Descriptive analysis of managerial structures and information processing

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A DESCRIPTIVE ANALYSIS OF MANAGERIAL
STRUCTURES AND INFORMATION PROCESSING

By

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Chairs, Board of Examiners
Dean, Graduate School

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The purpose of this study was to investigate a possible correlation between the decision-making position of an individual within an organization and his level of information processing which may reflect decision-making behaviors.

Two hypotheses were presented: (1) There is a difference in the scores of integrative complexity among groups of individuals occupying the four levels of Agency X; and (2) There is a difference in the scores of each of the three stems comprising Integrative Complexity, for each of the groups with the agency.

A community self-help agency was used and 61 per cent of the employees were administered the Paragraph Completion Test. Data was categorized by four vertical levels of the agency (Management, Professional, Skilled, Semi-Skilled) and measurement of the four dimensions of Information Processing (Doubt, Rules, Criticism, Integrative Complexity).

Results indicated a significant difference (p .05) in the scores of Integrative Complexity between the Management and Semi-Skilled groups. The first hypothesis was partially supported. There were no significant results to support the second hypotheses.

These results were analyzed in terms of primary and secondary environmental properties which affect an individual's level of information processing. Implications and suggestions for further research in the areas of human information processing and managerial decision making were discussed.
CONTENTS

CHAPTER

ABSTRACT .................................................. 11

I  INTRODUCTION ........................................ 1

II  REVIEW OF LITERATURE AND RATIONALE ............ 4

Organizational Structure & Development
Decision Making Processes
Human Information Processing
Summary

III  RESEARCH PROBLEM AND HYPOTHESES ............ 43

IV  RESEARCH DESIGN AND PROCEDURES ............... 49

General Study Design
Variables
Data Collection
Data Analysis

V  RESULTS ............................................... 58

Inter-Rater Reliability
Hypothesis #1
Hypothesis #2
Summary

VI  ANALYSIS OF RESULTS .............................. 64

Environmental Properties
Hypothesis #1
Hypothesis #2

VII  CONCLUSION AND IMPLICATIONS ................. 74

LIST OF REFERENCES ................................. 81

BIBLIOGRAPHY .......................................... 86
APPENDICES ................................. 91

Organizational Chart of Agency X
Sample of Paragraph Completion Test
Sample Job Descriptions
Sample Scoring Guide To Determine
Level of Integrative Complexity
Description of Role Construct
Repertory Test
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Selective Overview of Organizational Theory: Three Trends—1923: 1974</td>
<td>11</td>
</tr>
<tr>
<td>2 Selected Agency Functions by Vertical Level</td>
<td>17</td>
</tr>
<tr>
<td>3 Comparison of Research Findings: Human Information Processing Theories</td>
<td>38</td>
</tr>
<tr>
<td>4 Summary of Review of Literature</td>
<td>40</td>
</tr>
<tr>
<td>5 Analyses of Variance (H) for Mean Scores of Four Levels of Organizational Structure by Four Scores of Information Processing</td>
<td>60</td>
</tr>
<tr>
<td>6 Results of Mann Whitney U on Scores of Integrative Complexity Between Groups</td>
<td>61</td>
</tr>
<tr>
<td>7 Analyses of Variance (H) for Three Stem Scores of Integrative Complexity by Mean Scores of Four Levels of Organizational Structure</td>
<td>62</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Human organizations, as open systems, must effectively coordinate various physical-technological and human-psychological functions in order to maintain a successful existence. In most cases, the coordination of these functions is carried out by the managerial structuring of personnel. The structure varies among organizations, depending on the overall goals, tasks, and/or services to be provided to both the external environment and the internal subsystems.

One of the central reasons for such managerial structures in human systems is to allow an efficient flow of decisions. According to several theorists, the individuals who occupy positions of decision-making authority must have the cognitive ability to effectively deal with such factors as (1) a variety of types and amounts of information; (2) conflict and ambiguity; and (3) interpersonal relationships. However, it is also apparent from this same literature that many physical and psychological barriers prevent decision makers from performing at peak capacity. But, what is apparent in much of the work in organizational behavior research is that decision makers (especially in the upper levels of management) are expected to perform certain cognitive processes and exhibit several functional behaviors, as a result of these processes.

It is interesting to note that a certain portion of psychological
theory has addressed itself to many of the cognitive and behavioral components which are presented in management prescriptions for successful decision making. Approaching this task from several viewpoints, these theorists have attempted to identify, categorize, and measure characteristics of mental ability which appear to produce flexibility of behavior in reaction to a diverse array of stimuli.

One approach to the conceptualization and measurement of these cognitive processes has been proposed by Schroder, Driver, and Struefert. These theorists have attempted to examine how individuals use cognitive "conceptual structures", such as attitudes, for adaptive purposes. These purposes may include such behaviors as the creation of norms, strategies, and decisions. These cognitive structural variables are also described as measurable and somewhat stable over time. One such variable considered by these authors is integrative complexity.

Results of research in this area indicate that individuals who are identified by high levels of integrative complexity appear to exhibit behaviors which are deemed desirable for those who occupy decision-making positions in organizations. That is, in comparing literature from both organizational theory relative to decision making and information processing theory, there appears to be a correlation between the level of integrative complexity of decision makers and their behaviors.

However, while these structures of integrative complexity are viewed as somewhat stable, various environmental factors, such as stress and information load, may have an effect upon the level at
which an individual may operate. Some of these environmental factors are known, and can be used in predicting and/or explaining the level at which an individual operates.

In the present study, the theoretical linkage between the decision-making structure of an organization, effective decision making, and levels of integrative complexity are detailed. Further, a field study is presented which was designed to determine if there are significant differences between levels of a system and the abilities of individuals at those levels to cognitively process information. The results will then be analyzed and described in light of several environmental factors which may affect the level of integrative complexity at which individuals operate.
CHAPTER II

REVIEW OF LITERATURE AND RATIONALE

The contents of this chapter will be to provide: (1) a very brief discussion of theories pertaining to the development and structure of human organizations as it relates to the function of efficient flow of decisions; (2) a more specific review of theoretical viewpoints relating to human processes of problem solving and/or decision making; and (3) an elaboration of information processing theories, specifically that which has been presented by Schroder et. al. This last point will relate the variable of integrative complexity to decision-making processes affecting organizations.

ORGANIZATIONAL STRUCTURE & DEVELOPMENT

Since the industrial revolution, managers have been faced with the problem of determining the most effective method by which to place people into a human organization in order to maximize decision-making and efficiency. Certain developments in this search have seemed to last more than others---each differing significantly in its emphasis. All, however, have perceived the importance of decisions as they relate to maintaining the existence of the human organization.

Early management theorists attempted to provide industry with the key to increased productivity. One theory concerned itself with the practical problems of the best methods for organizing for effective functioning and is presented in the works of Taylor and Gullich.
second theory purported by Worthy, directed itself toward the problems of the formalization/legitimization by which role systems are elaborated and sanctioned. Having given their primary attention to the character of internal organizational structures, these authors approached problems in terms of the organization as a closed system. That is, ignoring the interdependence of environmental and psychological factors affecting human performance.

However, by doing so, these theorists did not deal with the obvious complexity of structure and functions within human systems which can affect organizational decision-making. These factors include in part: (1) the constant changing environmental influences necessitating constant organizational changes; (2) the neglect of many types of input-output exchange with the environment; (3) the neglect of important subsystems with their inherent differential dynamics and interchanges within the organizations; (4) the neglect of semiformal and informal structures which result from reaction to institutionalization; and (5) the characterization of organizations as a rigid and static arrangement of parts.

In reaction to the obvious faults of the "closed system" approach, several theorists from various disciplines have attempted to re-examine human organizations from an open-systems framework.

Johnson, Kast, and Rosenweig admit to the fact that the systems within which managers must operate are necessarily complex:

However, management via systems concepts fosters a way of thinking which, on the one hand, helps to dissolve some of the complexity and, on the other hand, helps the manager recognize the nature of the complex problems and thereby operate within the perceived environment.
Viewing the structural development of organizations from an open-system's standpoint includes the concept of interdependence. That is, as Seiler notes, "Everything is related to everything else in such a way that a change in any one thing produces a change in everything else." Human organizations, as living systems, may be thought of as a number of interrelated functions which provide the means to achieve one or more goals (e.g. Thayer, Seiler, Miller). These various functions and goals are represented as the interdependence of various systems (management, production, personnel, etc.) which, in turn, interact with various suprasystems (environmental forces) and subsystems (internal structures acting in support of the systems, such as secretarial pools and electronic information networks).

Seiler, for example, has applied system categories to the analysis of organizational behavior. First, the environment, or suprasystem, is viewed as a primary determiner of behavior. The environment not only imposes certain constraints within which the organization must operate, but also the environment is acted upon by the system itself. Both of these factors are, in turn, affected by four major variables or inputs: human, technological, organizational, and structural/normative. These may be briefly summarized as follows:

Human inputs--these are a function of the technological and organizational inputs of the system. The particular mixtures of personal qualities of personnel have a strong influence on the social mores of the system, although once the system is in operation and has developed set patterns, the mores then exert strong influence on persons entering or remaining in the system and how that person behaves while a part of the system.
Technological inputs—the overall functions and goals of the system and the type of technology with which a system (s) is engaged highly influences the environmental stability and thus, its internal balance. These inputs also affect limits on how a job may be divided among individuals and groups, status relations as reflected in educational requirements, and positions of primacy in the flow of work.

