kennedy in 1961 of a Panel on Mental Retardation, his unprecedented message to Congress on mental illness and mental retardation, and the landmark legislation which followed, are well known to all of you. Yet, a few highlights of these events bear repeating for they underlie the mutual needs of the centers and the Institute for meaningful reporting procedures.

The study by the Panel of national needs in mental retardation resulted in 91 recommendations. Many of these have been implemented, at least partially. Of greatest import to us, of course, was the emphasis on research and the recommendation that "high priority should be given to developing research centers on mental retardation at strategically located universities and at institutions for the retarded."

In this proposal for a national concerted research approach to mental retardation, the Panel was mindful of some of the significant advances already made. It was clear, however, that isolated investigations in scattered biomedical and behavioral departments of comparatively few universities throughout the country had not accomplished the task. While creative advances in science had come from wholly unpredictable insights in basic and clinical studies (wheat chromosomes and mongolism; metabolism of sugars by yeast and galactosemia, metamorphosis of tadpoles and the pathogenesis of cretinism) reliance on serendipitous findings offered no goal direction or expectations.

Whereas serendipity is the antithesis of target research, narrowly focused research missions assume a foundation of knowledge we do not yet possess. In the absence of basic research in the biological and behavioral sciences, clinical solutions are not possible, education and treatment programs are apt to flounder, and effective preventive measures addressed to root causes will not be developed. These considerations are particularly applicable to mental retardation for a number of reasons: (1) mental retardation is not one, but many disorders, only a fraction of which can be precisely diagnosed; (2) its resolution calls for knowledge from every branch of science; (3) full understanding is needed of the development, structure and functioning of the human brain, learning processes, behavioral development and the impact of social forces on the retarded individual's adaptation to his environment.

The language of PL 88-164 establishing the mental retardation research centers, recognized these scientific enigmas. In its reference to "related aspects of human development" it made provision for the unforeseen relationships between basic research and the clinical manifestation of mental retardation. To discern these connections, however, the basic scientist must have knowledge and interest in the problem itself. The interaction of various disciplines and exposure to the clinical condition facilitates this goal and makes possible the cohesive, collaborative efforts essential to a successful program. It is not enough, of course, to accumulate new knowledge. Effective application is the ultimate goal and this depends on communication and dissemination of research information. The physical structures of the centers do not guarantee these outcomes, but the absence of such facilities pretty well guarantee the converse. Certainly, past experience in mental retardation research supports this conclusion.

The center approach to the solution of complex research problems, despite its proliferation in cancer, heart, and other major disorders, is by no means universally accepted by the scientific community. Many insist that commitment to a

mission stifles investigative freedom and innovation and that knowledge for its own sake is the hallmark of science. These views have little currency in today's social climate and increasing demands for practical solutions to human problems. Nevertheless, implicit in the center concept is the notion that the mobilization of scientific talent around a given issue is the shortest and surest route to this objective. Failure to satisfy these expectations will probably erode confidence in targeted research, but unless a significant proportion of center resources are devoted to mission-relevant activities, there can be no valid test of this concept. The resolution of the serendipity versus target research issue does not rest on the mental retardation research centers alone; but, they will be held accountable for their achievements and will be measured against the expectations imposed upon them by the Congress, administering agencies and the consumer public.

These expectations have direct bearing on the content of research reporting. The Institute, if it is to generate needed support for center operations, must have success stories to tell. The centers need the same kind of information to evaluate their progress, avoid blind alleys, pursue promising leads and respond to newly emerging developments. It is not easy to mount such a system. The potential end-product of much basic research is difficult to forecast. Self-scrutiny can be painful when one's livelihood or laboratory space is at stake. Research progress is often painstakingly slow and step wise gains, even significant ones, make little impact on lay citizens. Yet we have no alternative. We must continue to seek more effective means of communicating, disseminating and reporting our achievements. The formulation of clearly defined goals and the sensitization of scientific personnel to the center's reason for being--its mission--is one step in this direction.

Decision-Making and Fiscal Accountability

Centers vary greatly in their administrative structures and organization and in their relationships and status within their parent universities. Often this reflects on the degree of autonomy enjoyed, budgetary controls and space allocation. How a center chooses to administer its program is primarily an internal matter and there is obviously no single model to fit all circumstances. Administrative organization becomes an Institute concern only when it impedes mission attainment. The needs of a university department, for example, for staff, laboratory facilities and supportive services are not always compatible with center needs and goals. Departmental dominance under these circumstances can lead to internal rivalries and the destruction of the cohesiveness essential to center operations.

Rational decision-making in the solution of such problems calls for a process that is both open and honest. Investigators must know the ground rules for continuing membership in the center and be willing to accept sanctions when the rules are violated. In a center involving many scientists and studies, determinations of merit, mission and program relevance are not possible without systematic reporting and periodic review. Scientific peer review by insiders and overall program evaluation by outsiders are two of the methods in use, but they lack uniformity. Self-scrutiny of this sort can yield the kind of information review groups need to properly discharge their functions. Even where the data reveal deficiencies, the mere existence of an evaluative system is a sign of commitment and is administratively meritorious. The collection and interpretation of such information is

a heavy burden, but any one decision has some effect on the whole program and improved analysis of the issues can only help the process.

Fiscal policies and management--I hardly need to remind this audience--are powerful administrative tools. Core grant monies in particular can be flexibly used to undergird common costs, make recruitment of new staff possible and support administrative personnel essential to efficient center operations. Underlying the center concept, however, is the premise that this form of research enterprise is not only more likely to accomplish scientific goals, but should do so more economically as well.

The aspect of accountability needs more rigorous attention than it currently commands in many of the centers. With income deriving from regular grants, center grants, program projects, training funds, state and university resources and the center being responsible to a host of different funding sources, cost accounting procedures are difficult to institute. Nevertheless, centers must be able to demonstrate that every research dollar is well spent and that investigators can carry out the work contracted for in the grant. It is not uncommon to find scientists committed for more than 100% of their research effort and considerable funds expended for unauthorized purposes. Careful administrative procedures can avoid these unintended oversights and the suspicions it generates among reviewers and grants management staff.

A system of cost-benefit analysis would also help to maintain public and congressional confidence in the center program. Within the scientific community, for example, there is much controversy about the program project grant without which centers would be sorely pressed to carry out the cohesive, interdisciplinary, collaborative research program for which they were established. Our own analyses suggest these grant applications receive rigorous review and offer more research per dollar spent than the traditional individual grant. Institute data, however, are limited to our own grant portfolio and cannot embrace core grant costs which indirectly, at least, supports every grant in the center regardless of source. Center evaluation of cost benefits would be more meaningful. It would enable the centers to become more fiscally responsible and provide a rational basis for decision making and the setting of priorities. Such data would also be of great value to the Institute in defending center budgetary needs and projections. Resources are limited, and we must all compare the benefits of one program with the benefits of others. The recent negotiations of grants have forced the centers to consider these factors. With the proper informational input, fewer mistakes are apt to be made.

Planning and Evaluation

Some years ago, the Institute conducted a study on center staffing patterns, research achievements, program directions and fiscal support and resources for what has been euphemistically termed the "Begab Report." Despite the time, energy and the thought required to complete the report and the considerable variation in the amount of detail provided, the level of cooperation to the Institute's request was uniformly high. Many commented that the exercise was most fruitful for internal evaluation and planning. Except for the few centers who meet annually with their advisory councils, however, I see little evidence of ongoing planning and evaluation procedures.

Perhaps the research enterprise by its very nature, is less suited to long-range planning than service programs where the number of clients served and problems solved can be counted and assessed. Yet, it is not impossible. If a center is committed to the discovery of new metabolic disorders, it should have some notion of potential yield and costs over time and be able to measure progress toward that goal. Similarly, if treatment of such disorders is the goal, the prerequisite steps to be achieved can be defined and cost-benefits determined. The same considerations can be applied to behavioral science research. In short, what level of knowledge or technology does a given program of research expect to reach in a specified time period?

This kind of thinking is inherent in the grant application process for very discrete projects, but is seldom applied conceptually at the center level. Given broadly defined goals, centers can develop strategies, priorities and management objectives to facilitate movement from the general to the particular and the imprecise to the measurable. Such planning must, of course, be flexible. It would be utterly mindless to continue on research ventures of little promise or to be unresponsive to new facts or emerging issues.

All of you have experienced the agony and occasional ecstasy of site visit reviews and appreciate the importance of program evaluation. Unfortunately, such evaluation may come too late and the failure of a large program grant application can be highly disruptive and traumatic. Although there is some urgency in this matter because of today's highly competitive climate for research funds, our capacity for program evaluation is sharply limited. We need better measurement tools, but we need also to make evaluation an integral part of program administration. The first step is a clear understanding of what needs to be evaluated. Most of these areas have already been touched upon. All of these, however, are subsumed in the legislative language establishing the centers. Efficiency and economy of operation mean little, if our efforts to solve the mysteries of mental retardation and related aspects of human development prove minimal.

Staff Participation

All of the things I have talked about, while not necessarily the direct responsibility of the administrators assembled here, bear on research management. None of these factors however--priorities, planning and evaluation, decision-making, accountability--can be implemented unless fully understood and supported by the people who have to make the system work. This demands that the scientific staff be fully involved in establishing the center's goals, priorities, and immediate objectives.

From personal observation, I would hazard that the lack of staff involvement in this process is a major source of confusion and conflict within many of the centers and between the centers and the Institute. Some scientists, especially those in basic research areas, have little understanding of what is expected of the centers and limited identification with the field of mental retardation and national goals. There are many ways to remedy these deficiencies. Only as the needs and attitudes of staff are exposed to full view and candidly discussed, can we bring those whose goals are peripheral and, therefore, must be deferred or overruled, to accept the legitimacy of the decision-making process. Once the rules for center membership are known, the loser may be reconciled to losing and prospective members encouraged to wait.

Attention to these elements of management research, can I believe, contribute significantly to our mutually shared goal of a viable center program and a concerted assault on the problems of mental retardation.

Discussion

The paper presented by Michael J. Begab stimulated a very interesting and lengthy discussion concerning the need for a cooperative effort between the National Institute of Child Health and Human Development and the MR research centers in developing a meaningful, standardized information reporting system. The discussion, first of all, centered around the problems associated with a mission-oriented mental retardation research center. It was the general feeling of several conference participants that many of the research centers were not necessarily mission-oriented centers but were in actuality a confederation of related research projects. NICHD participants expressed some concern over the loosely knit organizational structure of many of the research centers. Discrepancies between what is written in grant applications and what actually exists in research centers was a question of great concern to all conference participants. Some concern was expressed that research scientists had learned how to play the "grant game." They had learned over the years how to write the appropriate words for certain types of grants. In many program projects it was reported that there appeared to be a void of communication between research scientists within the program. Many of the scientists named in the program project had little or no knowledge concerning the overall mission of the project and in many cases the mission of the MR research center. In order for the work of a research scientist to be relevant to the mission of the center, he must be cognitive of the research mission of the center. The scientist must be cognitive of the overall goals of his own research and how they relate to the goals of the center. This normally cannot come about in a preliminary grant application discussion. This type of cohesive research-scientist relationship must be an ongoing process of indoctrination in all interdisciplinary mental retardation research centers.

Several operational philosophies were discussed that would help scientists understand the research mission of the MR research center. One operating philosophy was suggested that centers should find the best possible researchers and then mold them in to mental retardation researchers. It was pointed out that several centers operate on this philosophy. They secure the best researchers available and then create an environment that would expose these researchers to a real world of mental retardation. It is believed that the environmental setting where the researcher has opportunity to look at people and problems, rather than isolating them in a laboratory will cause them over a period of time to become dedicated researchers in the field of mental retardation.

Another philosophy concerning the attraction of researchers for the mission-oriented center involved the development of a plan to lure people in to mental retardation research. It was suggested that the center program might possibly involve the recruitment of researchers and the development of a retraining program especially for mental retardation research.

Still another philosophy advocated related to the offer to provide space and other centralized services in exchange for a commitment from the investigator to

develop research programs along the central theme of the center. Several research centers reported that they were using this technique to assure a mission-oriented center.

Another philosophy suggested that researchers who are successful in obtaining research monies should be required to pay a certain membership fee in order to be a part of the organization and to utilize the resources and support services offered by the center. Under this arrangement, the membership fee would go in to providing services for the entire center.

Other various philosophies were discussed concerning the problems relating to mission-oriented research centers. It was the general consensus of the participants that additional research is needed to determine ways, techniques, and procedures that would encourage researchers to develop target-oriented research projects that fit in to the general mission of the MR research center program.

Once the idea of the mission-oriented center was thoroughly discussed, the participants began to investigate the need for the development of an information system that would gather quantitative data to support targeted mission-oriented organizations. It was well documented during the discussion that the research centers must develop comprehensive quantitative reporting systems that can be used to justify their existence. The centers must have an information system that will prove to others that they are producing and accomplishing stated goals and objectives. MR research centers can no longer afford to hide behind the shield of basic research. Basic research must state specifically where that research will lead and eventually what will be the payoffs. It is not enough to say that we are interested in this basic research and it will be helpful and useful. Centers must develop information systems that will prove that the outcome of basic research is worthwhile and meaningful to our society at large. MR research scientists must learn to think that down the road this bit of information will help solve a certain type of problem. We must not review basic research as some type of esoteric situation. We must be able to predict where we will be 5 or 10 years from now. As research scientists, we must at some point in time investigate how much time and money we are willing to spend on a specified research project. This time and money must be justified on a cost-benefit analysis basis.