Organizational inputs—these develop once a system has established goals, determined product strategy, etc. From this spectrum of "choices" come such aspects as schedule orders, information regarding performance, salary levels, incentive systems, and the particular style of leadership.

Social Structure and Normative inputs—a subset of organizational inputs, these often operate in informal patterns as well as formal. They are mainly designed, through interface and over a period of time, to structure shared values and performance standards for employees using reward/punishment incentives to encourage and reinforce desirable behaviors.

There has been a transition in organizational thought leading from a rather static, controlled view of human systems to one which attempts to organize, identify, and deal with the interdependent and complex nature of business and industry as it stands today. The first emphasizes structure in a "man-to-man responsibility" for decisions; while the second attempts to make the manager more aware of the factors and forces which he needs to take into account and deal with in order to satisfy his numerous, now identifiable, goals.

But, in the past few years, another theoretical framework has begun to take shape. Arising out of an apparent theorist-practioner dilemma, a number of management consultants and theorists conducting field work with industry, have expanded and refined much of the systems theory concepts to fit a quickly changing society and its demands for effective and efficient decision-making within
organizations. This set of constructs and subsequent strategies is subsumed under the title of Organization Development (OD).

Reiterating an idea which is deeply rooted in earlier systems models, there is once again a call to fluidity/flexibility in the light of increasing flux and flow of the environment. Bennis, for example, comments:

> Our social institutions cannot withstand, let alone cope with, the devastating rate of change without fundamental alterations in the way they negotiate their environments and the way they conduct the main operations of their enterprise.

In one of the most recent reviews of OD, Freidlander and Brown note that this theoretical network is in part a method for facilitating change and development in the individuals who now occupy their present positions (e.g. styles, values, skills); and in organizational processes and structures (e.g. relationships and roles).

These authors continue, by pointing out that from their point of view, the concept of OD calls for change in the techno-structural or human-processual facets of an organization: "The organizational processes and structures are the major linkage between the human and technological inputs into the organization." Extending this thought to its full range, then both process and structure interface with authority, communication, decision-making, goal setting, and conflict resolution.

Approaching this concept from the same point of view, but by a slightly different route, Beckhard defines an effective organization as one which includes in part:

> Decisions which are made by and near the sources of information, regardless of where these sources are located.
—Communication, both laterally and vertically, which is relatively undistorted. People are generally open and confronting... sharing all relevant facts and feelings.

—Constant effort exists at all levels to treat conflict-situations as problems subject to problem-solving methods.

—Large amount of "conflict" (clash of ideas) about tasks, projects; and relatively little energy spent in clashing over interpersonal difficulties, because these have been generally worked through.\textsuperscript{12}

Besides providing extended redefinition of earlier management positions, theorists of OD consider the assistance in the implementation of these constructs within an organization of being on almost an equal level to the theories themselves (e.g. Walton and Shein).\textsuperscript{13}

Using the term "educational program," for example, Beckhard points to increasing organizational effectiveness through decision-making as being a primary target for OD practitioners. Facets of this program include: (a) interpersonal competence - which entails self-awareness, communication skills, the ability to manage conflict, and tolerance for ambiguity; (b) problem-solving knowledge and skills; and (c) understanding the processes of change and changing.\textsuperscript{14}

Although the theoretical constructs of OD are still being refined, a few studies testing the effects of its numerous methods have been reported. Greiner\textsuperscript{15}, for example, reviewed fifteen studies of organizational change, and found that successes occurred from (1) strong internal and external pressures for change; (2) initial pressures to the gradual involvement of many levels, including top management, in diagnosis and change activities; and (3) shared decision-making rather than unilateral or delegated decisions.
In reviewing other research, Freidlander and Brown note that many of the studies dealt with intergroup-development intervention and attempted to manage conflict based on information-sharing, confrontation of differences, and working through to new understandings.16

To this point, then, it has been shown that at least three major shifts in organizational thinking have taken place and can be outlined (see Table I).

What is apparent from at least the systems' theories and organizational development approaches is that personnel, in any type of human system which has identifiable goals and subsequent functions, must learn decision-making through the interpretation of certain types of cognitive and behavioral skills. In review, these skills can be listed as follows:

1. The increased ability to perceive all factors interacting with the internal and external environments of the human system.

2. The need for flexibility in decision making in the face of increasing and highly complex changes in society.

3. Recognition of, and the successful dealing with information networks interacting within and upon the organization.

4. The ability to utilize and effectively deal with interpersonal and intrapersonal conflict in light of increased change.

5. The ability to tolerate ambiguity as a part of the decision-making process.

But organizations have not developed into simply a group of
### SELECTIVE OVERVIEW OF ORGANIZATIONAL THEORY: THREE TRENDS – 1923:1974

<table>
<thead>
<tr>
<th>(Early Management Theories)</th>
<th>(Systems Theories)</th>
<th>(Organization Development Theories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arose out of a need to control for effective and efficient flow of information, materials, and people so as to maximize profits.</td>
<td>Attempts to outline a more accurate realization of organizations as open-systems existing in and in interaction with a larger environment and composed of many smaller sub-systems.</td>
<td>Utilizing and expanding upon many of the concepts proposed by systems theorists.</td>
</tr>
<tr>
<td>Approached problems from a closed-system approach...formalizing and legitimizing power/role definitions.</td>
<td>Concept of interdependence: a problem or change in one area or function of a system will affect other functions.</td>
<td>Arising out of a need for better methods of dealing with the ever increasing rate of change in society and the stresses, conflicts, which are created out of attempts to deal with change.</td>
</tr>
<tr>
<td>Constructed the organization according to a blue print...process specialization of tasks; standardization of role performance; unity of command and decision-making; uniform behavior controlled by specification of institutionalized practices; and no duplication of function.</td>
<td>Functions and goals are linked together...identification of inputs, role effects, environmental restraints.</td>
<td>Change is affected by adjusting elements of either the techno-structural or the human-processual facets of the organization. Both process and structure concern themselves with:</td>
</tr>
<tr>
<td>e.g.: Scientific Management (Taylor, 1923) Public Administration (Gullich, 1937) Sociological Bureaucracy (Weber, 1947)</td>
<td>Need for flexibility in decision-making and ability for toleration of ambiguity or conflict. Recognition of the “humanness” of organizations.</td>
<td>Authority Conflict resolution Communication Tolerance for Decision-making Ambiguity Goal-setting Self awareness</td>
</tr>
</tbody>
</table>
individuals aimlessly moving about to bring about one or more end products. As previously discussed, systems must follow some seemingly logical pattern of behavior—the techno-structural aspect of a functioning network of people and things.

Attempts have been made in the past, to position individuals with the responsibility for coordination of activity into key management levels. Let us review how these structures develop and the purposes they serve.

Using a systems approach, Katz and Kahn outline three basic stages through which human organizations must pass before becoming fully realized:

1. **Primitive System**—in the first stage, two major types of determinants arise. These are the environmental pressures and the characteristics and needs of the population. The first generates task demands, which are handled by appropriate production or technical structures. The requirements of the objective task thus exert pressures for the patterning of activities which will complete the task.

2. **Stable Organization**—as the above system does not include processes for dealing with the individual needs, attitudes, and aspirations, a structure must be created to coordinate various role requirements. Around the first crude cooperative efforts are built devices for formulating and enforcing rules—in other words, an authority structure. As the sources of binding pronouncements and the locus of decision-making process, the authority structure is the basis of the managerial structure.

3. **Elaboration of Supportive Structures**—guided primarily from the managerial function, these boundaries are aimed, primarily, at the procurement of material and personnel inputs. These structures, due to the nature of their system-maintenance function, must be able to temporarily separate from the main system as internal and environmental demands necessitate.

The above outline of the stages of organizational-structural development may be pictorially represented as in Figure I.
Figure I

Stages in Development of Organizational Structures

Stage 1
Primitive system
- People with common needs
- Common environmental problem; task demands
  Cooperate task behavior
  Primitive production structure

Stage 2
Stable organization
- Personal needs
- Primitive production structure
- Need for reliability of performance
  Green formal systems
  Managerial structure
  Maintenance system
  Tightened production structure

Stage 3
Elaboration of structure
- Managerial structure
- Need for environmental support
  Adaptive systems
  Boundary systems
  Procurement structure
  Disposal structure
  Institutional relations
As a result of these concepts, these authors note that as the sub-systems of any organization become expanded and refined, the need for a coordinating function—or managerial structure—increases. Such a structure should be capable of perceiving and utilizing all available information. In doing so, managers will be better able to effect decision-making.

Operating from a different standpoint, Lawrence and Lorsch discuss an organization's structure in terms of its ability to relate to its environment. Two key concepts are the ability of a structure to both differentiate and integrate:

--- Differentiation: of function depends upon the extent to which the certainty of information within the various parts of the environment is similar or dissimilar. If the parts of the environment are homogeneous in their degree of certainty, the units will need to be fairly similar in formal organizational practices and member's orientations, and vice versa.

--- Integration: of function depends upon which units are required to work together and how tight the requirement is for interdependence among them. However, when units, because of their particular task are highly differentiated, it is more difficult to achieve integration among them than when the individuals in the unit have similar ways of thinking and behaving.19

As a result of this perspective towards organizational structure and decision-making behaviors, these authors note that when groups within a human system need to become more differentiated, and at the same time, tightly integrated, it becomes necessary to develop more complicated decision-making mechanisms. The basic mechanism for channelling the differentiation and integration into effective decision making is the managerial structure.

Beckhard in discussing organizational structure, points to the
future. His conception of organizations calls for people belonging to several different groups, to having several different superiors; and to coping with competition for their time and energy from different programs. As a result, he comments that this new form means "a greater requirement for interpersonal competence to handle these situations; for tolerance of the increased ambiguity; and for expanded decision-making and planning capabilities."

But for the most part, organizations have not followed the call for major restructuring of their hierarchial structures; while the demand for adjustments in decision-making processes and behaviors has increased with environmental complexity. One such organization is that which this study utilizes. Rather than present its components in a later chapter, it would do well to briefly present it at this time. By doing so, it is hoped that the previously presented theories and constructs relating to organizational structure and development will become clear in the context of this research.

In order to maintain this organization's anonymity, it will hereafter be referred to as Agency X. The goals and purpose of this agency are to provide means by which low-income individuals can improve their standard of living (e.g. provide jobs, education, referrals, etc.). It is composed of (1) two executive directors; (2) six horizontal departments with individual directors; (3) four vertical levels utilized for payroll purposes; and (4) an overall number of employees of 63, both full and part-time (See Appendix A for organizational chart).

For the purposes of this study, the four vertical levels of the agency were examined (management, professional, skilled, and semi-skilled). Entry into the organization for a first-time employee may
take two channels. Low-income individuals are preferred for both the semi-skilled and skilled levels since the primary purpose of the agency is to aid the income potential of this group. As these employees successfully satisfy responsibilities outlined in their detailed job descriptions (see Appendix D for examples) and pursue available in-service training during their first two years of employment, they become eligible for advancement consideration.

The Management and Professional levels are filled with either individuals who have advanced through the two lower levels of the agency; or with professionals who have gained similar experience in other comparable organizations, business, or the military.

Most decision-making responsibility for the agency is reserved for those individuals who occupy the Management level (executive directors and department heads). The remaining three levels, for the most part, carry out the daily duties of the agency's programs. Functions of the agency are represented in the following table--utilizing responsibilities extracted from the previously mentioned job descriptions. The descriptions listed follow closely the behaviors actually performed by members of these levels (see Table II ).

As can be seen, most of the responsibility for coordination and direction of this agency is located in the Management level. Such activities as "promoting", "eliciting cooperation", "developing", "establishing", and "training", seem to indicate the need for creativity, information, and the ability to make decisions in a varied environment.
### Table II

**Selected Agency Functions by Vertical Level**

<table>
<thead>
<tr>
<th>Management</th>
<th>Professional</th>
<th>Skilled</th>
<th>Semi-Skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>• elicit cooperation of other agencies.</td>
<td>• make periodic home visits.</td>
<td>• complete appropriate forms and records.</td>
<td>• typing and reception work.</td>
</tr>
<tr>
<td>• document and determine eligibility for programs.</td>
<td>• work with parents to help them gain coping strengths, gain coping strengths, involvement in community activities, help them better understand and care for their children.</td>
<td>• assist other staff as resource and public relations person.</td>
<td>• operate office machines.</td>
</tr>
<tr>
<td>• promote and develop jobs and training opportunities.</td>
<td>• set up center conducive to learning — direct daily program.</td>
<td>• coordinate contact records and information regarding problem areas.</td>
<td>• take shorthand.</td>
</tr>
<tr>
<td>• provide and supervise group counseling and activities.</td>
<td>• provide experiences for children which stimulate creativity and curiosity.</td>
<td>• write, edit, and publish newsletter.</td>
<td>• filing.</td>
</tr>
<tr>
<td>• conduct individual and group conferences.</td>
<td>• provide social atmosphere for children — one which provides opportunity for children to develop personality with respect for others and willingness to work cooperatively.</td>
<td>• develop, publish special and general brochure, T.V. — radio tapes.</td>
<td>• pick up and deliver mailing.</td>
</tr>
<tr>
<td>• develop class curriculum.</td>
<td>• develop career development plan for all internal programs.</td>
<td>• determine con-career related individual and group training needs.</td>
<td>• pick up and deliver food.</td>
</tr>
<tr>
<td>• establish goals and priorities of total program.</td>
<td>• train and supervise a staff.</td>
<td>• develop and administer on-going staff orientation program.</td>
<td>• maintain office supplies.</td>
</tr>
<tr>
<td>• administration of budget(s): overall and grant proposals.</td>
<td>• cope in a positive way with problems arising on the job.</td>
<td>• purchase janitorial supplies resp. for supply, maintenance and repair budget.</td>
<td>• selective bill payments.</td>
</tr>
<tr>
<td>• develop a volunteer program.</td>
<td>• work with teacher — supplement activities of classroom.</td>
<td>• work with teacher — supplement activities of classroom.</td>
<td>• maintain special records and referrals.</td>
</tr>
<tr>
<td>• evaluate project activities, personnel, and programs.</td>
<td>• prepare and package grant applications.</td>
<td>• purchase janitorial supplies for supply, maintenance and repair budget.</td>
<td>• assist in cooking and menu planning.</td>
</tr>
<tr>
<td>• create career development plan for all internal programs.</td>
<td>• maintain personnel and housing files.</td>
<td>• develop and administer on-going staff orientation program.</td>
<td>• purchase necessary supplies in kitchen.</td>
</tr>
<tr>
<td>• train and supervise a staff.</td>
<td>• upkeep of premises and equipment.</td>
<td>• purchase janitorial supplies for supply, maintenance and repair budget.</td>
<td>• upkeep of premises and equipment.</td>
</tr>
</tbody>
</table>
The second level also appears to take the responsibility for a few of the programs, but in a more specific manner. Flexibility to create, organize and make decisions are evident, but not in the same scope as the top level.

The remaining two levels, Skilled and Semi-skilled, consist of activities which are primarily in support of the other two. Such actions as "preparing and packaging", "maintaining", "typing", and "assisting" appear to indicate a minimum amount of responsibility for coordination of any singular program; nor do they involve the potentiality of conflict in decision-making as in the others.

As a result of the literature presented, it may be possible to postulate that human organizations have developed to effectively fulfill their many interdependence goals through various structures. In recent years, management theorists have proposed that both managers and structures must adjust to an increasing rate of change. This increased rate has turned their attention to the cognitive processes involved in human decision-making, including such variables as interpersonal interaction, intra and interorganizational conflict, and the state of ambiguity. A more specific discussion of human decision-making processes will now be discussed.

**DECISION-MAKING PROCESSES**

The vast interest in facilitating human problem-solving or decision-making has taken numerous bends, but primarily fall into two categories. The first of these, sometimes termed "decision theory" concerns itself with a management-statistical model aimed at utilizing computer capabilities in achieving efficient use of information.
Examples of theorists who have delved into this area include Bonini, Wayne, and Kaufmann. The relative simplicity of this model can be characterized by the words of Kaufmann:

The method we implicitly follow, in exercising our preference in a problem of decision, consists in breaking down the aggregate of possible solutions, be they limited or unlimited in number, into perceptibly smaller mutually exclusive sets. We then examine whether the choice of a solution set can be substituted for the choice of a factor. We carry on in this way, reducing more and more, if necessary, the number of factors or components for which in the end preference may be satisfactorily shown.

In essence, then this theoretical development concerns itself with the human use of probabilities in comparison to the mathematical similarity of computers. But from the viewpoint of this study, human decision-making is more complex and is often labelled the "psychology of decision-making." Theorists in this second area include the "problem-solving" treatise of Kepner and Tregoe; the social-psychology of decisions analyzed by Katz and Kahn; investigations into cognitive dissonance theory reviewed by Festinger; and the sociology of decision-making discussed in Brim et. al.

The importance of this area is pointed out in relation to the managerial structure and is expressed in the following manner by Katz and Kahn:

...the managerial system cuts across all of the operating structures of production, maintenance, environmental support, and adaptation. It is the controlling or decision-making aspect of the organization and its parts...(reacting to) the need for stability and predictability in the cooperative efforts at solving a common problem.

In reviewing sociological studies of decision-making concerning substantive issues (e.g., age, sex, education, etc.) Brim et. al.
noted that their organization of the components of the decision-making process can be proposed in the following sequence:

1. Identification of the problem
2. Obtaining necessary information
3. Production of possible solutions
4. Evaluation of such solutions
5. Selection of a strategy for performance
6. Actual performance of an action or actions, and subsequent learning and/or revision.

Pursuing a somewhat similar train of thought, Cyert and March view decision-making as a pursuit of goals which usually have the end product of conflict. Their theory includes: (a) multiple, changing, acceptable level goals; (b) the sequential examination of alternatives, with the acceptance of the first satisfactory alternative; (c) the avoidance of uncertainty wherever possible; and (d) standard operating procedures and rules of thumb used in most "short-run" choice situations.