It was pointed out by conference participants that granting agencies may soon require a type of a PERT analysis for each grant application. The agency buying a few research project must know in advance how long it will take to gain a specified product. This, of course, is not easy to apply to basic research. But, if basic research is to continue to survive, scientists are going to be forced to make the conceptual links to a targeted outcome or a specified product. At one time there was a critical mass in Congress that would support basic research. That critical mass of people in Congress has grown consistently smaller over the years. Congress is beginning to look more carefully at the way in which taxpayer dollars are being spent. Programs are becoming more target oriented. It was also indicated that most basic scientists are very cautious and hesitate about making predictions or projections. It takes courage on the part of the scientist to establish basic long-term objectives and to identify end products. It is obviously very difficult to package basic research in a way to show how a scientist has derived a specific product or targeted result. It was pointed out by the participants that it sometimes may take as much as 50 years to retrace the historical development of a basic research problem. In recent years the National Science Foundation has conducted some research studies that have indicated that basic research does have some payoff.

No participant in the conference suggested that we conduct retroactive research to determine past payoffs on MR research. It was, however, suggested that we begin at this point in time and investigate where we are going. While we may not be able to put a specific time frame where we want to be, at least we can begin to shoot for certain specified goals. Centers must have at least some sense of where their research is leading. If nothing else, centers can identify the types of problems which they would like to be in. We can at least identify the types of problems that might be in that arena.

While it was generally agreed by the participants that the MR center program must have identifiable goals and objectives, the possibility of dysfunctional effects of time was also discussed. This means that if one establishes certain goals and objectives to accomplish in a specified number of years, what dysfunctional effects would that length of time have on the research program. If one follows a model that explicates step-by-step procedures and strategies to the extent that one can trace it back to original basic research, one must still tell the truth of time. This type of model does have its hazards. One must be willing to report after a number of years that one may have followed a number of blind alleys. One must be open enough to report that the scientific investigation has not lead to the desired product or targeted area. If this occurs, the researcher is right back at the starting point. A basic researcher must be willing and have the flexibility to follow a lead and evaluate his progress toward a specified target. If over time, it appears unsuccessful, one must be flexible enough to move in to a new and more profitable area of research. Even this type of research can show progress and it is apparently the way in which knowledge evolves in a given field. One does not always start at a beginning point and progress to an end point in a smooth progression. One must have the freedom to go back and re-trace his steps and develop a new hypothesis, develop new concepts, and new technologies and restart the research process. This is the nature of the research enterprise and those who support research must understand this basic constraint. Funding agencies must be open to a realistic evaluation of research progress.

Another very controversial matter was raised at this point in the discussion. It was pointed out that the previous discussion was centered around directed research. Several administrators were quick to point out that researchers and academicians do not like the term "directed research." This term strikes at the very heart of what they are and what they stand for. Researchers maintain that they must have freedom to pursue their academic interests. It was further suggested by the group that the words "mission research" applied more to our research centers and quite often replaced the objectionable "directed research" terminology.

At this point in the discussion the participants began to discuss in quite some detail the relatively new concept of accountability. It was quickly pointed out that Congress was insisting on more programs that are mission-oriented in nature. The concept of accountability is already a reality. The question was raised as to whether or not other center-type programs have encountered the same types of problems that have been encountered by the MR research centers. That is, are other mission-oriented research centers having to provide their supporters with evidence that they are accomplishing their mission orientation? Have these center-related programs developed standardized reporting procedures? It was generally felt that the other center-related programs have not implemented a standardized information reporting system. It was suggested that the MR research centers would be breaking new grounds if they should develop an acceptable standardized

information reporting procedure. It was suggested that the standardized reporting procedure should provide quantitative data for internal and external evaluation and review.

NICHD participants indicated that most centers do not have an internal review system that will exclude certain weak scientists from an application. It was indicated in the discussion that a center should be strong enough to reject certain people from research projects that would weaken the overall effectiveness of the project. In some cases, research centers have used NICHD staff to help weed out weak investigators that would weaken and jeopardize the funding possibility of the projects. It was further suggested that this type of review should not be used extensively. The general consensus was that each research center should develop its own internal review system that would be strong enough to reject scientists that would weaken the overall project. It was clearly pointed out that one should not have a program project in which the scientists were not interrelated and very knowledgeable of the activities of the research of their fellow workers. In connection with this statement, it was also indicated that in academia there are certain research scientists who like to run their own "popcorn stand." The individuality of such scientists and entrepreneurs can be a disruptive experience for a mission-oriented center. Throughout the entire discussions, it was continually pointed out that there must be a mechanism that will assure that internal evaluation takes place and that accountability is apparent in all program projects as well as core grant support.

At one point during the discussion the question was raised, "Has the construction of these new buildings improved communication among scientists?" Several administrators indicated that physically occupying one single building had encouraged several areas of collaborative work to take place among the research scientists. This type of collaborative work was one of the chief reasons why the center concept was developed. The complex problem of mental retardation cannot be solved by the individual scientist approach. It is necessary to provide a facility where interaction can take place among several different related disciplines. The idea of having a center within a given building supports the notion that collaborative research can take place in mental retardation and no doubt this has a strong influence on the type of research that is developed.

It is imperative at this point in time that research centers develop documentation to show that the center concept is viable and is, in fact, meeting the mission-oriented goals of the research center program. The scientific community has not all agreed that this is the best way to accomplish research on mental retardation. There is a lot of disagreement at this time on this point. In order to settle this issue, we must develop documentation to show that collaborative research has taken place in research centers and is more efficient and more effective than individualized research projects. It was suggested by the conference participants that a study in this area be developed in the near future that would emphasize the benefits and cost effectiveness of the center concept.

After a long and detailed discussion concerning the paper presented by Michael J. Begab, it was the consensus of the entire conference participants that a standardized reporting procedure should be developed as soon as possible. It was suggested that the standardized reporting procedure should contain information that would be helpful for internal decision making at the center level as well as provide information needed by NICHD for evaluation purposes and for presentation to Congress for support of mission-oriented mental retardation research centers.

ORGANIZATIONS: AN INTERACTION ARENA OF PEOPLES AND STRUCTURES

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Introduction

The purpose of this presentation is multi-fold. In this presentation, we will look at the following aspects of organizational theory:

- 1) Some general assumptions and/or definitions about organizations taken from the works of Bernard, Blau, Kingsley, Davis, Simon and others.
- 2) The organization as a social system; leaning heavily on the Getzels-Guba Model, which is one of the greatest analytical tools in the business.
- 3) Some specific organizational structures, so that we will be working with an awareness that there are discretely different structures subsumed under the label of "organizational structure."
- 4) A hypothesis about structure and authority patterns.
- 5) A brief review of some theories in the "humanistic management school."
- 6) The factors of organizational environment, managerial style or the predisposition of a person to use a specific style.
- 7) Intra-organizational communication, especially superordinate-subordinate communications.
- 8) Is there a best leadership or managerial style?

Formal Organizations Defined

Let us begin with the following assumptions concerning organizations. The first assumption is that organizations are created for a purpose; they are conceived with a conscious purpose. As Blau states, "formal organizations are social units established to achieve certain goals." While it is possible for some to construe this as a truism, I would have to differ and point to certain organizations which have become so institutionalized that their goals have ceased to become their *raison d'etre*, and, like the "education process" in the United States, they have grown, like Topsy, in an unthinking manner.

Secondly, I would reiterate Simon and say: "A primary function of organization is to enforce the conformity of the individual to norms laid down by the group, or by its authority wielding member(s)." Let me hasten to add here, that this is not synonymous with assuming in all cases that the norms are established in vacuo-- in an atmosphere free of the individual's own input.

The third assumption is that ownership of the organization resides in the person(s) having property rights to the total organization. Whether these property rights are real rights, (i.e., the property actually belongs to these persons) or whether the rights rise out of the stewardship role is a point that will not be argued at this time.

Summarizing, we can assume that an organization is a purposely developed system which, through enforcing conformity to norms, endeavors to achieve goals without allowing erosion of the owner's rights by those who operate the system.

Reflecting on Blau's statement which we alluded to earlier about organizations being "social systems," let us look into the Getzels-Guba Model. Their social system model divides the organizational world into two dimensions: the institutional (nomothetic) and the individual (idiographic) which are conceptually independent but phenomenally interactive. Conceptualization of this model is shown in Figure 1.

GETZELS-GUBA SOCIAL SYSTEM MODEL

Social System - A group regardless of level or size of unit

Social Systems Theory - Explains two classes of phenomena:

CONCEPTUALLY INDEPENDENT

PHENOMENALLY INTERACTIVE



Figure 1

The nomothetic dimension is composed of three components: the institution itself, which gives rise to articulated roles; flowing out of these roles we have certain expectations. The interrelationship of these elements is depicted in Figure 2. It must be realized that by looking at the organization in a uni-dimensional sense [i.e., only along the social system-institution-role-expectations-observed behavior continuum (as shown in Figure 3)] we must perceive the role incumbents as "robots"--devoid of personalistic characteristics and devoid of individualizing attributes. To continue to look at the organization in such a manner would be to run counter to reality. Getzels and Guba realized this and added the idiographic dimension. This dimension allows us to deal with three things: the uniqueness of the role incumbent--his personality and need dispositions, the analysis of the role incumbent's personality; individual reactions to

environment and the individual expectations of the environment; and the individual's tendencies--the tendency to orient to the environment in a predictable manner and the tendency to expect certain consequences from specific actions.

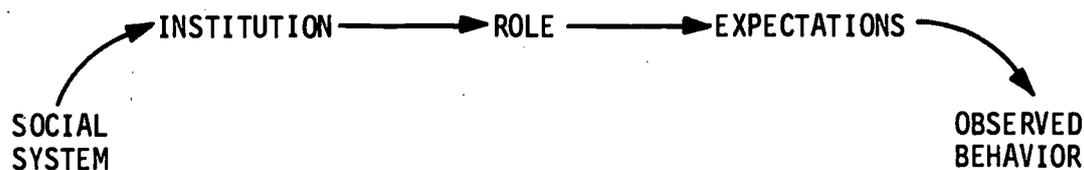
NOMOTHETIC DIMENSION

INSTITUTION	ROLE	EXPECTATIONS
Social Systems have imperative functions	Dynamic aspect of	Defines the role
-- Governing	-- Positions	Effects normative behavior
-- Educating	-- Offices	Defines what incumbent
-- Policing	-- Statuses	-- Should do
These functions are institutionalized into agencies created to implement functions.	These define the role of the person who occupies the office.	-- Should not do

Figure 2

GETZELS-GUBA SOCIAL SYSTEM MODEL

NOMOTHETIC DIMENSION



TO THIS POINT ROLE INCUMBENTS ARE PERCEIVED AS ACTORS
 DEVOID OF PERSONALISTIC CHARACTERISTICS
 DEVOID OF INDIVIDUALIZING CHARACTERISTICS

Figure 3

In summary, this dimension can be described as a continuum flowing as follows: social system - individual - personality - needs dispositions - behavior (as shown below in Figure 4).

GETZELS-GUBA SOCIAL SYSTEMS MODEL

IDIOGRAPHIC DIMENSION

UNIQUENESS OF ROLE INCUMBENT CONSIDERED

-- PERSONALITY

-- NEEDS DISPOSITIONS

INDIVIDUAL TENDENCIES

-- TO ORIENT TO ENVIRONMENT
IN A PREDICTABLE MANNER

-- TO EXPECT CERTAIN CONSEQUENCES FROM ACTIONS

PERSONALITY OF INDIVIDUALS

MUST BE ANALYZED

-- INDIVIDUAL REACTIONS TO ENVIRONMENT

-- INDIVIDUAL EXPECTATIONS OF ENVIRONMENT

INDIVIDUAL

PERSONALITY

NEEDS DISPOSITION

Figure 4

As shown in Figure 5, when these two halves are brought together, we have a relatively good approximation of the dynamic whole--the organization as a social system.

GETZELS-GUBA SOCIAL SYSTEMS MODEL NOMOTHETIC DIMENSION

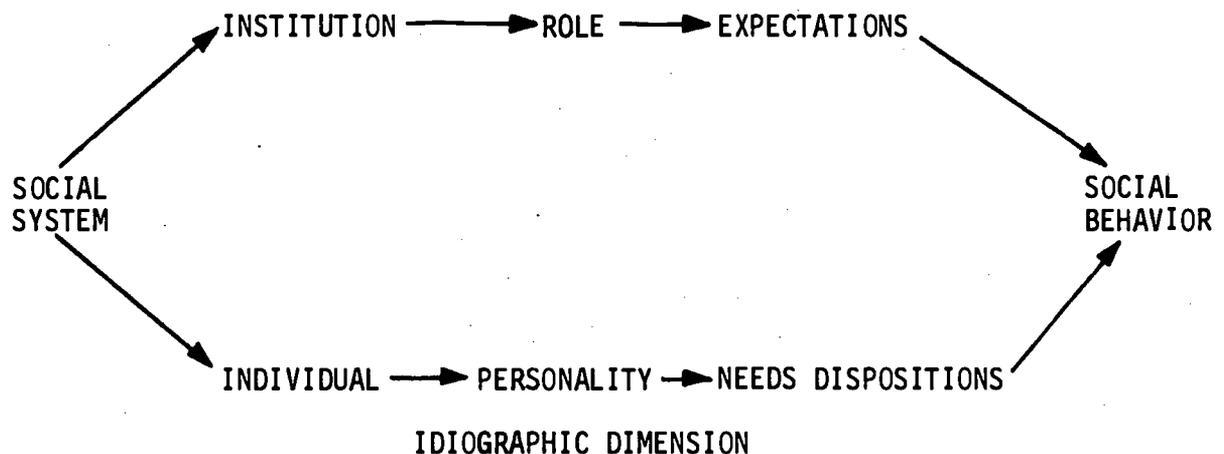


Figure 5

As mentioned earlier, the Getzels-Guba Model is not just another pretty model, but it is a good means of analyzing any organization. Analyzing it, that is, from the point of view of trying to determine or predetermine possible areas of negative conflict, let me show you how that works.

If we take a look at Figure 6, we see that one area of possible conflict lies in the space between the opposing elements of role and personality. Opposing elements in the sense that each holds the same relative position in its own dimension. This role-personality conflict represents a conflict between the needs dispositions of the incumbent and the institution's role expectations. In a simplistic manner of speaking, we have a square peg in a round hole. This conflict can be defused many times by powers or resources that lie within the purview of the organization. This type of potential conflict will be discussed later.

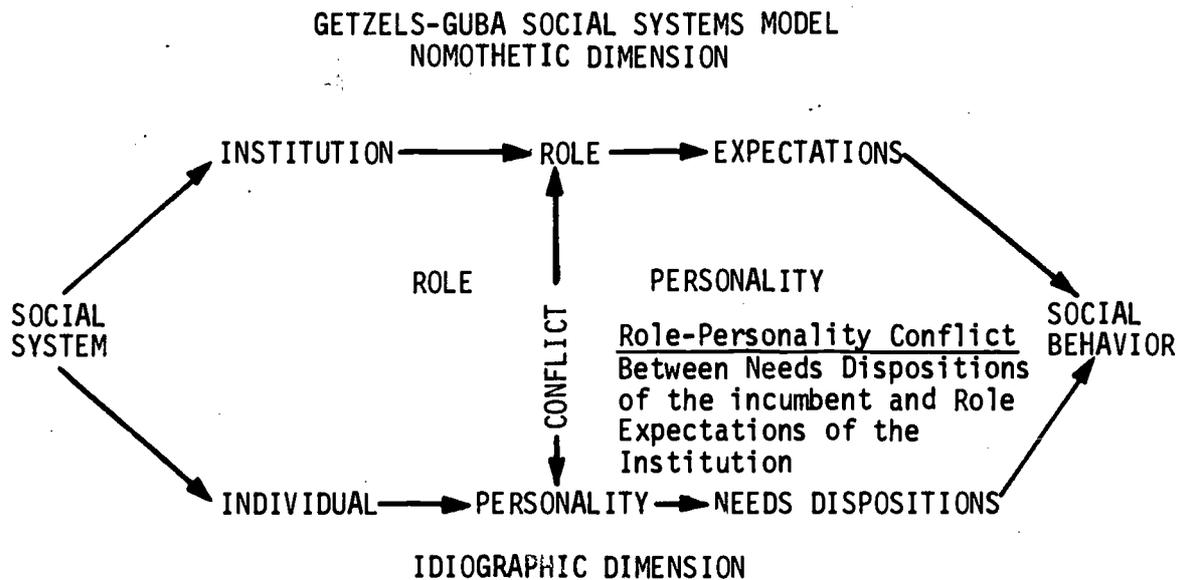


Figure 6

The second potential area of conflict is a uni-dimensional one and many times lies outside the span of corrective control of the organization. This area is shown in Figure 7. It can be labeled as personality conflict and is a result of opposing needs and dispositions within the personality of the incumbent. I perceive this area as beyond the scope of the administrator or manager.

GETZELS-GUBA SOCIAL SYSTEMS MODEL
NOMOTHETIC DIMENSION

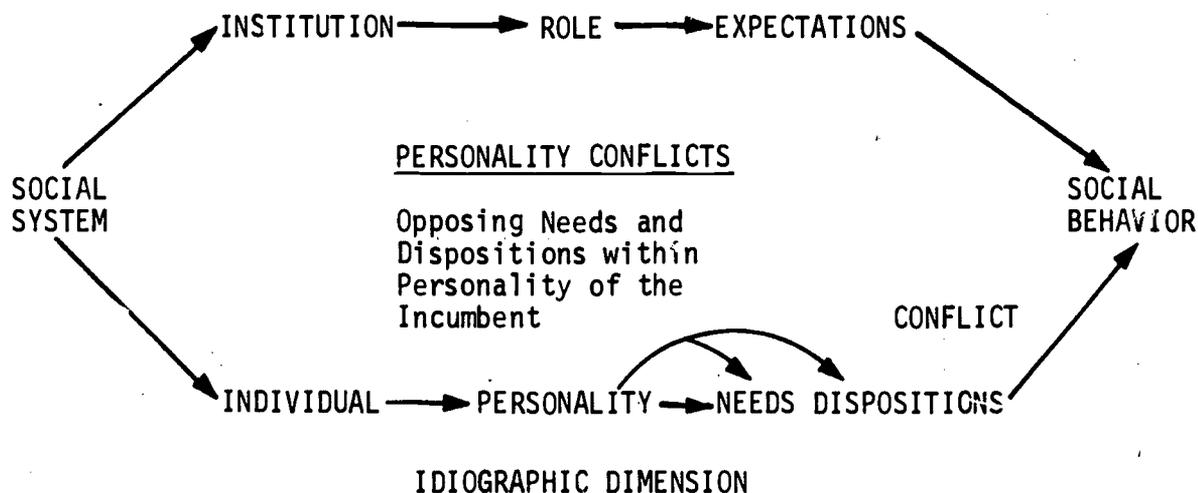


Figure 7

The next area is also a uni-dimensional area; however, unlike the preceding one, there are some managerial, and intra-organizational strategies that can be used to ameliorate the situation. This area is shown in Figure 8 and can be labeled role-role conflict. Such a conflict pertains to a situation wherein the expectations are mutually exclusive, contradictory and inconsistent. An example of this would be when the role of the administrator is simultaneously defined as being supportive and regulatory.

GETZELS-GUBA SOCIAL SYSTEMS MODEL
NOMOTHETIC DIMENSION

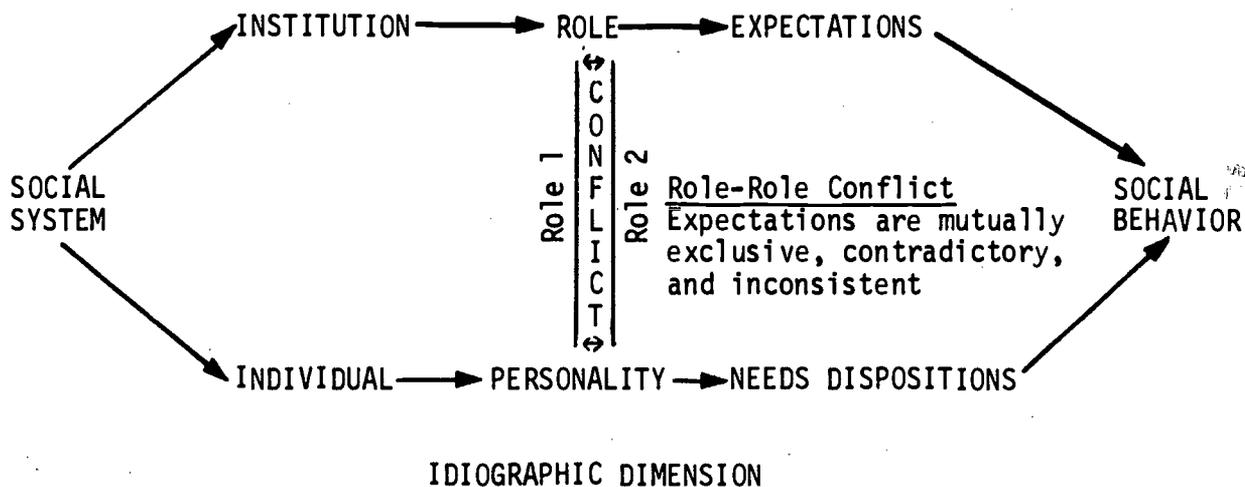


Figure 8

As the administrator adjusts to meet the expectations of one definition, he comes more and more into conflict with the other role definition. Here he is wearing two hats which clash. A subtly different conflict can occur when the role is clearly defined but there is a misperception by part of the organization as to the expected outcomes of the role. This model is shown in Figure 9.

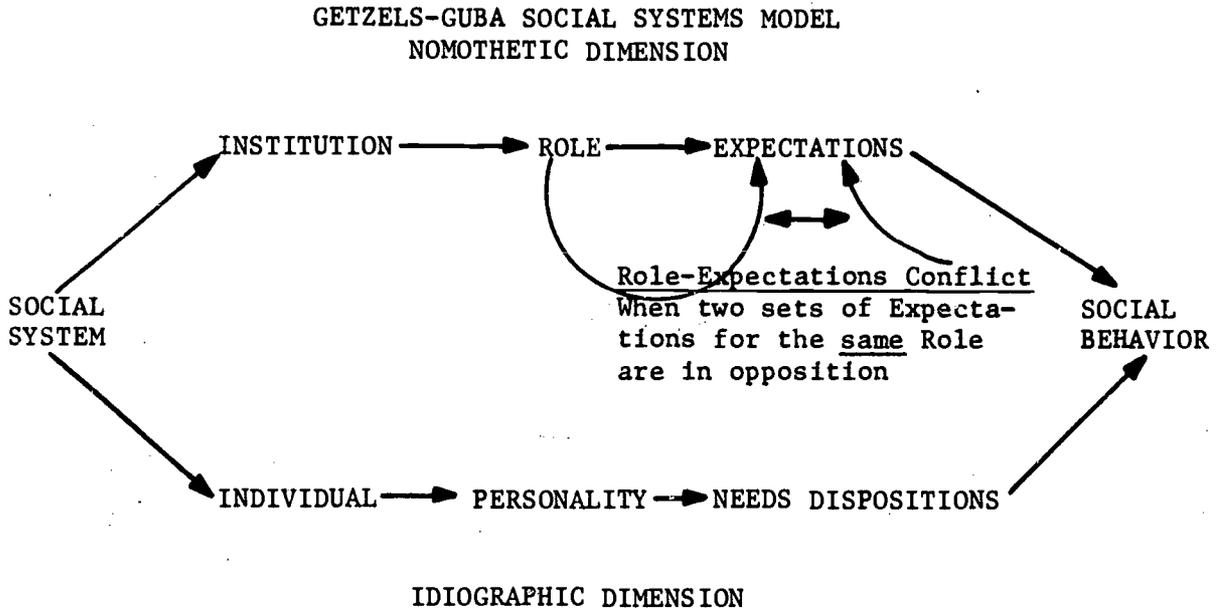
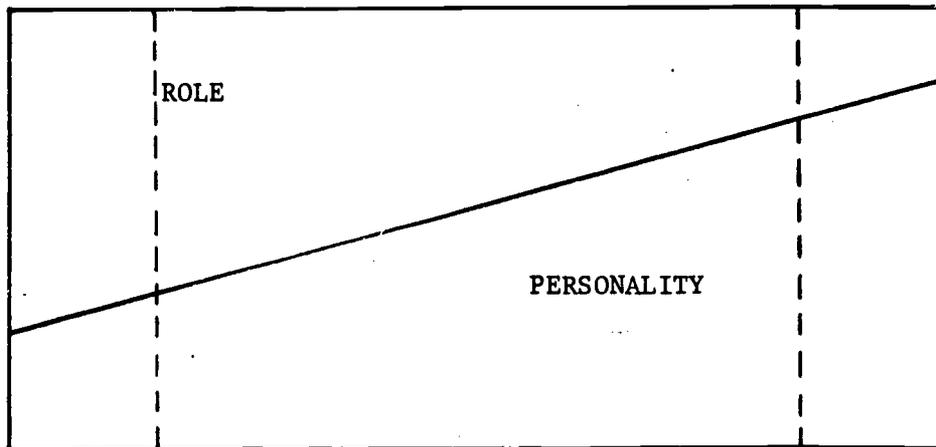


Figure 9

Complete study and application of the Getzels-Guba Model far transcends the time allotted for this whole conference, let alone this segment. Therefore, I reluctantly leave the model noting that in Figures 10 and 11, we have attempted to summarize some of the relationships touched upon by Getzels and Guba.

INTERPLAY BETWEEN ROLE AND PERSONALITY IN A BEHAVIORAL SET



MORE BUREAUCRATIC

69

LESS BUREAUCRATIC

Figure 10

GETZELS-GUBA BEHAVIORAL EQUATION

$$B = f(R \times P)$$

B = BEHAVIOR

f = FUNCTION

R = ROLE

P = PERSONALITY

Figure 11

Specific Organizational Structures

Let us now turn to the consideration of some specific organizational structures. Becker and Gordon, in their work "An Entrepreneurial Theory of Formal Organizations", identified three simple bureaucratic forms: the Complete, the Enucleated and the Truncated Bureaucracies. The definitions or descriptions of each of these models follows:

A COMPLETE BUREAUCRACY is a formal organization which, in the process of goal attainment, stores all the managerial hierarchies to maximize coordination and control. The conditions necessary for the emergence of this organizational form, which closely approximates the Webberian Model, are a high proportion of specified procedures (P+) and a high proportion of specific resources (R+).

A TRUNCATED BUREAUCRACY is a formal organization in which one or more of the lowest managerial levels necessary to maximize coordination and control in the production of a good or service is not permanently stored within the organization. This is a form quite common to the construction and fashion world, where demand is unpredictable. In this structure we still have a high degree of specificity of procedures (P+) but now we no longer have a high proportion of specific resources, we store generally, not specifically. Using our symbolic shorthand, we indicate this with an (R-).

AN ENUCLEATED BUREAUCRACY is defined as a formal organization in which all of the hierarchic levels necessary to maximize coordination and control are eliminated between the owner and the producers. An example of such an organization might be a college where the aim is to educate the youth, the owner providing the resources but the individual professor going his own route to meet the goal. This structure would be symbolized as (P-) (R+).

A summary of the bureaucratic types and the authority patterns associated with them is shown in Table I.