The first factor, goals, seems to be particularly relevant to these theorists. Organizational goals, although more far-reaching and all-inclusive, must be tempered by individual goals. The interrelationships between these two types are difficult to place in causality terms, but one end result does arise: conflict. "The fact that organizations have goals, and that these may differ from those of individuals within them, produces an environment for conflict."29

Conflict also enters into the previously discussed need for integration in decision-making. Lawrence and Lorsch note that the behavior patterns used to manage intergroup conflict, arising out of integration of organizational and individual goals are important. Management factors in this regard, include the pattern of power or
influence:

The influence within groups means the organizational level at which influence or power resides to make decisions leading to conflict resolution, and also where the knowledge to reach such decisions exists.30

Gross also views conflict as being an essential factor to be taken into consideration when discussing human decision-making processes. His contention involves the inner logic of decisions as involving struggle of "conflicting calculations" which become intertwined with the unavoidable clashes within the organizations, on one side--and between the organization and its environment, on the other.

As this author notes:

Even a purely technical decision (itself a result of considerations of desirability, feasibility, and consistency) may prove highly irrational unless support can be modified for it through the strategy or tactics of conflict resolution.31

In a more specific breakdown of his "conflicting calculations" construct, Gross attempts to subdivide the decision-making sequence into two steps, which can be summarized as these:

1. "What is the problem?"--understanding and detecting the problem is or primary importance. Doing so may save time in indicating how the answer may be found or whether any answer is possible. Through this a decision maker must deal with those who are involved, their purposes, and identifying the factors blocking normal functioning. "This means, in effect, that most (important) problems in organizations...are really huge clusters of closely related problems."

2. "Which alternatives to choose?"--any conscious choice is a choice among alternatives. Any important decision is a "huge choice of sequential choices." Earlier choices, of course, may aid in determining the available alternatives. At some point the choice may represent one or more negative outcomes of the conflict
resolution: avoidance or deadlock. At other points, the outcome may be more positive and dramatic: victory-defeat, compromise, or integration.32

Thus, these theorists portend the concept of any decision sequence as a pursuit of goals but with the inevitability of conflict always arising; and that the aura of struggle pervades decisions at both the organizational and individual levels.

Examining dissonance theory in relation to human decision, Festinger concerns himself with determining the processes involved in reaching a decision and not necessarily with the reactions of individuals to frustration.33 In other words, what is the person doing during the time it takes to make a decision that enables him to make the decision and determines what that decision is going to be:

On the basis of reviewing ten research investigations dealing with this question, Festinger notes that when an individual is faced with a decision between two alternatives, his behavior is largely oriented toward making an objective and impartial evaluation of the merits of the alternatives. This author suspects that this behavior probably takes the form of collecting information about the alternatives, evaluating this information in relation to himself, and establishing a preference order between the alternatives.

But establishing a preference order, according to Festinger, does not immediately lead to a decision. The individual more than likely continues to seek new information and to re-evaluate old information until he acquires sufficient confidence that his preference order will not be upset and reversed by subsequent information. Decisions are reached, then, when the closer together in attractiveness the alternatives,
the more valuable the information about the alternatives, and the higher the confidence level he desires and reaches through evaluation.

Thus from Festinger's point of view, an individual uses information as a key tool in reaching confidence in decisions. The use of information includes the search and constant re-evaluation of it against the purpose of the decision in relationship to his goals.

On a somewhat broader scope, Prince views information as holding a primary position in decision-making. But until recently, the importance of this aspect has been discouraged by what he considers to be overwhelming requirements in six major areas: (1) information determination, (2) information collection, (3) information processing, (4) information analysis, (5) information transmission, and (6) information interpretation. 34

Kepner and Tregoe also consider the factor of information as being significant in successful problem solving and/or decision making. As they note:

      How can a manager improve his performance in analyzing problems? The key to the answer lies in the fundamental fact that the raw material of management is information.... He has to know what information he has about any problem, what information he doesn't have and how he can get it, and how he can use all the information to the best advantage in getting the problem solved.35

Several other management theorists and practitioners see handling information as a major crisis in corporations being able to continue effective decision making. In an attempt to project solutions for the future, they see the need for new types of leadership.

Schmidt considers this new leader as being one who can "tolerate
a great amount of ambiguity and is prepared to act more provisionally at times. It requires a person who can act on the best information available.\textsuperscript{36} This author also sees the new leader as exhibiting characteristics of both the old, authoritarian approach (characterized by a highly developed sense of self but a poorly defined sense of political responsibility and interpersonal sensitivity) and with the leadership style of the industrial era (typified by the bureaucratic team leader—a strong sense of organizational loyalty, interpersonal sensitivity, and the ability to deal with technological complexity):

"Leadership in the post-industrial environment, under conditions of dynamic complexity, will have to combine the best of both these styles to develop the rational and human potential of organizations.\textsuperscript{37}"

In summarizing to this point, an attempt has been made to show through the theoretical developments of organizational structure and decision-making processes that:

1. Human organizations are viewed as complex systems of inter-related functions with their sole purpose of achieving both inter and intra-organizational goals.

2. Because of the inherent inter-relatedness of these functions within an increasingly complex environment, managerial structures have been created and observed in order to create an efficient and effective flow of decisions. Factors which appear to affect successful decision-making include the need for increased ability to--

--identify and deal with conflict

--identify and deal with ambiguity

--analyze and function in interpersonal relationships

--make quick and decisive attempts at coordination, but with the
ability to change if the environment calls upon one to do so.

3. Systems theories and proponents of Organization Development have attempted to analyze and aid organizations in dealing with these difficult decision-making problems; but most of these authors point to the idea that individuals themselves must be able to change before successful treatment can be effected in any human system.

But perhaps there is a theoretical position which can be used to analyze an individual's behavioral decision-making ability as outlined above. In the past twenty years, behavioral scientists have attempted to link cognitive processes with behavioral output. Their investigations are broadly subsumed under the title of "human information processing." An attempt will be made to spell out the theoretical constructs utilized in this area and then to present the results of a few investigations which seem applicable to the present study.

**HUMAN INFORMATION PROCESSING**

In a broad sense, information processing theory deals with the way in which an individual cognitively receives and creatively combines external stimuli from the environment in order to internally create new information. There are two theoretical viewpoints which deal with the above construct and which will be dealt with in this section: Bieri's Cognitive Complexity-Simplicity Theory and Schroder, Driver and Struempf's Conceptual Structure Theory. The latter will be presented in greater detail because it more clearly explicates theoretical and methodological concepts relevant to job requirements in organizations. However, Bieri's theoretical position parallels in many ways the work of Schroder et. al. and for this reason will also be presented.
Cognitive Complexity Theory

Bieri's treatise and similar investigations (e.g. Nidorf and Crockett; Rosencrantz and Crockett; Tripodi and Bieri; and Bieri and Leventhal) hypothesized that an individual perceives another accurately to the extent that his predictions of the other's behavior are accurate. "The position taken," Bieri notes, "is that predictive behavior, and its accuracy or inaccuracy, may be fruitfully viewed as a function of certain behavioral variables within a conception of personality structure."  

Following Kelly's "psychology of personal constructs" this theoretical extension posits that most human behavior is directed towards greater predictability in one's environment. Based upon constructs, such as another person being "angry", each individual behaves toward another in hopes of this being true. "In as much as constructs represent differential perceptions or discriminations of the environment, it would be expected that the greater the degree of differentiation among the constructs, the greater will be the predictive power of the individual." Thus a system of constructs which differentiates highly among persons is labeled as "cognitively complex"; while a system which provides poor differentiation among persons is labeled "cognitively simple" in nature.

Using Kelly's Role Construct Repertory Test (Rep Test) several theorists investigating this complexity-simplicity model have found that behavior is significantly different among individuals who are identified as either cognitively complex or cognitively simple. (See Appendix E for description of Rep Test.)
In his original investigation, Bieri found that individuals labeled "complex" are better able to predict the behavior of others due to their ability to differentiate. He also found that these individuals engage less in leveling (omission of detail) when receiving and transmitting information and engage less in assimilative projection (perceptions of others on the basis of themselves). These have been substantiated in repeated investigations by Lundy, Berkowitz, and Bieri and Leventhal.44

Through an investigation of information reception, Tripodi and Bieri found that "cognitively complex" individuals were significantly more able to extract more useful bits of information from given messages than were "cognitively simple" subjects; thus substantiating the idea of the ability to cognitively differentiate within the environment.

Both Nidorf and Crockett and Rosencrantz and Crockett found that complex individuals formed more elaborate and multivalent personal impressions of other persons on the Rep Test than those labeled as simple.

Utilizing a story-completion task, Tripodi and Bieri found that complex individuals were better able to include conflicting themes indicating that they were more certain of judgements regarding discordant information. These authors concluded by noting that it appears that complex individuals possess a greater versatility in conceptualizing dimensions of behavior rather than blanket, all-inclusive categories.

Press, Crockett, and Rosencrantz investigated complexity-simplicity assumptions in relation to conflict and learning. These authors found that individuals identified as complex experienced less
difficulty in learning conflicting (unbalanced) social structures within which they were placed than did those individuals labeled cognitively simple.

Lastly, in a more recent article, Saine reports that complex individuals are better able to perceive conflict in their environment and have the ability to combine (integrate) dissimilar dimensions of data in constructing conflict.

Thus, theorists investigating the various constructs involved in the Complexity-Simplicity theory of information processing have found that there appears to be a relationship between cognitive processes and the ability to predict another's behavior. By possessing the ability to differentiate within the environment, complex individuals (identified through the Rep Test and other projective measures) are apparently better able to involve themselves in decision-making processes. That is, they are better suited to integrate conflict, utilize information, and perceive characteristics of other individuals than those who do not possess this ability.