Table I

Symbols	Bureaucratic Type	Authority Pattern
P+ R+	Complete bureaucracy	Executive
P+ R-	Truncated bureaucracy	Executive-external
P- R+	Enucleated bureaucracy	Colleague
P- R-	No organization possible	None

P = specified procedures; R = stored specific resources;
 + = high proportion; - = low proportion

So far, we have only talked to the simple organizational types and their associated authority patterns. It must be remembered that in the real world, organizations are complex and authority relationships cannot be described by a single pattern. A case in point is the research laboratory, which might, at first blush, stand out as a fine example of the "enucleated bureaucracy" with a collegial atmosphere pervading the operation. However, closer inspection would most likely reveal a bureaucratic pattern being the operational norm within the administrative group and with respect to most classified (nonprofessional) personnel.

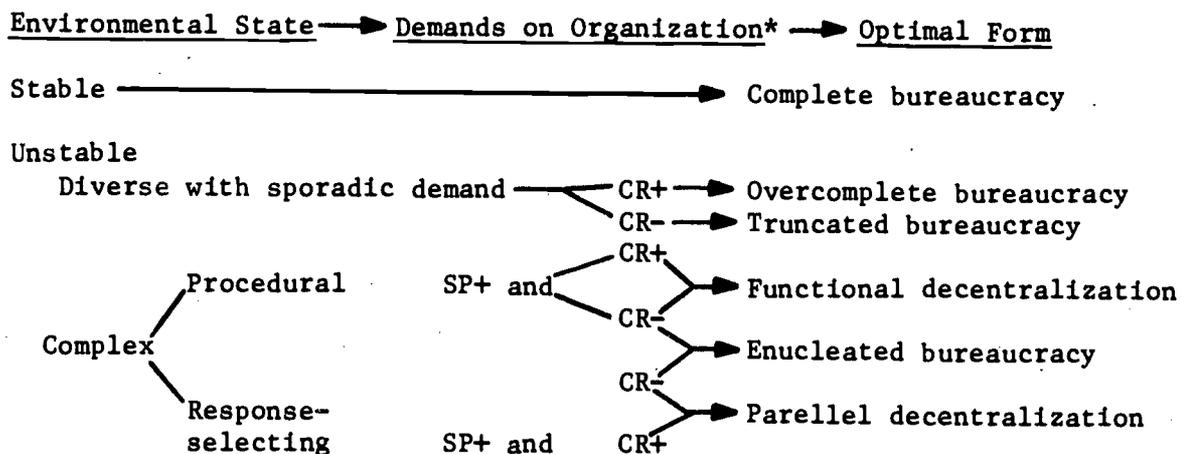
A case such as this would be classified as an "internally coupled bureaucracy" by Becker and Gordon. Other complex types would be the externally coupled bureaucracy and the decentralized organization. An example of the former can be seen in the operation of Sears Roebuck, which "jobs" much of its production to other manufacturers. The latter, decentralization, is typified by two semi-autonomous units, neither of which gives service to the other. Today's conglomerate might be considered an example of this.

The point of discussing these complex organizations is to underline the fact that any attempt to taxonomize organizational structures may involve a majority of exceptions. It also, hopefully, lays the groundwork for further discussion relative to managerial and leadership style, especially taken within the concept of environment or the nomothetic dimension.

Let me summarize now some determinants of optimal organizational structures in Table II.

In presenting a very sketchy summary of Becker and Gordon's work, we hope that two things have been accomplished. First, that the ordering implicit in the synopsis provides insight into the relationship between structure and authority patterns. Second, that the perception of environmental influences has been sharpened.

Table II



- * SP Demand that procedures be specified rapidly
 CR Demand that specific resources be rapidly available
 CR NO Demand that specific resources be rapidly available

Before returning to Getzels and Guba, let us stipulate that the following hypotheses are reasonable, on the basis of what has flowed from Becker and Grodon.

Hypothesis (1): The structure of the formal organization and its concomitant authority pattern is dependent on its ratio of specified to generalized procedures and on its ratio of stored specific to stored general resources.

Hypothesis (2): Movement away from a Complete Bureaucracy depends on the interaction of: complexity of environment, diversity of environmental interaction, and the need for rapid responses.

Now, back to the Getzels-Guba Model. Let us attempt to draw some parallels between it and the concepts presented by Becker and Gordon. For the sake of my argument, I am going to claim that Getzels-Guba's "nomothetic dimension" is a parallel concept with the Becker-Gordon concept of "bureaucratic type" and that Becker-Gordon's "authority patterns" is similar to Getzels-Guba's "role" or better still "role expectations."

By taking this literary license, I think that I have set the stage for an argument that runs something like this: the type of organization and the extant authority patterns set the role expectations for the incumbent. Or more simply, by establishing an environment we set the stage on which the individual (and his personality) plays out the role.

This state of affairs could (and probably should) easily lead us to the conclusion that to operate maximally, the personality, predispositions or what-have-you of the individual should be sympatico vis-a-vis the environment and/or the role. This, I think, is the message that comes through in both of these theories. This is certainly quite clear, in the negative context, in the Getzels-Guba Model's explication of the "role-personality conflict." Having reached this conclusion, legitimately or otherwise, what can we do about it? Before answering that rhetorical question, let me address myself to the implicit requirements of the "preview outline" provided a month or so ago by Wilburn Clouse. The implied request was that we deal with the works of a number of theorists in the field of behavior and the organization. Therefore, let me briefly reacquaint you with some of these people and their works. The theorists that we will be looking at are: Abraham Mazlow, Chris Argyris, Douglas McGregor, Rensis Likert and Blake and Mouton. Also, let me state at the outset, that we will deal with their rather complex ideas in a rather simplistic fashion.

Organizational Theory

Mazlow explicated a hierarchy of human needs and argued that the behavior of an individual at a particular moment in time is usually determined by his strongest need. The hierarchy can be depicted as follows:

			<u>Self-Actualization</u>
			<u>Esteem</u>
		<u>Affiliation</u>	prestige, self-con- fidence, ego
	<u>Security</u>	acceptance, belonging	
<u>Physiological</u>	tenure, free- dom from fear		
food, cloth- ing, shelter, sex, etc.			

All of the above are components, forces, elements, etc. that are at work or at least latent in the idiographic dimension of the Getzels-Guba Model.

McGregor is best known for this Theory X-Theory Y conceptualization. He postulates that there are two sets of assumptions, either of which could form the basis for organizational operations. It is management's prerogative to choose which set. These sets are shown on the following page.

Theory X

Theory Y

1. Work is inherently distasteful to men.
2. Man for the most part is not ambitious and has no desire for responsibility.
3. Most people have little capacity for creativity.
4. Motivation only occurs at the physiological and security needs level.
5. Most people must be closely controlled and often coerced to achieve organizational goals.

1. Work is as natural as play, if conditions are favorable.
2. Self-control is often indispensable.
3. The capacity for creativity is widely distributed in the population.
4. Motivation occurs at the affiliation, esteem, self-actualization levels.
5. People can be self-directed and creative at work if properly handled.

Either set of assumptions has implications for setting, environment and/or the nomothetic dimension of the organization. It would appear obvious that a company basing its activities on the assumptions in Set X would provide a somewhat different atmosphere than a company utilizing the assumptions in Set Y.

The third theorist, whose work has implications for the superordinate-subordinate relationship, is Chris Argyris. His theory, the Immaturity-Maturity Theory, holds that there are seven changes which should take place in the personality of the individual if he is to develop into a mature person over the years. These seven changes are outlined below:

<u>Immaturity</u>	<u>Maturity</u>
-- passive -----	increased activity
-- limited behavior -----	multi-behavior patterns
-- dependence -----	independence
-- short-time perspective -----	long-range perspective
-- subordinate position -----	equal or superordinate position
-- lack of awareness of self -----	awareness and control over self

These changes are only general tendencies, but shed some light on the matter of "growing to maturity."

Argyris feels that there are certain attitudes at work within organizations, especially attitudes dealing with human nature that are incompatible with the proper development of maturity in the human personality. He sees a definite incongruity between the needs of a mature personality and the ecology present in many organizations as they now exist.

The next of the theorists that we will talk about in this section is Rensis Likert. Likert, in his studies, has found that the prevailing management styles of organizations can be depicted on a continuum from System 1 through System 4, as shown in Figure 12. This continuum, while linear, gave rise to much of what Blake and Mouton did in their work *The Managerial Grid*, a two-dimensional model shown in Figure 13.

The Blake-Mouton Managerial Grid finds its base in the "humanist" scholars and theoreticians in organizational theory. It is closely attuned to the thinking of McGregor, Argyris and their contemporaries, and in a way it finds some compatibility with Mary Follett's work, and is closely related to Likert's works. Briefly, it submits the thesis that people are predisposed to "manage" in a particular style. These styles, fine discrete ones, run the gamut from completely authoritarian or task oriented to a laissez-faire style, at the other extreme, which is heavily weighted towards a concern for people.

Placed on a grid, with "X-Y" axes, the optimum style, espoused by Blake-Mouton is the intersection of the maximum values of each axis, a point defined by the coordinates (9,9) (See Figure 13). The other four styles are represented by coordinates: (1,1), (1,9), (5,5), (9,1).

Returning to the rhetorical question I raised regarding "role-personality" conflict, let me select one strategy that might be employed to either select, albeit cautiously, the right person for the right role or to act as a catalytic agent in an "inservice" effort to improve the organization. This strategy is the use of an instrument, devised by Dr. Jay Hall, called the Style of Management Inventory.

The instrument flows conceptually from the Blake-Mouton Managerial Grid; it was validated on a sample of some 1,000 business managers and executives and is in constant use as one "renewal" instrument in management seminars throughout the nation. The instrument, the Managerial Style Inventory, through forced choice questions, purports to place the person being inventoried in one of the aforementioned coordinate-defined categories. Each category has concomitant characteristics, which by the way are described, albeit succinctly, in Figure 13. The Managerial Grid, it must be remembered, attempts to diagnose or predict a predisposition to a particular style; it, therefore, can be considered more static than dynamic. To deal with the latter aspect of leadership, let me suggest a second instrument, the Personal Relations Inventory, which flows almost directly from the Johari Window Model--a model developed by Joe Lutz and Harry Ingram.

The Johari Window Model deals with the communications or data (real or felt) exchange process. With respect to the Getzels-Guba Model, it is both the chicken and the egg. That is, the Johari deals with the interaction between the actors or the people and at the same time this same interaction determines the arena, aura, or environment within which the actors play their roles.

Organizational Variable

System 1

System 2

System 3

System 4

Leadership processes used

Extent to which superiors have confidence and trust in subordinates

Have no confidence and trust in subordinates

Have condescending confidence and trust, such as master has to servant

Substantial but not complete confidence and trust; still wishes to keep control of decisions

Complete confidence and trust in all matters

Character of motivational forces

Manner in which motives are used

Fear, threats, punishment, and some involvement

Rewards and some actual or potential punishment

Rewards, occasional punishment, and some involvement

Economic rewards based on compensation system developed through participation, group participation and involvement in setting goals, improving methods, appraising progress toward goals, etc.

Character of interaction-influence process

Amount and character of interaction

Little interaction and always with fear and distrust

Little interaction and usually with some condescension by superiors; fear and caution by subordinates

Moderate interaction, often with fair amount of confidence and trust

Extensive, friendly interaction with high degree of confidence and trust

Figure 12

MANAGERIAL GRID

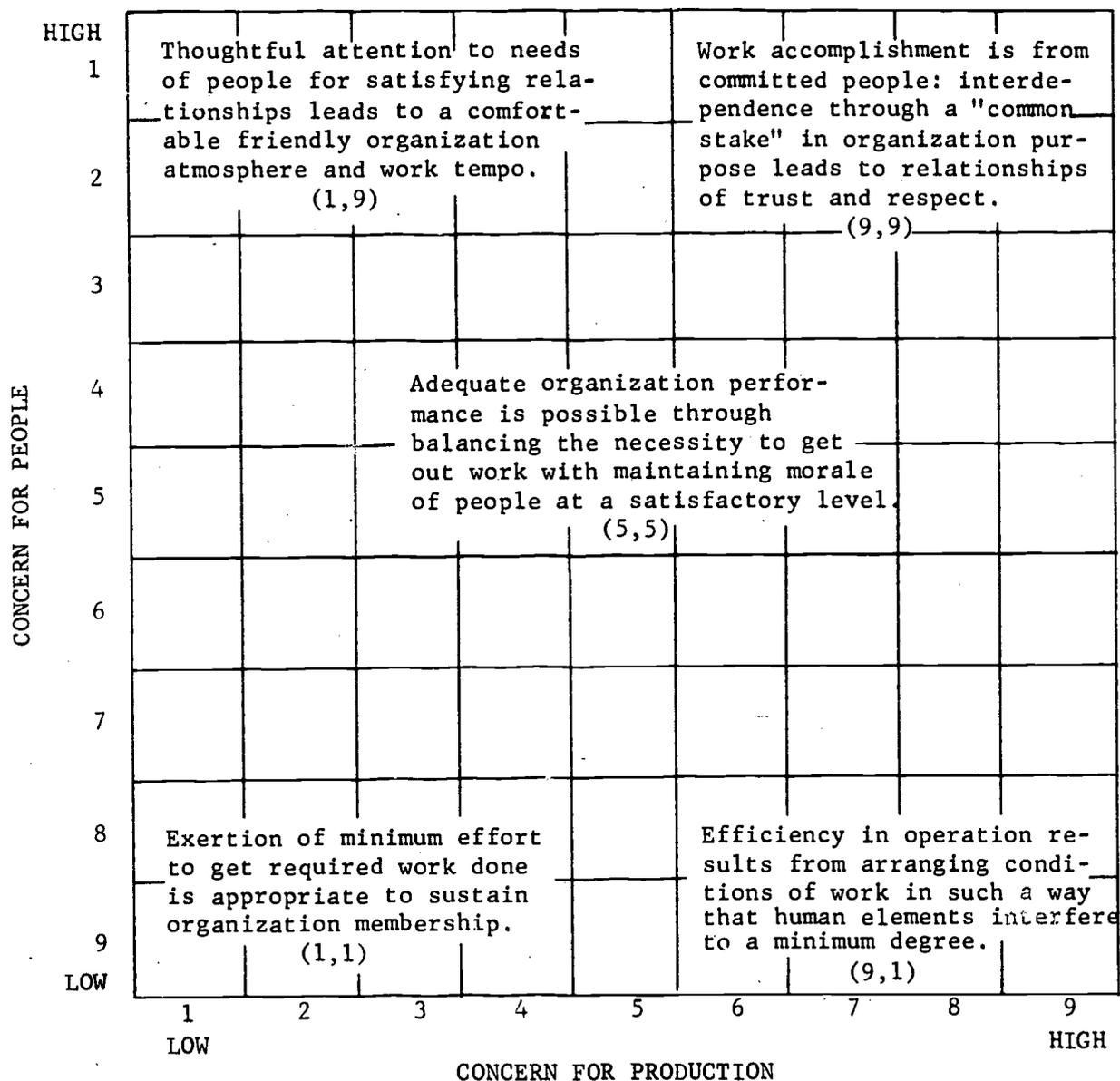
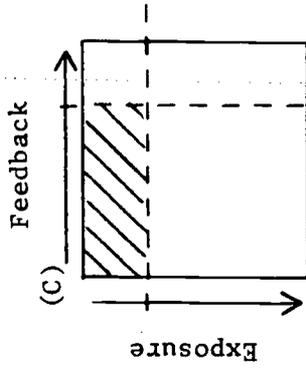
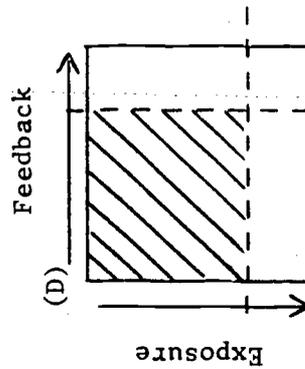


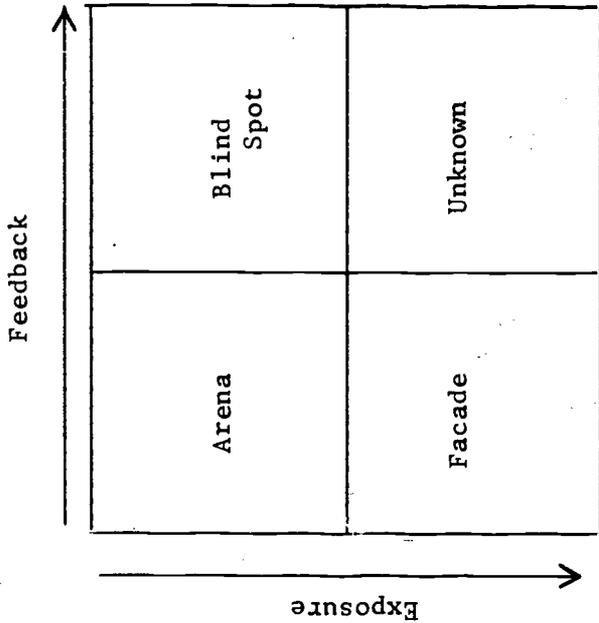
Figure 13



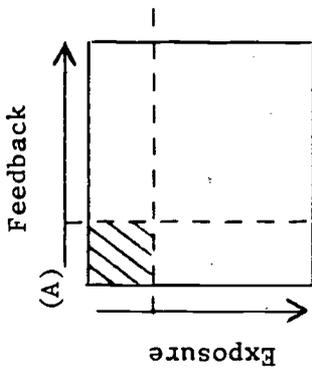
This is similar to (B) but in this case Feedback is being used rather than Exposure. (See B)



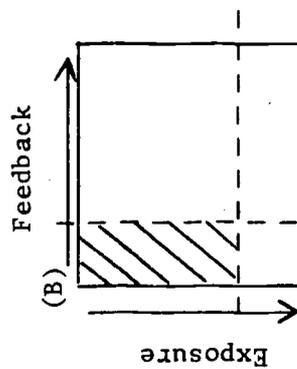
This portrayal shows us the geometrical expansion in the Arena that can result from simultaneous increases in both vectors.



The Johari Window



Little use of either dimension restricts the size of the Arena --where the action takes place.



Single use of one dimension increases the Arena but only linearly.

Figure 14

The model conceives of all interaction being reducible to two functions: exposure and feedback. It is a dynamic, two-dimensional model, conceptualized as two vectors operating at right angles to each other; and, depending on the amount of movement and which vector increases or decreases, it described, quantitatively, the effective arena of action--the environment (See Figure 14).

As Figure 14 indicates, there are four sectors to the model: the Arena, the Facade, the Blind Spot and the Unknown. The two dimensions are: Feedback and Exposure. Theoretically, a person has, more or less, primary control of Exposure but in regards to Feedback, he only has control, insofar as he can solicit it--the respondee still controls half of the Feedback operation--that of responding.

Either strategy can be employed, singularly; however, singular use only effects the size of the Arena in a linear fashion. (See Figure 14, parts a, b, and c.) Optimal increases in Arena size can only be accomplished by simultaneous expansion of both vectors; such as a strategy gives us a geometric expansion. (See Figure 14, part d.)

Like the Managerial Grid, the Johari Window has given rise to an inventory instrument. This instrument, also devised by Dr. Jay Hall, formerly at the University of Texas, attempts, through a forced choice distribution strategy, to measure the dimensions of the "taker" relative to Feedback and Exposure. By plotting his/her score and connecting the points on X-Y axes, we can draw that person's "Johari Window." This representation gives us the relative size of each of the four areas mentioned previously: the Arena, the Blind Spot, the Facade and the Unknown. It also gives us the shape or configuration of each rectangle which in turn gives us a picture of that person's interpersonal style. The optimal situation is when the Arena is the dominant "pane" in the window. As Jay Hall puts it, the Arena is where the action is.

Now, let me get to the still unanswered question: Is there a best style of leadership or management (or both, if you do not want to think of them as synonymous)? I would hope that many of you would immediately reply with a cautious: It depends! The reason I would hope for this is because that is the answer I have been leading up to all along.

Let me recite to you the answers given to this or a very similar question by four persons or groups:

Halpin's studies conclude: "A successful leader must contribute to both major group objectives: goal achievement (task) and people concern (group maintenance) or whatever."

Barnard: "He [the executive] must facilitate cooperative group action that is both effective and efficient."

Ohio State studies: "High consideration and initiating structure style is theoretically best. While the style low on both dimensions is theoretically the worst."

Blake and Mouton: They imply in the structure of the Managerial Grid that the 9/9 style is best.

Before I comment further, I would like you to go back and look for the one word in all those commentaries--that word is theoretically and it appears in the Ohio State comments. I would be very ready to admit that the desire to have an ideal type is a fact and it is most likely a common fact. But is it realistic? Can it be generalized to every environment? Would the 9/9 posture work in the service or in prison as well as it would work (if indeed it does) in the collegial model?

My answer to those three questions is: I think not. I say this because, unlike Getzels and Guba, and Becker and Gordon, these other people have not considered the situational aspects of both the followers and the environment. I would prefer to accept a statement such as: Leadership effectiveness is a function of leadership style, the type of followers one has to lead, and the general situation (or specific situation, for that matter). This would suggest "adaptive leader behavior." This behavior, I believe would tend to make the executive more effective in reaching personal and organizational goals.

Let me expand somewhat on the problems that can arise when we opt for one style. Listed below are the two sides of the coin for each style.

<u>Style</u>	<u>Effective</u>	<u>Ineffective</u>
High Task (9,9)	Seen as knowing what he wants and his methods for accomplishing this cause no resentment on the part of his subordinates.	Often seen as having no confidence in others, unpleasant and only interested in short-run output.
High Task with concern for Relationships (9,9;5,5)	Often seen as a good motivator, who sets high standards, treats everyone differently and prefers team management.	Often seen as a person who tries to please everyone, and therefore, vacillates back and forth, to avoid pressures in a situation.
Low Task and Low Relationship Concerns (1,1;5,5)	Often seen as appropriately permitting his subordinates to decide how the work should be done and playing only a minor part in their social interaction.	Often seen as uninvolved and passive, as a paper shuffler who cares little about the task at hand or the people involved.
High Relationship (1,9)	Often seen as having implicit trust in people and as being primarily concerned with developing their talents.	Often seen as primarily interested in harmony and being seen as "good person" and being unwilling to risk disruption of a relationship to accomplish a task.

So, it would appear that regardless of the one style a person was to adopt, there are dysfunctional as well as functional possibilities for each style.

In summary, then, I feel we accept, insofar as leadership style is concerned, a situation-specific concept. However, insofar as the organizational models and organizational structures are concerned, I feel that the theories we have talked about today are fairly generalizable.

It would seem that the phenomena that we call "the organization" obeys the law (whatever it may be) fairly well, it is just that its leaders are unpredictable humans.

Discussion

The discussion which followed the paper presented by Benjamin Dowd was a thought-provoking session which led each individual to identify and analyze his own managerial style. Each participant was given the opportunity to interact with two instruments: (1) the Personnel Relations Survey; and (2) the Styles of Leadership Survey. Through these feedback instruments, a discussion was generated which centered around concepts that were presented in the paper which related to the managerial grid and the Johari Window.

The Personnel Relations Survey is an instrument designed to yield information about how an administrator monitors and controls the flow of information between himself and others within the organization. This instrument attempts to assess the basic interpersonal style which one employs in his relationships with employees, colleagues, and superiors. The survey instrument is based on a model of interpersonal relations called the Johari Window. The Johari Window is an information flow model and is designed to measure the tendencies of individuals to facilitate or hinder the flow of interpersonal information. A considerable amount of time was spent in analyzing the operational style of each administrator. Attempts were made to help each administrator better understand the information processing model. Individual and team effectiveness in terms of information processing tendencies and the performance consequences thought to be associated with such practices were discussed in depth.

The Styles of Leadership Survey is based on a two-dimensional grid analysis of leadership practices essentially like that developed by R. R. Blake and Jane S. Mouton. The grid approach to assessing leadership practices is based on four factors which have been found to be present in all types of organizations. These four "organizational universals" are: (1) purpose; (2) people; (3) power; and (4) philosophy. Leadership is normally conceived of as reflecting the interplay among these four factors and each style of leadership is characterized by different interplay which the leader himself may initiate. Succinctly, leadership is viewed as equal to the use of power, that is, one's capacity for influencing others to achieve purpose through people.

Out of the Styles of Leadership Survey, research administrators were able to identify their leadership style. They were able to determine (1) their concern for purpose and (2) their concern for people. The various leadership styles were discussed in great detail and administrators were given the opportunity to analyze themselves in terms of their effectiveness as a leader.

Considerable interest was shown by all participants concerning the use of these two instruments in identifying their managerial behavior. Many conference participants indicated that they would like additional followup sessions concerning the use of instruments to better identify and improve their operational efficiency.

CONFERENCE EVALUATION

R. Wilburn Clouse
 John F. Kennedy Center for Research
 on Education and Human Development
 George Peabody College for Teachers
 Nashville, Tennessee

The evaluation of the effects of a conference is always extremely difficult to obtain. At best, one can only hope to identify and analyze data from a few of the measurable parameters related to the conference performance. In an attempt to evaluate the success of this conference, the program committee developed a brief questionnaire concerning the topics presented during the conference (the entire questionnaire is shown in Appendix F). Conference participants were requested to rate the success of the conference on 13 different variables on a continuum from 1 to 10. No demographic information was collected since it was deemed irrelevant for this group.

By utilizing distribution statistics on the 13 variables, one can make some judgment as to the success of the conference. The questionnaires were coded and analyzed using simple statistics such as a table for percentages and mean scores for each variable.

The percent ranking on a scale from 1 to 10 for the 13 questions is shown in Table 1.

Table 1
 (Table of Percentages)

Scores	Questionnaire Numbers												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1 - 10													
1									23.08				
2									15.38				
3													
4		7.69			7.69	7.69	30.77						
5		7.69		15.38	7.69	0.00	23.08					7.69	
6		7.69	7.69	15.38	15.38	30.77	15.38		7.69		7.69	15.38	
7	7.69	7.69	0.00	15.38	46.15	15.38	0.00		0.00	7.69	23.08	15.38	
8	23.08	23.08	23.08	38.46	15.38	30.77	7.69	23.08	38.46	15.38	30.77	0.00	23.08
9	30.77	30.77	30.77	0.00	7.69	0.00	0.00	15.38	15.38	46.15	15.38	38.46	38.46
10	38.46	15.38	38.46	15.38	0.00	15.38	0.00	61.54	0.00	30.77	23.08	23.08	38.46

From this table and from the questionnaire, one could make the following general conclusions: (1) research administrators feel a strong need for the development of research management training programs; (2) research administrators found the preconference material generally helpful in establishing framework for the conference; (3) the session on management by objectives was rated highly effective; (4) the majority of the research administrators believed they could implement a subset of MBO in their organization; (5) given the opportunity and resources, a

majority of the research administrators believed they could implement MBO in to their total organization; (6) a relatively high percent of the research administrators believed the session on management and planning systems was effective; (7) approximately 60 percent of the research administrators indicated they would not have to change internal operational and management procedures to accommodate NIH grant policy trends; (8) an extremely high percent of the research administrators felt that it was important to develop a standardized management reporting system; (9) research administrators viewed with mixed emotions their ability to develop a set of standardized management reporting procedures during the conference; (10) in general, a high percent of the research administrators felt that they should take an active lead in establishing standardized management reporting systems; (11) more than 80 percent of the research administrators believed the session on leadership styles was effective; (12) a relatively high percent of administrators believed that they had gained valuable information concerning their own leadership style from the results of the managerial instruments; (13) the overall effectiveness rating of the conference was highly favorable.

The information presented in Table 2 shows the mean scores, range, and sigma for each variable.