However, the present study involves a second theory of human information processing which further develops the Information Processing concepts. While the complexity-simplicity conceptual framework deals primarily with the ability to differentiate within the environment, this second body of literature investigates the structural components of cognitive integration and provides a more specific relationship between mental processes and subsequent behavior. This difference will be clarified as the second theory is outlined.
Conceptual Structure Theory

This particular theory of information processing is concerned with structural variables—the ways in which individuals cognitively receive and integrate external stimuli from the environment in order to internally generate new relationships among and between the stimuli. These structures, or "adaptive orientations" act, first, like a set of filters—selecting certain kinds of information from the environment—and, second, like a program or set of rules which combines these items of information in specific ways. This last aspect, the program, is of central importance to this theoretical framework.

Schroder et. al. postulates two interdependent properties of information-processing structures: the parts or dimensions, and the integrating rules. Dimensions are the units of conceptual functioning and represent the elements or "content" of thought; and as these authors note, "judgments, attitudes, decisions, or perceptions concerning a range of stimuli can be based on few—or many--dimensional units of information." The number of information-dimensions, however, is not necessarily related to the integrative complexity of conceptual structures, but the greater the number of dimensions, "the more likely is the development of integratively complex connections or rules." 50

A low integration index may be characterized by a hierarchial form of integration in which rules or programs are fixed. Schemata for organizing alternate sets of rules are absent. As a result, a hierarchial structure can have a small or large number of rules and procedures, but the relationship between these are relatively static (See Figure II.).

As can be seen in Figure III, however, high integration structures
Figure II
Schemata for Low Integration Index

Dimensions:

*Relatively fixed or hierarchal organization. Rules are in a fixed relationship so that the whole process can be reduced to one rule.

Figure III
Schemata for High Integration Index

Dimensions:

*Rules are in an interdependent relationship; each can influence the other singly and in combinations producing new connections and new rule structures.
have more connections between the rules—more schemata for forming new hierarchies which are internally generated as additional rules. These structures contain more degrees of freedom, and are more subject to adjustment as complex changes occur in the environment.

Thus, "level of conceptual structure", refers to the way an individual receives, stores, processes (integrates), and transmits information; and attitudes, beliefs, needs, etc., may be viewed according to these authors, as structures for organizing or processing information. Schroder et. al. justify their perspective in this fashion:

It is well known, for example, that two persons may express the same attitude but use it differently in thinking, arguing, and decision making. . . . In many situations, particularly where complex decision making and interpersonal and intergroup relations are involved, it would seem appropriate to weigh the way a person thinks about a given problem more highly than what he thinks.51

(And, as can be seen, these authors also concern themselves with the issues dealt with by the previously discussed management theorists—in relationship to an individual's ability to deal with conflict and interpersonal relationships.)

Four "levels" are used to describe the cognitive—structural processes of information processing. These should not be perceived as static, but merely points on a continuum:

1. Low Integration (Concrete)—characterized by the basic development of stimuli categorization which is rigid. New stimuli are distorted to fit or discarded.

   General behavioral characteristics include: (a) a reduction in thinking in terms of relativeness or degrees; (b) no mechanism to generate alternatives resulting in "closure" during conflict situations; (c) behavior is anchored to external conditions resulting in restriction of
internal integrative processes; and (d) abrupt compartmentalization when change occurs.

2. Moderately Low Integration—characterized by generation of alternative organization of dimensions, discrimination of stimuli which remain relatively constant, and the inclusion of choice with ambivalence.

Behavioral indications include: (a) movement away from absolutism; (b) emergence of primitive internal causation with conditionality; (c) instability and noncommitment resulting in ambivalence and lack of consistent decision-making judgment; (d) remnants of rigidity since alternate schemata are ineffective after one perceptual organization has been selected; and (e) negativistic orientation since the chosen "alternatives: are already "compartmentalized."

3. Moderately High Integration—the initial emergence of rules for identification of more complex relations than alternatives increasing the amount of functional information at any given time.

Behavioral indications at this level include: (a) if a decision is made, the individual remains open to alternative pressures; (b) a social situation may now be viewed in terms of two points of view—one in relation to the other, and perceive the possible effects of one upon the other; and (c) the "comparing-relating" functions become potentially self reflexive, representing a projection into the future.

4. High Integration (Abstract)—characterized by additional and more complex potentialities for organizing additional schemata in alternate ways. An increase in number and complexity of the mediating structure is accompanied by: (a) an increase in the degree of diversity the system can generate and handle; (b) greater discrimination between stimuli within dimensions; and (c) increased potential for generation of alternate patterns of interaction and new schemata without imposition of new external conditions.52

According to Schroder et. al., the effectiveness of high-level properties would be maximized:

"... if the criteria for performance were based upon (a) the utilization of many alternate interactive processes, and (b) the ability to cope with situational change over time. Highly abstract structures permit the delineation of many systematically related alternatives. If these can be kept in focus, decisions at a particular point in time should be most effective for adapting to a future event.53

As was previously mentioned, however, levels of information processing do not necessarily remain stable over periods of time.
Various environmental factors (or task properties) have been found to either increase or decrease the level at which a person might operate. These factors include: (1) primary properties, and (2) secondary properties.

The primary properties include such aspects as information load, information diversity, and information change. "Although many sub-factors are included in this class, they are all expected to have similar effects with structure."

The secondary properties include those factors which are not necessarily related to the number and/or complexity of information units in a task, but which do affect the mediating processes, and hence, the behavioral output. Specifically, these are situational characteristics which may hinder or facilitate the degree to which a person explores his environment, thereby indirectly affecting the environment's perceived change or complexity. Characteristics of these secondary properties include (a) noxity, or the severity of adverse consequences of an individual's behavior in a specific situation, (b) eucity, or the amount of reward or promise given by an environment, (c) the degree of involvement or interest in the task environment, and (d) the degree to which the situation refutes or disorients a person.

Much of the empirical investigation of these particular information processing variables have centered on the effects of various environmental factors on the level of conceptual structure. In most cases, subjects have been placed in groups, based on their level of integrative complexity determined through various projective measures. Groups are then placed in controlled, task-oriented environments.
Results are based on correlations between informational input and behavioral output. Several studies appear relevant to the present investigation in that they were concerned with decision-making behavior in task-oriented environments.

Sieber and Lanzetta note that "decision-making situations typically require that one make a selection among alternatives without having sufficient information to make an unequivocal choice." In the face of such uncertainty, the decision maker usually engages in various adaptive behaviors such as acquisition of more information and the reorganization of known information. This is perceived, by the authors, as instrumental in reducing uncertainty and response conflict.

Groups of individuals were compared as to their level of integrative complexity, from high integration (abstract) to low integration (concrete), determined through the previously mentioned Paragraph Completion Test.

Results indicated that the conceptual structure of an individual proved to be a strong factor in decision-making behavior. Abstract individuals:

- displayed a relatively greater openness to environmental ambiguity and information, leading to the examination of a larger number of choice alternatives, evaluation of these alternatives in terms of a wide variety of criteria, utilization of much more information in order to effect the evaluation, and a tendency to remain cognizant of ambiguity, and open to new information even after a decision has been reached.

- Individuals who yielded more "abstract" scores also suggested more information and searched for more information as the problem-uncertainty increased.
Verbal responses in this study were also consistent with the theoretical conceptualization of "abstract" and "concrete" behavior. Abstract individuals presented a relatively greater number of qualifying remarks (to actual decisions), suggesting that they tend to entertain more complex and conflicting hypotheses about the problems they attempt to solve.

Struefert, Suedfeld, and Driver\textsuperscript{59} were concerned with the effect of changes in information load and levels of integrative complexity on information search and information utilization. Specifically, they were dealing with three processes of information search and utilization: (1) delegated search; that is, requests for information from an external source; (2) self-initiated search; that is, all decisions made (by task-oriented four-man groups) which are specifically designed to gain more task relevant information; and (3) integrative utilization of information gained through search in subsequent group decision-making.

Subjects were tested (using Paragraph Completion Test) to determine level of complexity in conceptual structure. Each four-man group of "abstract" individuals was matched with a group of "concrete" individuals. These teams were then placed in a tactical game situation\textsuperscript{60} and their behavior was monitored.

Results indicated that there was a significant difference in delegated information search between abstract and concrete individuals. Whereas concrete individuals continued the search during optimal and super-optimal information load conditions, abstract individuals appeared to decrease their delegated search behaviors. The authors inferred that the continued search by concrete individuals could be partially explained
in terms of the "social desirability" of such behavior, and that abstract individuals were more sensitive, on the other hand, to basic information load changes.

In terms of self-initiated information search, concrete individuals significantly reduced their search-behaviors as information load increased; whereas abstract individuals decreased but at a much slower rate. The authors explained this phenomena in light of the premises that concrete persons relate one stimulus to one response and require more information under suboptimal information conditions. Abstract individuals are able to revitalize information for more complex integrated decisions. Under superoptimal conditions, concrete individuals should be satisfied with available information to produce responses; whereas abstract persons, who make more integrated strategic decisions, are likely to require additional relevant information to permit integration no matter what the information load level may be.