Table 2
(Distribution Statistics)
(Scale 1 - 10)

<u>Questionnaire No.</u>	<u>Subject</u>	<u>Mean</u>	<u>Min</u>	<u>Max</u>	<u>Sigma</u>
1	Management Training	9.00	7.00	10.00	0.96
2	Preconference Materials	7.85	4.00	10.00	1.79
3	MBO Session	8.92	6.00	10.00	1.14
4	Implementation of MBO	7.38	5.00	10.00	1.55
5	MBO Success in MR	6.77	4.00	9.00	1.25
6	Management-Planning and Evaluation	7.23	4.00	10.00	1.62
7	Grant Management Changes	4.38	1.00	8.00	1.73
8	Importance of Standardizing Reporting	9.38	8.00	10.00	0.84
9	Development of Standardized Procedures	5.46	1.00	9.00	3.30
10	Administrator Leadership in Standardized Reporting	9.00	7.00	10.00	0.88
11	Leadership Styles Session	8.23	6.00	10.00	1.25
12	Evaluation of Own Leadership Style	8.15	5.00	10.00	1.66
13	Conference Effectiveness	9.15	8.00	10.00	0.77

The information presented in Table 2 confirms the general observations that have been made from Table 1. The mean score for each of the 13 variables corresponds relatively well with the general observations that have been made from Table 1. There was also strong agreement between verbal comments that were passed on to the program committee members and the responses indicated in the evaluation questionnaire. It can therefore be concluded that the research conference was successful and worthwhile.

APPENDIX A
CONFERENCE PROGRAM

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PROGRAM

RESEARCH MANAGEMENT CONFERENCE
FOR
MENTAL RETARDATION RESEARCH CENTERS

*Writers' Manor Hotel
Penthouse East Building, Room 732
Denver, Colorado*

APRIL 25 - 26, 1974

*Sponsored by the
National Institute of Child Health and Human Development*

Program

RESEARCH MANAGEMENT CONFERENCE
for Mental Retardation Research Centers

Wednesday Evening, April 24

5:00 - 6:45 p.m. - Social Hour

Thursday, April 25

8:30 - 8:45 a.m.
Registration and Coffee

OPENING SESSION:

8:45 - 9:00 a.m.
Opening Remarks

Michael Begab
Head, Mental Retardation
Research Programs
NICHD

Conference Organization and
Objectives

R. Wilburn Clouse
Assistant Director for
Administration
John F. Kennedy Center
George Peabody College

9:00 - 10:00 a.m.
Management by Objectives for
Research Organizations

E. Douglas Hodo
Dean, School of Business
University of Texas
San Antonio

10:00 - 10:15 - BREAK

10:15 - 11:30 a.m.
Continuation of Management by
Objectives for Research
Organizations

E. Douglas Hodo

11:30 - 12:00 Noon
Panel Reactions to Management
by Objectives for Research
Organizations

Edward Linzer
Assistant Director for
Administration
Albert Einstein College
of Medicine

Frank Adame
Administrative Services Officer
Mental Retardation Program
Center for Health Sciences, UCLA

12:00 - 1:00 p.m. - LUNCH

Thursday (Contd.)SECOND SESSION:

1:00 - 2:00 p.m.
MBO Discussion

E. Douglas Hodo

2:00 - 3:00 p.m.
Management Planning and
Evaluation Systems for
Mental Retardation Research
Centers

Richard Surles
Associate Director
Program Planning and
Evaluation - DDTA
University of North Carolina
Chapel Hill

3:00 - 3:15 p.m. - BREAK

3:15 - 4:00 p.m.
Continuation of Management
Planning and Evaluation
Systems for MR Research
Centers

Richard Surles

4:00 - 4:30 p.m.
Reactions to Management Planning
and Evaluation Systems for
MR Research Centers -
Discussion Leader

Ross Copeland
Associate Director for
Administration
Bureau of Child Research
University of Kansas

5:30 - 6:30 p.m. - Social Hour

Friday, April 26THIRD SESSION

8:45 - 9:15 a.m.
NIH Grants Management Policy
Trends

Richard L. Hopkins
Associate Director for
Program Services - NICHD

9:15 - 10:00 a.m.
Standardized Management
Information Reporting
Procedure - NICHD Needs

Michael Begab

10:00 - 10:15 a.m. - BREAK

Friday (Contd.)

10:15 - 11:00 a.m.

Standardized Management
Information Reporting
Procedures - Research
Center Needs

Charles Keeran
Associate Director
Mental Retardation Program
Center for Health Sciences
UCLA

Harvey A. Stevens
Program Administrator
Waisman Center on MR
University of Wisconsin
Madison

Donald McNamee
Administrator
Eunice Kennedy Shriver
Research Center

11:00 - 12:00 Noon

Development of a Standardized
Reporting System - Group
Discussion Leader

Henry Schulte
Administrator
Child Development Mental
Retardation Research Center
University of Washington

12:00 - 1:00 p.m. - LUNCH

FOURTH SESSION:

1:00 - 2:30 p.m.

Effective Leadership Styles
for Research Management

Benjamin Dowd
Director of Planning
Governor's Office
Education and Planning
Austin, Texas

2:30 - 2:45 - BREAK

2:45 - 4:00 p.m.

Continuation of Effective
Leadership Styles for
Research Management

Benjamin Dowd

4:00 - 4:15 p.m.

Conference Wrapup and Evaluation

R. Wilburn Clouse

APPENDIX B
CONFERENCE PARTICIPANTS

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Lawrence, Kansas

APPENDIX C
CONFERENCE CONSULTANTS AND
RESOURCE PERSONS

MANAGEMENT CONSULTANTS AND
RESOURCE PERSONS

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University of Texas
San Antonio, Texas

Richard Surles, PhD

Associate Director
Program Planning and
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University of North Carolina
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Benjamin Dowd, PhD

Director of Planning
Governor's Office
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APPENDIX D
BIBLIOGRAPHY: MANAGEMENT BY OBJECTIVES

BIBLIOGRAPHY
MANAGEMENT BY OBJECTIVES

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RESEARCH MANAGEMENT CONFERENCE
Denver, Colorado
April 25 - 26, 1974

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APPENDIX E

**PLANNING, PROGRAMMING, BUDGETING SYSTEM:
AN ANNOTATED BIBLIOGRAPHY**

PLANNING, PROGRAMMING, BUDGETING SYSTEM:

AN ANNOTATED BIBLIOGRAPHY

THEORY AND TECHNIQUES

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Ameiss, A. P. "Program Management in Missouri's Division of Mental Health," Management Accounting, LV, August 1973, P. 31-34.

SCOPE: The study demonstrates that management of programs and sub-programs may be enhanced through the use of information for control purposes at both program and sub-program levels. The information system adopted discusses four major segments: fund encumbrance, cost accumulation, cost reallocation and cost accounting; and their relationship to the overall system.

CONTENT: The PPBS is discussed in relationship to four basic principles: user involvement (stressed throughout); recognized industrial cost control techniques and basic governmental accounting techniques; a reporting system developed within the framework of a uniform Chart of Accounts; and the minimization of input requirements through the use of integrated data processing and the interfacing of the data collection elements with other automated administrative systems. Four tables (Chart of Accounts/Program Codes; Encumbrance Inquiry; Expense Distribution by Program Cost Center; Direct Patient Care Cost Report) are included.

MAIN USE: The adoption of this program is seen partially as a result of state budget pressures against the usual system of fund accounting in a time of public recession. It is important as a viable and legal alternative which answers the questions: "How many dollars are left in a specific fund or obligated through purchase order; what is a program's total cost; how does that total compare with budgeted target costs?"

Botner, S. "Four Years of PPBS: An Appraisal," Public Administration Review, XXX, July/August 1970, P. 423-431.

SCOPE: The author attempts to assess the impact and effectiveness of PPBS on Federal budgeting procedures.

CONTENT: It is reported that the effectiveness of PPB has been disappointing and that the system has been riddled with problems and difficulties. The Defense Department PPB model has proved inapplicable and PPB application has been found to differ from agency to agency. Leadership and guidance has been undertaken. PPB is still viewed as having great potential benefit for government budgeting.

MAIN USE: Citing many examples of dysfunctional behavior related to PPB, the article provides an enlightening study into the politics of implementing a new system or procedure.

Castello, A. P. "The Main Cities Program: An Application of PPBS," Management Accounting, LIV, January 1973, P. 29-33.

SCOPE: Local governments must change their character and utilize new concepts for managing taxpayer dollars. The study illustrates a rate of return on the tax funds as they are used in providing services.

CONTENT: While conceding that there are limitations to the information which can be derived from a purely cash basis accounting system, the author believes that (1) the limitations are not difficult to overcome

and (2) therefore it is possible to emphasize cash control procedures in designing an accounting system for a small nonprofit organization without sacrificing broader objectives of good accounting information. The author says this is a matter of putting first things first, the primary managing concerns being fund raising, resource allocation and service maximization. The satisfaction of these concerns is seen as a matter of planned budgeting and controlled expenditures, which will result in accurate and complete accounting for receipts and disbursements.

MAIN USE: The author regards this PPBS application as a refinement of existing procedures, not a new approach. He sees it as a system capable of assessing total costs and benefits, both current and future, of various alternatives. The evaluation of the HUD program includes tables of the program structure, the project information sheet, and a cost/benefit analysis of the health control program. Valuable as a contrast between traditional and planned budgeting techniques.

Chuang, Y. "Cost Considerations in Educational Analysis." Paper presented at the 41st National Meeting of the Operations Research Society of America in New Orleans, Louisiana. ED061643/EA004251, August 1972, P. 11. Available from: Center for Urban Education, 105 Madison Avenue, N.Y., N.Y. 10016.

SCOPE: The paper presents a hypothetical problem: two learning resource centers are being considered for a research and development function. You are involved in the procurement decision, and possess consumption and deployment figures for both projects. Assuming all other costs are equal, plus equality in effectiveness, which would you recommend for procurement.

CONTENT: The paper divides this problem into three parts. The first part discusses alternatives, including consideration of the natives, determination of cost/benefit of each alternative, and comparison of cost/benefit alternatives. Part two presents a discussion of present value techniques. Part three presents considerations of uncertainty. The discussion explains the theory of cost analysis, and applies it to an educational problem.

MAIN USE: A strong document on cost analysis as an aspect of management choice in a PPBS system designed to provide visibility to cost/benefit of alternatives considered in policy formulation. Nine item bibliography included.

Churchman, C. W. & Schainblatt, A. H. "PPB: How Can it be Implemented?" Public Administration Review, XXIX, March/April 1969, P. 178-189.

SCOPE: The authors propose that PPB should be implemented by clarifying the underlying issues of the programs which are to be involved first. To accomplish this they advocate manager-analyst interaction.

CONTENT: The systems approach is reviewed and an example is provided which illustrates the use of the approach with PPB. Formalized debate between persons in management and those who research and analyze the organization is described.

MAIN USE: This article reveals possible misuse of analysis in the PPB format and explains a procedure which might enhance the implementation and operation of the PPB System.

Cook, D. L. "Use of Systems Analysis and Management Systems in Project Planning and Evaluation," The Journal of Socio-Economic Planning Sciences, Vol. 2 1969, P. 389-397.

SCOPE: Defining and examining systems analysis and management techniques, the paper seeks to demonstrate how better planning and controlling of research and development projects might be brought about.

CONTENT: Initially the terminology associated with operations analysis is defined (systems analysis, management technique, project planning and control) and then the actual use of the concepts are developed. Brief attention is given to PERT/CPM.

MAIN USE: The major benefit of the work is the attention it gives to the problem of quantifying educational objectives.

Costa, C. "Cost Utility: An Aid to Decision Making." ED074623/EA005027, August 1973. Paper presented to the American Educational Research Association.

SCOPE: The paper discusses some of the shortcomings identified with present planning and evaluation systems, together with some forgotten assumptions supporting these decisions, in the context of a new evaluation model.

CONTENT: Present models for cost evaluation are discussed, and two models are suggested as beneficial to the policy maker who does not employ economists on his staff, or opinion researchers. PPBS is specifically evaluated in relation to structural attempts to link costs with programs. Some misconceptions about it are explored, the method of cost/effective analysis is examined, conclusions are drawn and certain shortcomings cited. Tanner's model and the Milwaukee model are reviewed for ease of use and worth of ability to aid decision making.

MAIN USE: This is a welcome breather for those who have often felt financial apprehension at considering PPB in their organization, particularly at the implementation level. Costa is concerned with presenting two inexpensive models of PPB cost analysis, both of which merit attention.

Enke, E. L. "The Accounting Preconditions of PPB," Management Accounting, LIII, January 1972, P. 33-37.

SCOPE: The article demonstrates the role of the accountant in a PPB system as being in a unique position to supply data from an already staffed function containing expertise in regular and systematic information collection and communication.

CONTENT: The decision-model and information-system concepts of PPB are outlined briefly and seen as mutually interdependent. The role of the accountant is outlined as one of collecting data on a consistent, accurate and timely basis through seeking more meaningful budgetary classifications. Crosswalk problems and the use of longer time horizons are discussed. Systematic analysis is seen as depending upon accurate cost-revenue and cost-benefit projections. A number of solutions to needs measurement, expenditure allocation, result evaluation and performance proliferation are outlined.

MAIN USE: This is essentially an approach to PPBS organized around a single office common to all systematic (and unsystematic) business operations. It is useful both as pragmatic solution and common ground on which to meet the inevitable cost/control problems inherent during the planning and operation of any PPB system.

Farmer, J. "An Approach to Planning and Management System Implementation." ED052730/HE002360, November 1971.

SCOPE: The program discusses the reasons for using a planned management system in higher education, relates the system developed by the Western Interstate Commission for Higher Education Planning and Management, and compares two alternate approaches for its implementation.

CONTENT: The program urges gradual implementation of such an idea in order to gain experience and training. Six steps are outlined: executive training, analytical capitalization, implementation of progressive cost accounting, application of a resource requirement model, student flow model and scheduling model.

MAIN USE: The author regards the budgeting aspects of his PPB work as a prerequisite to all other analytic efforts. Good for a concentration on the budgetary role of a PPB system.

Friedman, J. Retracking America: A Theory of Transactive Planning. Anchor, 1973.

SCOPE: The author discusses PPB as an instance of allocative planning, which he defines as resource distributed among competing users. PPB is discussed briefly (P. 52-57) and evaluated.

CONTENT: Friedman notes and describes four characteristics of PPB: comprehensiveness, system-wide balance, quantitative analysis and functional reality. These are psychologically evaluated as sets of interdependent conclusions based on what the author believes are fundamental reality inconsistencies in planning assumptions: that planning can be centralized, can produce a balance between system input and output, can produce realistic quantitative models, and can produce rational decisions. The evaluation is negative.

MAIN USE: The author is clearly biased in favor of innovative planning systems. His examination of PPB offers no specific instances of use on which to base his sweeping criticisms (except that of the Department of Defense, which, ironically for his argument, he regards as a success) and his generalizations, though clever with grains of truth, remain, essentially, unproved generalizations.

Greenhouse, S. M. "The Planning-Programming-Budgeting System: Rationale, Language, and Idea-Relationship," Public Administration Review, XXVI, December 1966, P. 271-277.

SCOPE: The underlying concepts, rationale and language of PPBS are described and distinguished from earlier management systems.

CONTENT: The author explains in detail the following terms and reports their application in the PPE System: (1) Accountability; (2) Objectives; (3) Programs; (4) Program alternatives; (5) Output; (6) Progress measurement; (7) Input and (8) Systems analysis.

MAIN USE: Because concepts associated with these terms have changed somewhat since 1966, the most valuable part of the work, description of terminology, may be diminished.

Harty, H. P. & Cotton, J. C. Program Planning for State, County, City. Washington, D. C.: George Washington University, 1967.

SCOPE: This monograph, produced by the State-Local Finance Project of George Washington University, provides examples of implementation of PPBS. More important, however, is its brief description of the rationale for the institution of PPBS and its discussion of the strength and weaknesses in the application of system analysis.

CONTENT: The work is composed of two essays, one by each author. Harty discusses various factors associated with PPBS which should be considered before such a system is instituted. On the other hand, Cotton limits himself to an explanation of the application of system analysis.

MAIN USE: While the authors admit that they provide no new information about PPBS, they do provide readable, concise essays which can serve as an introduction to most of the broad concepts underlying the uses and requirements of PPBS.

Hirsch, W. A. "Toward Federal Program Budgeting," Public Administration Review, XXVI, December 1966, P. 259-269.

SCOPE: This article provides a general overview of concepts related to PPB's use in government agencies.

CONTENT: Three major aspects of the system are discussed: structural, analytical, and administrative-organizational.

MAIN USE: Although the article was written several years ago, it is one of the best general reviews of the PPBS system available.

Horton, F. "Building Block Approach: Key to Federal Management Systems?" Journal of Systems Management, October 1971, P. 38-41.

SCOPE: A brief overview of past problems and future strengths in management mechanics as exercised in the Executive Office of the Federal Government.

CONTENT: The paper outlines the two basic reasons prompting management rationalization of planning, programming and budgeting procedures. Interaction between people, goals and rules, divergent management systems development and special interest groups are discussed. Certain implications inherent in the building block approach are noted, and conclusions drawn.

MAIN USE: As a system description, excellent in clarity.

Irwin, R. D. An Introduction to PERT-CPM. U.S.A.: R. D. Irwin, Inc. 1964.

SCOPE: This work is a general examination of two management planning and analysis tools, Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT).

CONTENT: The first half of the material is devoted to presenting the concepts and rationales associated with network analysis and data processing. Then PERT and CPM are described in light of their usefulness as evaluative tools.

MAIN USE: Valuable reading for one needing a basic understanding of two tools associated with system analysis and planning. The brevity of the book (85 pages) and its abundant use of illustrative examples enhances its usefulness as an introduction to a subject which can easily overwhelm the novice.

Jenkins, W., et al. "PPBS Implementation Guidelines." ED060537/EA004097, July 1972.

SCOPE: The report contains 34 guidelines for educational managers implementing or considering PPBS.

CONTENTS: The guidelines are divided into four categories: planning, programming, budgeting, and systems analysis. They are designed to point out trouble spots that could occur at any important stage.

MAIN USE: This is evaluative expert opinion. The guidelines were derived from people with administrative experience interacting with PPBS practitioners.

Jenkins, W., et al. "PPBS and Its Implications for You," Purdue University. ED061615/EA004205, August 1972.

SCOPE: A brief opinion and discussion paper on the viability of PPB in education.

CONTENT: The authors stress the role of teachers, administrators, legislators and taxpayers, and their interdisciplinary cooperation to make PPBS viable. Teachers are seen as contributing their professional judgment in defining educational objectives and considering alternatives. Administrators, especially principals, are regarded as most important for their coordinating function between teachers and curriculum developers; while legislators are looked upon as necessary material for conversion. Taxpayers are noted as those who "make up the difference" with the legislature for school budgets. (PPB is noted here as an attempt at opening clear channels of communication between public and school officials.)

MAIN USE: The paper concludes with the results of a case history of how community involvement with PPB actually worked to pass a school budget (Pearl River School District, Pearl River, New York). The conclusions reached for the favorable vote were that (1) information was presented in an understandable manner; (2) objectives for each program were clearly defined; (3) the planning considered the entire program, K-12, and the relationship between subject areas; and (4) the pro-budget people related total tax dollars to specific dollar amounts requested. Very important discussion in an inflationary age.

Joint Economic Committee. Innovations in Planning, Programming, and Budgeting in State and Local Governments. Washington: U. S. Government Printing Office, 1969.

SCOPE: It is difficult to understand the use of "Innovations" in the title of this work since most of the work is devoted to simple reporting work in progress on PPB. Little of that which is presented represents change from previous recommendations. Interestingly, this Joint Committee print uses similar format and much of the same material found in the work by the State-Local Finance Projects' PPB Pilot Project Reports. However, this document appears to have more depth and substance.

CONTENT: Beginning with two general articles on PPB in city, state and county governments and the Federal support for these projects, the majority of the material consists of reports submitted by local and state governments concerning the progress of implementing PPB. The Los Angeles County statement offers an example of their Program Budgeting format while Nassau County, New York, provided an excellent manual on Management Information Systems.

MAIN USE: The reports have been reproduced in other places, thus limiting their value as general reading. Nevertheless, this is one of the few works that presents concrete examples of the technical aspects of PPB.

Joint Economic Committee. The Analysis and Evaluation of Public Expenditures: The PPB System. Washington, D. C.: The U. S. Government Printing Office, 1969.

SCOPE: The fifty papers in this collection form what the senior economic advisor to the Joint Economic Committee feels is a most comprehensive study of public expenditures economics. Examined are public expenditure analysis, current Federal evaluation programs and conceptual problems in applying economic analysis to public expenditures.

CONTENT: Volume 1 contains three parts of a study done for the Committee and involves conceptual matters of decision-making, constraints on policy and impacts of public expenditure. Volume 2 seeks to describe the structuring performance of PPB as of 1969 and makes recommendations for future development of the system.

MAIN USE: Certainly, the experience of Federal budgetmakers can be valuable to planners and this work offers an excellent sampling of a variety of views. However, it also offers long (610 pages), tedious reading which is heavy on abstraction and light on technicality.

Kademani, G. "Educational PPB: Annotated Bibliography." Technical Information Progress Series. EDO54524/EA003639, January 1972. Available through Center for Management Systems, Room 354, Graduate Studies Research Center, University of Georgia, Athens, Georgia 30601.

SCOPE: A collection of 87 references identified by the Center for Management Systems, University of Georgia during recent research studies there on PPB.

CONTENT: Focus is on PPB in education, designed to present as a unified bibliography in the field. A few references are undated, but the majority range between 1966 and 1969.

MAIN USE: The document is an early effort to provide all researchers in PPBS with a guide to the literature currently available (see ERIC EDO46091, January 1971, for a similar compilation of 51 abstracts.).

Kaufman, W. W. The McNamara Strategy. New York: Harper and Row, 1964.

SCOPE: The nature of changes during the Kennedy Administration are described by focusing on Robert McNamara as the architect and engineer of many significant changes. While a nonscholarly work, the book manages to provide interesting and informative reading especially related to the beginning of the PPB System in government.

CONTENT: Over one-half of the book is devoted to policy and decision-making during the Kennedy years with special attention given to the background for those decisions. Much of the remainder of the work is devoted to McNamara's attempts to gain control of the Defense Department, including his rationale, procedures and results.

MAIN USE: Though of little technical value, the layman is provided with insights into concepts and needs related to PPB, long-range planning, cost effectiveness and measurement of effectiveness. In all, valuable light reading.

Keppel, F. "Operations Analysis - The Promise and Pitfalls," The Journal of Socio-Economic Planning Sciences, Vol. 2 1969, P. 121-125.

SCOPE: Applicable to the planning and evaluation aspect of PPB, Keppel's article defines and reviews the use of operations analysis in education.

CONTENT: Containing limited information on the promise and use of operations analysis, the work lists various abuses of the operations technique which will invalidate its application.

MAIN USE: Not highly technical, the work provides a brief introduction to the place of operations analysis in educational decision-making. Its greatest importance rests with its description of common mistakes associated with mathematical analysis.

Kierulff, H. E. "Prescription for a Lean and Hungry Staff," Harvard Business Review, L, November 1972, P. 98-106.

SCOPE: A planning and budgeting system is described which allowed one company's financial vice-president to effect a major personnel cutback in his department while maintaining the quality and flow of its services. The plan is described as hinging on the accurate identification of both the tasks performed and internal company "use" (market) for them. The system is seen as providing a logical, systematic basis for cost/benefit comparison and economic trade-off.

CONTENT: The costing procedure of the company prior to implementation of a PPBS is briefly reviewed. The steps taken by the vice-president towards PPBS implementation are detailed step by step, in terms of phases. Resulting problems and their solutions are shown. Two related studies of company subfunction and microfunction are also reviewed. Exhibits of the forms used in the aforementioned studies and a chart of the use of microfunctions to transfer complex and inter-related tasks among departments are included.

MAIN USE: The paper is a dramatic example of how unprofitable tasks within a company may be eliminated through the adoption of PPBS. It is also a blueprint of how to defend forced staff layoffs by the use of such a system, which may endear it to the hearts of many administration heads.

Morris, R. & Binstock, R. H. Feasible Planning for Social Change. New York: Columbia University Press, 1966.

SCOPE: Budgeting and PPB get no mention in this book which is devoted to change and planning. Basically the work takes two forms: one is a review and discussion of a specific Ford Foundation health program and the other is an examination of the variables and factors involved in the implementation of that program.

CONTENT: The authors devote the first of the book to the semantics of planning, feasibility and goal development. Secondly and thirdly, they relate a conceptual schema concerning planning and change.

MAIN USE: Seemingly this is an odd book to include in a PPB bibliography, but, in reality, it can be important to anyone concerned with the introduction of such a system. The last five chapters of the work are devoted entirely to the impact that the introduction of new systems have on organizations and individuals. Discussed are the dynamics of goal development, organizational resistance to change, overcoming such resistance, feasibility of goals and planning in the light of present knowledge.

Lawrence, C. "A Study of a Program Budget for a Small City," Journal of Accountancy, XXXIV, November 1972, P. 52-57.

SCOPE: The purpose of the article is to develop some insights into how accommodation to citizen viewpoint can be made in reporting financial operations of small cities, on a PPBS basis.

CONTENT: The traditional line-item city budget approach is first examined and the problems economically and socially inherent in it are revealed. The present system of departmental budgeting of objectives is shown to validate the legal spender concept while being presented in a manner confusing to the citizen. Various suggestions leading to the examination of alternative ways in which stated goals could be reached are propounded. Some of the basic problems and prospects for implementation of PPBS in a small city are examined. Five tables (city budget for one year, budget in program form, departmental budget for a year, departmental report program results, departmental report of resource allocation to programs) are included.

MAIN USE: Useful as a suggestion of how PPBS might be effectively applied, in theory, to the problems of a small city. Not to be regarded as a tried-and-true study, but rather as a theoretical platform.

Levine, D. "Structuring Program Analysis for Educational Research." ED057467/EA003862, April 1972. Available: Communications Department, RAND, 1700 Main Street, Santa Monica, California 90406

SCOPE: A theoretical presentation outlining a practical approach to cost effectiveness planning in education based upon a priori considerations.

CONTENT: Starting with the assumption that no single cost/effective criterion can be established that will encompass the complexities, multidimensionalities and ignorance inherent in American education, the author proposes a PPBS which will rank alternatives by effectiveness, report on cost implications, and leave trade-offs to policy determination.

MAIN USE: This program would handle input from any specifiable component mix. It simply judges its performance by comparison with preprogram status, evaluates performance against objectives and translates results into measures of effectiveness. "Any mix" in original data includes pupil and neighborhood characteristics, indicating a highly sophisticated, powerful program designed to incorporate as much detail as possible.

Levine, D., et al. "A Symposium on Educational PPBS: An Analysis of Implementation Strategy." ED060534/EA004084, July 1972. Available: Communications Department, RAND, 1700 Main Street, Santa Monica, California 90406.

SCOPE: Four papers on PPB presented at the American Educational Research Association Annual Meeting in New York, February 4-7, 1971.

CONTENT: The documents examine some critical PPB implementation problems, suggest alternatives to current practices in educational budgeting, reply to criticism of PPB as a resource and planning tool, and consider the future of PPB. The following four papers apply: Haggart, S. "The Program Structure Aspect of PPB Through Education;" Carpenter, P. "Analysis of Education Programs;" Deer, C. "Organizational Development and PPB for Education;" and Levine, D. "Achieving Balanced Implementation of Program Budgeting for Education."