Tuckman \textsuperscript{61} used a stock market game in an attempt to measure the differentiation of input (information tracking) and the integration of information among groups differing in levels of conceptual structure. Within this simulated business environment, the experimenter used three indices of tracking: (1) the use of the sales index in decision making; (2) the tracking of the sales index during the session in return for payment (in the form of profits accumulated), and (3) the correct estimation of probable future changes in the sales index as a function of available information.

Results indicated that groups composed of abstract individuals were
able to track the above measures significantly better in the business/decision-making environment than did groups composed of concrete individuals.

In reviewing the above study, Schroder, et. al., note that "differentiation and integration (of information) are involved in the tracking of the various indices of the stock market game." Use of the sales index, as a basis for decision making, requires differentiation in that individuals tracking this index must be able to perceive change in the environment. Use of the sales index in return for payment requires information search, as well as tolerance for change.

Finally, the use of predicting probable future changes in the sales index requires both differentiation and integration of available information. Tuckman's data, then, could be an indication that groups composed of integratively complex individuals are more likely to track information which is not immediately available in the environment.

It thus becomes apparent that both the Complexity-Simplicity model and the Conceptual-Structure Theory parallel one another (See Table III.). Each is concerned with the identifiable cognitive processes which follow a continuum from concrete to abstract. Also, each theoretical model and the research derived from it outlines characteristics which lead one to assume that certain types of individuals are capable of dealing with those factors deemed necessary in the previously discussed review of decision-making—the ability to deal with conflict, ambiguity, interpersonal effectiveness, and diverse types and quantities of information.
Table III: COMPARISON OF RESEARCH FINDINGS: HUMAN INFORMATION PROCESSING THEORIES
BIERI'S (1955) COMPLEXITY THEORY AND SCHRODER et al.‘s (1967) STRUCTURAL THEORY

(Cognitive Complexity-Simplicity Theory)
This theory concerns itself with the differentiation of stimuli: the ways in which individuals are able to separate personality characteristics and discriminate information in order to more successfully predict behavior of others.

High complexity decoders:
• when confronted with complex information stimuli are better able to comprehend, retain, and perceptively apply the information towards some post-communication judgment. (Bieri, 1955).
• form more elaborate & multivalent personal impressions (Nidorf & Crockett '65/Rosendrantz & Crockett '65).
• glean more information from messages (Tripodi & Bieri '64).
• are better able to predict the behavior of others (Bieri & Levanthal '57/Bieri '55).
• engage less in leveling (omission of detail) and assimilative projection (perceptions of others in terms of self) (Lundy '56 & Berkowitz, '57/Bieri '55).
• utilize more conflicting themes in story-completion task (more certain of judgments regarding conflicting information (Tripodi & Bieri 1966). Thus, greater versatility in conceptualizing dimensions of behavior.
• experience less difficulty in learning conflicting (unbalanced) social structures (Press, Crockett, Rosenkrantz, 1969).
• perceive conflict and have the ability to combine dissimilar dimensions of data in construing conflict (Saine '74).

(Conceptual Structure Theory)
This theory concerns itself with structural variables: the ways in which individuals cognitively receive and integrate external stimuli in order to internally generate new relationships between and among the stimuli.

Integratively complex individuals:
• following a strong counter-attitudinal message low I.P.'s felt a greater need to resolve conflict, used more of the available processes for reducing conflict, and used them in a more internally consistent manner (Crano & Schroder '67).
• when placed in an environment of increasing information load under conditions of increasing failure produced significantly more productive integrations in a decision-making task (Struefert, Struefert & Castore '69).
• display greater openness to environmental ambiguity and information leading to larger number of choice alternatives, evaluation of these alternatives in terms of variety of criteria, utilization of much more information in order to effect the evaluation, and tendency to remain aware of ambiguity & open to new information even in post-decision stage (Seiber & Lanzetta '64).
• in a tactical game environment, performed better in - delegated information search - self-initiated decisions - and integrative utilization of information gained through search in subsequent group decision-making (Struefert, Suedfeld, & Driver '65).
• in a simulated business environment, were better able to track (differentiate) input and integrate information . . . meaning that they could more effectively perceive and tolerate change (Tuckman '64).
• able to perceive an interpersonal act from multiple perspectives, are less likely to credit a single person or condition with responsibility for either success or failure (Struefert/Struefert '69).
SUMMARY

In this chapter, an attempt has been made to spell out a relationship between the following bodies of literature: (a) the placement of an individual within the managerial structure of an organization; (b) the possible requirements of a position in terms of decision-making responsibilities; and (c) the individual's ability to perform certain cognitive processes in terms of the variable of "integrative complexity." The factors subsumed and presented in this relationship are outlined in Table IV.

As has been presented, the apparent trend in the management/organizational theory is to view human systems as highly complex matrices of goals and functions. These goals/functions must not only deal with the forces of the outside environment, but it must also satisfy the needs and pressures of its own subsystems. Since the industrial revolution, organizations have managed to create structures which have tried to satisfy one or both of these areas. But theorists and practitioners of organizations alike now note that change in the world is increasing at such a rate that human organizations must learn to deal with its by-products—ambiguity, inter and intra-system conflict, and the demand for improved interpersonal skills. For the most part, management (or the decision makers) is viewed as being the mainstay which will guide the systems through these ever-changing mazes.

The processes which comprise the function of decision-making itself is complex—due to the fact that individuals themselves are complex. In essence, decisions are arrived at by the gathering of information which is used to categorize behavioral alternatives, which
## Table IV

**SUMMARY OF REVIEW OF LITERATURE**

<table>
<thead>
<tr>
<th>Systems Theories</th>
<th>Organizational Development Theories</th>
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</thead>
<tbody>
<tr>
<td><strong>Organizational Theory</strong></td>
<td><strong>Decision-Making</strong></td>
</tr>
<tr>
<td>- concept of interdependence</td>
<td>- prior to any decision, information must be gathered</td>
</tr>
<tr>
<td>- functions &amp; goals: identification of environmental change which affects them</td>
<td>- a reaction to a need for semblance of stability - struggle among conflicting calculations</td>
</tr>
<tr>
<td>- need for flexibility in decision-making and ability for toleration of ambiguity and change</td>
<td>- examination of all available alternatives</td>
</tr>
<tr>
<td>- recognition of need &amp; importance of information</td>
<td>- all decisions deal in one form or another with conflict</td>
</tr>
<tr>
<td>- identify &amp; utilize/resolve conflict and conflict-producing situations</td>
<td>- decision makers must learn to cope with change, conflict resolutions, ambiguity, and at the same time be open to change</td>
</tr>
<tr>
<td>- ability to deal effectively with interpersonal relationships</td>
<td><strong>Agency Functions</strong></td>
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<tr>
<td><strong>Management</strong></td>
<td><strong>Professional</strong></td>
</tr>
<tr>
<td>- elicit cooperation</td>
<td>- make home visits</td>
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<tr>
<td>- promote &amp; develop</td>
<td>- work with parents</td>
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<tr>
<td>- develop curriculum</td>
<td>- set up learning center</td>
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<tr>
<td>- administer budgets</td>
<td>- provide experiences to stimulate curiosity &amp; creativity</td>
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<tr>
<td>- establish goals &amp; priorities</td>
<td>- provide social atmosphere</td>
</tr>
<tr>
<td>- evaluate total program</td>
<td>- train &amp; supervise</td>
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<tr>
<td>- create programs</td>
<td>- cope with problems</td>
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</table>

**Abstract**

- can deal with more diverse (conflicting/complex schemata & dimensions)
- greater discrimination of stimuli
- increase generation of alternate patterns of interaction
- ability to cope with situational change over time
- ability to generate new information

**Mod. Abstract**

- emergence of rules comparing, matching, relating pairs of schemata
- open to alternatives in a post decision situation
- views an event from at least two points of view
- comparing & relating are self reflexive

**Mod. Concrete**

- limited range - but the ability to provide alternate organization of dimensions
- choices made with ambivalence & uncertainty
- conditional owning of internal causation
- instability & noncommitment
- negativistic orientation

**Concrete**

- rules are only to provide structure and order
- black-white choice matrix
- closure allowing minimal conflict
- behavior is guided by external environment
- compartmentalization
are in turn tempered by the goals of the system and its parts. Theorists in this area also point to the fact that individuals who perform this function must be able to deal effectively with changes, ambiguity, and conflict in the performance of their duties.

In somewhat of an indirect way, investigators of human information processing have been interested in these same decision-making processes. From both the Complexity-Simplicity and the Conceptual Structure points of view, it has been determined that individuals are capable of operating at different cognitive levels. Those individuals who are identified as complex or abstract, appear to be able to deal with conflicting stimuli, varied amounts and types of information, lack of structure in their environment, and interpersonal skills.

The Conceptual Structure model attempts to identify the level of integrative complexity at which a person operates. By reviewing the criteria of each of these four levels, and then by reviewing the characteristics of the four vertical groups which comprise the sample population of this study--there appears to be a correlation between what is expected, for example, the behavioral duties in management and the cognitive processes called for in the "abstract" individual in information processing theory. Such an individual must function in a comparatively unstructured work setting, must be able to respond creatively to needs of the organization, must deal with conflicting types of information, and they must have the ability to function effectively with the interpersonal relationships of all the staff and outside individuals connected with the agency. By comparison, the "abstract" individual, according to information processing theory is more capable of dealing effectively with others, utilizing conflicting
information, and performing effectively in an environment of change and relative ambiguity.

It thus appears from the literature reviewed that it may be possible to draw a relationship between the level at which an individual functions within the managerial structure of an organization and his level of integrative complexity. Such is the purpose of this study.
CHAPTER III

RESEARCH PROBLEM AND HYPOTHESES

Based upon the literature presented in the previous chapter, a number of relationships can be empirically investigated.

A large portion of the more recent concepts in (1) organizational behavior related to the cognitive processes involved in human decision-making, and (2) the categorizations utilized in identifying constructs in human information processing appear to parallel each other. This relationship appears to coincide within three main areas. These areas include the following:

(a) Interpersonal Skills. In this area organizational theorists have attempted to show that there is an increasing need for individuals who possess the ability to relate well with others. Individuals who occupy managerial positions are now expected to bring members of work groups together, produce cohesion, and provide an environment for effective and efficient problem solving in a short period of time.

Theorists involved in decision-making consider the need for flexibility and openness to change. Effective interpersonal relations require a minimum of restricted perceptions of others in order to provide this flexibility and openness. Responsible decision-making also requires the ability to procure all available input from human resources. This, also, requires individuals to be non-defensive, understanding, and exhibit a willingness to cooperate—all considered skills of good interpersonal relations.

43
In reviewing behavioral characteristics of individuals identified as "abstract" in information processing theory, it is found that persons labeled as such are significantly better able to perceive differences among personalities, and thus can perform more successfully in transactions with others than those identified as "concrete".

Lastly, in regards to performance in interpersonal relationships, it appears that the individuals in Agency X, who occupy the management level, are expected to effectively coordinate a large number of employees. This coordination requires the ability to take into account all human, as well as techno-structural needs and feelings in order to accomplish the overall goals of this organization. The ability to deal effectively with others (employees and consumers of their services) would appear to be a necessary quality, as outlined in the agency's job descriptions.

(b) Conflict. This topic has received considerable attention in organizational theory literature during the past decade. Theorists point to the concept that, in light of increasing change in society which reflects itself in institutions, managers must learn to accept conflict as an inevitable part of organizational life. Managers are expected not only to resolve it, but at times to build in conflict as a method of problem-solving. Only by identifying conflict-producing factors, confronting them, and jointly working to eliminate or reduce their importance can all available energies be focussed on the more relevant issues at hand.

Theorists in the area of decision-making also view conflict as a central focal point of discussion. Human decisions are basically a
reaction to instability—a desired return to cognitive and affective homeostasis. As such, decision-makers must learn to cope with change, conflict resolution, and the resulting state of ambiguity or confusion. Their responses must be a result of a broad overview of all pertinent aspects of the problem, a clearly communicated set of directives and actions, but which are still flexible in their possible alteration if the need for change presents itself.

Information processing theorists also consider conflict as a key factor in identifying individual characteristics and their corresponding behavioral outputs. Persons who are labeled as "abstract" have been shown to deal more effectively with diverse/conflicting dimensions of information and/or situations than others. They are also better able to cope with situational change over time. Once a decision is made, they also appear to have the ability to remain open to alternatives rather than locking themselves into black-white dimensionality.

Also, one key behavioral description listed for upper-level employees of Agency X is to "cope with problems." In a management capacity this appears to happen more often than in the lower three vertical levels. Members of management in this case are expected to elicit cooperation in attempting to coordinate the various functions of the organization. The creation, development, and evaluation of programs can breed conflict and the management level is expected to effectively resolve it.

(c) Information. One of the primary factors involved in any discussion of human behavior is information. In more recent years, organizational theorists have paid considerable attention to a system's
identification, collection, analysis, and use of this valuable commodity. The concept of interdependence revolves around its successful manipulation. Also theorists of organizational systems have pointed to the fact that as organizations become more complex, managers will need to improve their methods of dealing with information.

Decision-making theorists refine this need for information in more specific terms. Decisions require the most accurate and useful information possible. Managers must create systems (through technology and interpersonal relationships) which are best able to satisfy this need. Only through training, experience, and a combination of previously defined leadership styles can managers hope to effectively combat the "information crisis" which appears to plague many existing organizations.

Likewise, upper level employees of Agency X are expected to successfully utilize information in the coordination of the various subsystems. The diverse variety of programs and consumer needs require flexibility in information collection and digestion techniques through numerous forms of media. A total understanding of information is, therefore, required.

Lastly, theorists of information processing point to the cognitive ability of individuals dealing with information as holding key importance. Individuals labeled "abstract" appear to be able to perform tasks more successfully in situations which involve a variety of types and amounts of information--more so than those labeled as "concrete".

Thus, these three content areas are related to one another. Management, or those who occupy decision-making positions, are expected to
effectively deal with interpersonal relationships, conflict which results from a cognitive state of ambiguity, and the increasing types and amounts of information in order to successfully guide their organizations in the years to come.

The question or problem thus becomes "are managers doing so?" Theorists investigating variables in human information processing appear to be indirectly dealing with these areas. They have, through various measures, identified cognitive characteristics of individuals which correspond to these recommended behaviors. The variable of integrative complexity appears to direct itself to this question.

STATEMENT OF THE PROBLEM

The primary problem, and thus the purpose of the present study, is to determine whether or not individuals who are placed in a vertical hierarchy also "process information" at different levels. More specifically, the study is designed to investigate a possible correlation between the decision-making position of an individual within an organization and his level of integrative complexity which may reflect decision-making behavior. This can be phrased in two research questions and their corresponding research hypotheses. The first of these is:

Q₁: Is there a difference in the cognitive ability of individuals placed in the various vertical levels of the managerial structure of an organization?

H₁: There is a difference in the scores of integrative complexity among groups of individuals occupying the four vertical levels of Agency X.
H₀: There is no difference in the scores of integrative complexity among groups of individuals occupying the four vertical levels of Agency X.

The second question and hypothesis may not be directly reflected in the previous review of literature and rational, but considering the content areas discussed it does bear some importance. The variable of integrative complexity is composed of three measures: (1) degree of perceived imposition of external control, (2) degree of interpersonal conflict, and (3) the presence of alternatives, uncertainty, or lack of structure in an environment. Each of these factors, as has been discussed, may affect an individual's ability to make successful decisions. It may thus be desirable to investigate the relationship of an individual's vertical position and his response to each of these measures. Therefore, it is possible to posit a second question:

Q₂: Is there a difference between an individual's response to the factors of imposition of external standards, interpersonal conflict, and presence of uncertainty or lack of structure and his placement in the vertical structure of an organization?

H₂: There is a difference in the scores of each of the three stems composing integrative complexity, for each of the groups of individuals occupying different vertical levels of an organization.

H₀: There is no difference in the scores of each of the three stems composing integrative complexity, for each of the groups of individuals occupying different vertical levels of an organization.
CHAPTER IV

RESEARCH DESIGN AND PROCEDURES

GENERAL STUDY DESIGN

A sample population of Agency X employees was administered the Paragraph Completion Test (PCT) over a period of one week. The written responses were anonymously scored by two judges and then tabulated individually and by hierarchial levels. Once tabulated, the scores were statistically analyzed: Analysis of Variance for the first hypothesis and the Mann-Whitney U for the second hypothesis.

SAMPLE AND BACKGROUND INFORMATION

In 1964, President Lyndon Johnson signed into law the Office of Economic Opportunity (OEO) as part of his administration's "War on Poverty." The purpose of this government organization was to combat poverty by enlisting the participation of the poor. The philosophy behind the OEO contended that America's disadvantaged could, with federal guidance and funding, design and operate education and training programs to raise their own standard of living.

Under the OEO guidelines, a non-profit corporation (Corp.A) was formed in the sample's city by a large group of low-income individuals. The individuals resided in two adjacent counties in the state of Montana.

The primary purpose of Corp. A is to elicit funds for a self-help organization (Agency X). Agency X supervises and coordinates
several "action-oriented" programs which include Community Coordinated Child Care, Community Organized Neighborhood Services Systems, Community Action Planning, Day Care, Headstart, Family Planning, Medicare Alert, and Public Service Careers.

According to a recent report filed by Corp. A, nearly $3,700,000 has been received through government funding. Over 400 persons have been employed with 74% of these having low-income backgrounds. The overall program has reportedly reached 14,000 low-income individuals within the two counties the agency serves.

The target group used as a sample for this study was Agency X, located at a headquarters in a city in one of the two counties, previously mentioned. The representative bodies to which this agency answers are: (1) the Corp. A Board (50 low-income individuals who are members of the corporation); and (2) the Policy Council (14 individuals selected from the above board).

The agency itself is composed of (1) two executive directors (Executive and Headstart); (2) six horizontal departments (education, nutrition, services, parent involvement, planning, and neighborhood youth corps); (3) four vertical levels used for payroll and advancement purposes (Management, Professional, Skilled, and Semi-skilled); (4) and an overall number of employees of 63, both full and part-time.

There are two levels of entry for a first-time employee of Agency X. Low-income individuals are preferred for both the Semi-skilled and Skilled levels since the primary purpose of the agency is to aid the income potential of this group. As these employees successfully satisfy responsibilities outlined in their detailed job descriptions and pursue
available in-service training during their first two years of employment, they become eligible for advancement consideration.