MAIN USE: Valuable symposia documents referral collection. The presentations were followed by a professional discussion, including a question and answer session reflecting audience participation, also reproduced in the document.

Macleod, R. K. "Program Budgeting Works in Nonprofit Institutions," Harvard Business Review, XLIX, September/October 1971, P. 46-56.

SCOPE: The author wishes to demonstrate the establishment of a PPBS which has resulted in much improved costing and planning at a mental health clinic employing 100 professionals. The system is 3 years old, and is examined in terms of efficiency and cost control, resource allocation and cost recovery pricing. The paper analyzes the problems of getting professionals to submit to accountability, securing reliable data, defining programs sufficiently and finding adequate output measures.

CONTENT: The discussion begins with a succinct analysis of the demand/cost squeeze which necessitated the adoption of a PPBS. The system itself is then discussed in terms of adopted goals, staff time and income and outgo. The results of the program-user assessment, cost of new demands and priorities, are also examined. Interaction between various sources of funding is detailed; as are certain new and relatively unanswered questions related to treatment and overhead.

MAIN USE: The study is a practical demonstration of the application of PPBS in the field, in a situation involving an institution sufficiently large enough to base generalizations upon.

Novick, D. (Ed.) Program Budgeting. Cambridge, Mass.: Harvard University Press, 1965.

SCOPE: Concentrating on the program aspect of budgeting, this book avoids problems of fiscal policy and revenue so that the theory of the program budget can be explained in greater detail. Primarily the concern is with Federal budgeting, but essays are provided as to how PPB might be implemented and operated in the agencies.

CONTENT: The work of 11 authors, all associated with the Rand Corporation, 12 essays are presented. Three are concerned with government decision-making and PPB; 6 with actual and potential use of the PPB concept; 3 with implementation and operation. Essay number 7, by Werner Hirsch, involved education and the Federal budget. Especially valuable is a discussion of "trade-off" theory (P. 200).

MAIN USE: One of the earlier works on PPBS, this book provides useful conceptual information for those interested in Federal-non-defense application of the PPBS. While one would probably not read the entire work, several essays provide useful, general reading.

Research and Policy Committee. Budgeting for National Objectives. New York: Committee for Economic Development, 1966.

SCOPE: Although this report does not examine closely nor discuss adequately PPB, it does provide information about the present Federal budgetary system. In doing so, it presents recommendations for changes in the system, thus providing a rationale for the introduction of a PPB System.

CONTENT: Basically the work and recommendations take two forms: one deals with the relationship of government agencies (Bureau of the Budget, Congress, The President) and the budgetary process; the other is a discussion of present practices and projected needed practices regarding preparation of the Executive budget. An interesting conclusion is provided by the dissenting views of Philip Sporn, who finds several of the positions taken by CED as being oversimplified.

MAIN USE: About the only significance which can be attached to this report is its brevity and reinforcement of the budgetary position which was being popularized by McNamara and President Johnson in the mid-60s. For individuals who have read little on the Federal budgeting process, it might provide some useful information.

Sackman, H. & Citrenbaum, R. Online Planning Towards Creative Problem Solving. Prentice-Hall, 1972.

SCOPE: PPB is discussed (P. 185-195) in the context of large-scale planning, budgeting and control as devised at RAND under DOD. The section examines basic system features, processes and activities, from both positive and negative points of view.

CONTENT: The author explores the basic 3 level tree structure in terms of primary categories, subcategories and elements; the process of cost/benefit analysis; and adherence to time cycle. Three separate processes are discussed: analytic, planning and programming and budgeting. Eight primary PFP characteristics are nominally outlined, and 7 suggestions for specific inclusions in Progress Memorandums are made. A table of 22 PPB program activities delineated in terms of hierarchical level, process, output file and computer role is published; and the section concludes with a summary of 7 accrued benefits of a PPB system.

MAIN USE: Valuable as a discrete, detailed overview of the problems presently inherent in PPB system adoption. Sackman and Citrenbaum betray a hesitantly favorable attitude. The unit includes a 16-item bibliography, the sources taken between 1965 and 1970.

Schick, A. "The Road to PPB: The Stages of Budget Reform," Public Administration Review, XXVI, December 1966, P. 243-258.

SCOPE: Historical periods and orientations are related to Federal budgetary practices.

CONTENT: Basically, Schick believes that budgetary thinking can be divided into three categories: (1) Control - the earliest budgets were mostly concerned with control over expenditures; (2) Management - handling and directing large programs and organizations became the central feature of the next period; (3) Planning - more recent events have called for more planning concerns and created interest in the PPBS format.

MAIN USE: An excellent review of budgetary history, this work is a brief, but indepth, look at causal factors relating to Federal budgeting trends.

Schultze, C. L. The Politics and Economics of Public Spending. Washington, D.C.: The Brookings Institution, 1968.

SCOPE: Director of the Bureau of the Budget under President Johnson, Schultze presented the material in this book first as a series of lectures on systems science. Although PPB is not extensively discussed, it is defined and its place in the political arena is scrutinized with an emphasis on the relationship between the analytical and political approaches to budgetary decisions.

CONTENT: Comprised of 7 lectures, the book moves from the evaluation of Federal budgeting, to governmental decision process, to place of analysis in government, to PPB in political context and, finally, to the future of analysis and budgeting in government. Chapters 3, 4, and 5 offer interesting reading, for the author reviews Charles Lindblom's criticisms of PPB and then examines how PPB can realistically fit into and support the political process necessary in decision-making.

MAIN USE: Rather easy reading, the book offers a good introduction to the politics of budgetary finance. While the readings are confined to the political aspect of budgeting on the Federal level, the major concepts in the work could apply to all levels of public-agency financing.

Smithies, A. A Conceptual Framework for the Program Budget. Santa Monica, California: The Rand Corporation, 1964.

SCOPE: Published as a memorandum, this work examines some implications brought about by the introduction of PPB in government. Thus the text is limited to prognostication of possible problems created by the system and procedures needed for its implementation.

CONTENT: The memorandum outlines the government decision-making process and the place of budgeting in it; provides a brief history; reviews the techniques of PPB; relates some problems of organization and administration when the system is begun.

MAIN USE: Although this work is seemingly dated, it nevertheless provides a good presentation of concepts associated with PPB as well as reviewing the strengths and weaknesses of many of these underlying assumptions. Finally, extensive attention is given to the desirability of the output-oriented program categories as an aid to analysis.

State of California. Programming and Budgeting Systems, 1969.

SCOPE: Prepared by the California Department of Finance, the manual is intended to acquaint persons connected with the state budget as to what has occurred in the area of program budgeting and what is expected to occur. Moreover, it presents a rationale for procedures and statement of policy in budgeting.

CONTENT: Divided into major areas, the work answers the following questions: (1) What is Programming and Budgeting System (PABS); (2) What is in it for me; (3) Where are we; and (4) Where do we go from here? The last section (4), contains a brief but excellent training example as to how one sets measurable objectives when preparing goals. It emphasizes the problems that can arise with ambiguous and generalized statements of purpose.

MAIN USE: Although brief (38 pages), the manual provides some valuable insights into the problems of implementing budgetary change. Its general use is enhanced by the presentation of a brief history of program budgeting, references to and critiques of works the department found useful and specific training information related to future development of PABS.

State-Local Finances Project. PPB Pilot Project Reports. Washington, D.C.: The George Washington University, 1969.

SCOPE: This work represents the final reports of five states, five counties and four cities (one city was unable to report) which participated in The George Washington University PPB pilot projects.* The government agencies involved agreed to begin installing PPB systems and to develop a body of experience on which other governments might draw.

CONTENT: Composed of 14 reports and 1 letter, the summaries discuss the achievements, frustrations, status and future of each PPB program. A most useful addition to many of the reports is a series of recommendations to other jurisdictions regarding necessary considerations for PPB implementation. A striking feature of almost every report is their mention of the need for more sophisticated methods of developing program analysis and determining measurable objectives.

MAIN USE: While these reports become redundant, they offer realistic appraisal of many problems associated with implementing the PPB system.

Turnbull, A. The PPBS Analyst: Skills and Training Requirements. ED064561/AC012634, November 1972.

SCOPE: The results of a 6-week effort to (1) define the knowledge and skill required for successful performance as a PPBS analyst; (2) determine how to best acquire the requirements; (3) evaluate implications for training programs of the Bureau of Training, Civil Service Commission.

* States - California, Michigan, New York, Vermont, Wisconsin
 Counties - Dade, Fla., Los Angeles, Calif., Davidson, Tenn.,
 Nassau, N.Y., Wayne, Mich.
 Cities - Dayton, Ohio, Denver, Colo., Detroit, Mich., New Haven, Conn.,
 San Diego, Calif.

CONTENT: It was found that such an analyst needs a firm grounding in economics and need not necessarily be a mathematical whiz or statistician, have a logical mind, be able to "sell" analysis to policy makers, have broad analysis experience, and know the uses and limitations of analytic techniques. It was recommended that the Bureau of Training extend the CSC role in promoting PPBS training, establish a PPB course for beginning analysts, and continue existing PPB orientation and fundamental courses, but expand to see how theory and practical politics mix, and establish programs to aid agencies in receiving appropriately trained college graduates.

MAIN USE: Although somewhat dated, this report is a must as a basic historical document for the interest of the specialist in PPBS affairs.

Welsh, W. L. "PPBS and Proposal Formulation," Harvard Business Review, LIII, May 1972, P. 31-34.

SCOPE: The effect of PPBS on the proposal formulation used by the DOD is discussed. The system is seen to have so influenced these proposals as to have harmonized the formulation process to PPB system objectives.

CONTENT: PPBS is seen as effectively and efficiently analyzing alternatives to DOD program objectives. The effect on contract proposal formulation is discussed in detail. Various analytical techniques used and resulting products are reviewed, including DD Form 633. The overall result of PPBS usage in terms of resultant DOD long-range cost projections is remarked upon in detail.

MAIN USE: The author maintains that, because of PPBS, a customer has been forced to state objectives more explicitly and therefore improved the quality of his contracts, setting them out in life-cycle, rather than step-completion, stages. If correct, this paper is a valuable note of claim for validity of existence.

Wildavsky, A. "Rescuing Policy Analysis from PPBS," Public Administration Review, XXIX, March/April 1969, P. 289-200.

SCOPE: The article reviews the concept of policy analysis and contends that PPBS has done damage to the prospects of encouraging policy analysis in government.

CONTENT: The article reviews the lack of understanding associated with the concept of PPB. Present programs are discussed as mostly a haphazard arrangement, being neither a program nor a budget. This has occurred because PPB: (1) was introduced too rapidly; (2) relied on an inappropriate model (defense); and (3) failed to use policy analysis. But there is now a willingness, the author believes, to consider new policies and try new ways, thus policy analysis may permit a more adequate use of PPB.

MAIN USE: This article provides an analysis of what can go wrong when a new system is introduced into an organization. As such it could prove invaluable to those concerned with the implementation of PPB.

APPENDIX F
CONFERENCE EVALUATION QUESTIONNAIRE

RESEARCH MANAGEMENT CONFERENCE

Conference Evaluation

The program committee would like for each participant to complete the following evaluation form. The information will be analyzed and used by the program committee in determining the effectiveness of the conference and will be used to help structure future MR administrator meetings.

On a continuum from 1 to 10, please rate the effectiveness and value of the conference to you.

- 1) Do you feel that there is a need for the development of research management training programs?

1 2 3 4 5 6 7 8 9 10
little need much need

- 2) Did you find the preconference materials helpful to you in establishing a general framework for the conference?

1 2 3 4 5 6 7 8 9 10
no help extremely helpful

- 3) How effective did you find the session on management by objectives?

1 2 3 4 5 6 7 8 9 10
not effective completely effective

- 4) Do you think management by objectives or a subset of management by objectives could be implemented in mental retardation research centers?

1 2 3 4 5 6 7 8 9 10
could not be implemented could be totally implemented
in MR centers in MR centers

- 5) Given the opportunity and resources, how successful do you think you could be in implementing management by objectives into your organization?

1 2 3 4 5 6 7 8 9 10
not successful very successful

- 6) How effective did you find the session on management planning and evaluation systems for MR research centers?

1 2 3 4 5 6 7 8 9 10
no value extremely valuable

RESEARCH MANAGEMENT CONFERENCE

Conference Evaluation

- 7) From the presentation on NIH grant management policy trends, do you think that your center will need to make changes in its operational and management procedures?

1 2 3 4 5 6 7 8 9 10
no changes many changes

- 8) How important is it for the 12 MR Research Centers to develop a standardized management reporting system?

1 2 3 4 5 6 7 8 9 10
not important extremely important

- 9) How well do you think the conference has been able to develop the appropriate parameters to be used for a standardized management reporting system for the 12 MR Research Centers?

1 2 3 4 5 6 7 8 9 10
parameters have not all essential parameters
been developed have been developed

- 10) How much lead to you think that the MR administrators should take in trying to establish a standardized management reporting system for all 12 MR Centers?

1 2 3 4 5 6 7 8 9 10
None Complete

- 11) How interesting and informative did you find the discussion on effective leadership styles?

1 2 3 4 5 6 7 8 9 10
not interesting extremely interesting
or effective and effective

- 12) How much did you learn about your own leadership style from the results of the managerial instruments?

1 2 3 4 5 6 7 8 9 10
none much understanding was gained

- 13) Please rate the overall effectiveness of the conference.

1 2 3 4 5 6 7 8 9 10
not effective very effective

- 14) Would you actively participate in other research management conferences if funds were made available? yes _____ no _____

RESEARCH MANAGEMENT CONFERENCE

Conference Evaluation

Thank you very much for completing the short evaluation form and for your interest and participation in this first national research management conference.