The Management and Professional levels are filled with either individuals who have advanced through the two lower levels of the agency, or with professionals who have gained similar experience in other self-help organizations, business, or the military.

Advancement from one level to another is based upon an evaluation of an individual's successful completion of (1) job requirements (see Appendix B for sample job descriptions) and (2) established training programs.

**VARIABLES**

Independent

The variable of "hierarchical segmentation" consisted of the four vertical levels of Agency X:

(1) Management  
(2) Professional  
(3) Skilled  
(4) Semi-Skilled

As previously mentioned, the agency designated and utilized this segmentation for both payroll and advancement purposes.

The uppermost level, Management, consists of the agency's two executive directors and the six departmental directors. In this level rests the responsibility for all major decisions. These directors must coordinate all programs including the selection and supervision of their respective staffs, the administration of budgets; and the evaluation of their programs.

The second level, Professional, consists of contracted college
graduates who perform somewhat specialized functions (e.g. teaching, speech therapy). They are responsible, in a more limited sense, for carrying out the programs outlined by their directors.

The third level, Skilled, consists of mostly low-income individuals whom have limited education but have risen in rank from the fourth level. Their functions include the maintenance of daily duties such as bookkeeping, form preparation and completion, and assisting other personnel.

The fourth level, Semi-Skilled, consists entirely of low-income individuals who, for the most part, have not received high school diplomas. Their functions include typing, filing, operating office machines, and janitorial services.

In general job classification, these vertical levels range from the abstract to the concrete. That is, those who occupy the top level, Management, must rely solely on themselves for guidance and direction; whereas those who occupy the lowest level, Semi-Skilled, perform rigid tasks which do not necessarily lend themselves to creativity or deviation.

Dependent

The dependent variable consists of the Paragraph Completion Test. This instrument is designed as a measure of cognitive integrative complexity (see Appendix C for sample of test). The test consists of the subject's written response to three stimuli:

a. one which implies the presence of alternatives, uncertainty, or absence of structure ("When I Am in Doubt. . .").

b. one which implies the imposition of external forces or standards ("Rules. . .").
c. one which implies interpersonal conflict (When I Am Criticized. . .").

It has been previously mentioned in Chapter II that the PCT was utilized in this study as opposed to the Role Concept Repertory Test (Rep test). This has been done for the following reasons:

--subjects responding to the Rep test can use only nominal scales, whereas "abstract" subjects may tend to use ordinal or ratio scales in their responses.

--subjects responding to the Rep test can generate, because of the nature of the measure, only as many categories as there are triads. This restriction may produce an "artificial grouping of moderately and extremely differentiated subjects."\(^{65}\)

Another point of difference in methodology within the present study is that the PCT is not used in the same manner as in previous studies. As previously discussed in conceptual structure theory, the PCT has been used to group individuals along the four-point scale (abstract to concrete). Once identified through this test, the groups are placed in structured, task-oriented environments. Results are based on differences in behavioral output.

In the experiments reviewed in this paper, (e.g. Sieber and Lanzetta; Struefert, Struefert, and Castore; and Struefert, Suedfeld, and Driver)\(^{66}\) there was a significant relationship between the assigned behavioral characteristics of the four nodal points of integrative complexity and the actual behaviors recorded. This relationship between predicted behaviors and actual behaviors would appear to indicate that in most cases, individuals rated, for example, as "abstract" would
display corresponding behaviors (e.g. ability to deal with conflicting information, and increased generation of alternate patterns of interaction, etc.).

Thus, in the present study, the PCT is used as a direct indicator of behavior as opposed to its more typical use as a projective measure for grouping individuals in experimental designs.

**DATA COLLECTION**

In order to gather data in the most normal environment possible, the author administered the PCT during the agency's eight regularly scheduled departmental meetings over a period of one week. Each departmental meeting consisted of the director for a particular area (e.g. education) and his/her staff (e.g. teachers, beginning teachers, assistant teachers, and teacher's aides).

Subjects were allowed 110 seconds to respond in writing to each of the sentence stems comprising the test.¹

Immediately following the collection of tests for each department, the data was sealed in an envelope and given to the thesis director. When all departments had been tested and the data returned, the thesis director coded each test according to the four vertical levels of the agency to eliminate possible bias during data analysis.

¹The PCT scoring manual suggests 100 seconds for college students and 120 seconds for high school students. Since this population consisted of both educational levels, the mean of these two time periods was used.
DATA ANALYSIS

Scoring of Paragraph Completion Test

In this study it was not possible to have totally independent raters score the raw data, due to time pressures placed upon the author. Therefore, the author and one other graduate student performed the scoring functions. Since neither rater had examined the data and the responses had been independently coded, possible experimenter bias was hopefully reduced.

Each of the sentence stems (Doubt, Rules, and Criticism) was rated independently by each rater using a six-frame scoring guide developed by the project director and a graduate study in the Department of Interpersonal Communication (see Appendix D for sample of scoring guide). This produces a total of twelve initial scores for each stem response.

As suggested in the scoring manual, the two lowest scores were discarded. A mean score was then produced for the remaining ten scores for each of the three stem responses for each subject.

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2 Two raters were used in scoring the written responses as suggested in the scoring manual (Schroder et. al., 1967, p. 190). Both raters had previously undergone twelve weeks of exposure to the theoretical constructs of information processing theory and practice in scoring responses under the guidance of the project director.

3 The guide is a compilation of theoretical constructs utilized in the separation of the four nodal points for integrative complexity. The author wishes to thank Dr. Duane Pettersen and Mr. John Holden for the development and use of this guide.

4 Example: a stem response yields rater scores of 353333/313331. The two lowest scores (1,1) are discarded, producing a mean score of 3.20 for this response.
The overall score for Integrative Complexity was determined by producing a total mean score for the three stem mean scores. The general scoring process can be represented as follows:

Subject # 12

"Doubt. . ."

Rater A: 333333
Rater B: 355317
\( \bar{x} = 3.40 \) (Doubt)

"Rules. . ."

Rater A: 555333
Rater B: 335333
\( \bar{x} = 3.80 \) (Rules)

"Criticism. . ."

Rater A: 113313
Rater B: 333317
\( \bar{x} = 2.40 \) (Criticism)

\( \bar{x} = 3.20 \) (Integrative Complexity)

Once mean scores have been produced for each subject's three stem responses and the overall score for integrative complexity, the data was suitably arranged for statistical analysis.

Designs and Statistical Analysis

\( H_1: \) There is a difference in the scores of integrative complexity among groups of individuals occupying the four vertical levels of Agency X.
Design:

<table>
<thead>
<tr>
<th>Integrative Complexity</th>
<th>Mgmt.</th>
<th>Prof.</th>
<th>Skilled</th>
<th>Semi-Sk.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=8</td>
<td>n=13</td>
<td>n=13</td>
<td>n=7</td>
</tr>
</tbody>
</table>

Statistical Analysis: Kruskal-Wallis One Way Analysis of Variance

H2: There is a difference in the scores of each of the three stems composing integrative complexity, for each of the groups of individuals occupying different vertical levels of Agency X.

Design:

<table>
<thead>
<tr>
<th></th>
<th>Mgmt.</th>
<th>Prof.</th>
<th>Skilled</th>
<th>Semi-Sk.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Doubt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Criticism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n=8</td>
<td>n=13</td>
<td>n=13</td>
<td>n=7</td>
</tr>
</tbody>
</table>

Statistical Analysis: Mann-Whitney U
CHAPTER V

RESULTS

The purpose of this chapter will be to present the statistical results of this study. In the next chapter, these results will be explained in light of certain environmental variables which, according to information processing theorists, appear to affect individual cognitive ability. The present chapter discusses: (1) the inter-rater reliability; (2) the first hypothesis concerning the overall score of integrative complexity and the four vertical-organizational levels; and (3) the second hypothesis dealing with the three cognitive elements subsumed in integrative complexity.

INTER-RATER RELIABILITY

The Kendall Rank Correlation Coefficient: \( r^7_0 \) was used for establishing reliability between the two raters scoring the PCT. An overall coefficient of 0.50 was achieved with the three individual stems achieving the following coefficient scores:

- "DOUBT..."  \( N = 41 \)  \( r = .51^* \)
- "RULES..."  \( N = 41 \)  \( r = .52^* \)
- "CRITICISM..."  \( N = 41 \)  \( r = .47^* \)

*significant beyond \( p < .05 \)

The amount of shared commonality is expressed as \( r^2 \) indicating only 25% agreement between raters.

\[ \text{Significance for all results were set at the } p \leq .05 \text{ level.} \]
From the above scores, all of which were significant \( (p \leq 0.001) \), it appears that a statistical level of rater-reliability was obtained.

**HYPOTHESIS #1**

The primary purpose of this study was to investigate a possible correlation between the decision-making position of an individual and his level of integrative complexity. The first hypothesis, stated in the null form, reads as follows:

\[ H_0: \text{There is no difference in the scores of integrative complexity among groups of individuals occupying the four vertical levels of Agency X.} \]

In order to determine whether or not the null hypothesis could be rejected, a Kruskal-Wallis One Way Analysis of Variance was performed on each of the mean \( (\bar{X}) \) scores of the three stems used in the PCT, and on the overall score of integrative complexity for each of the four vertical levels. (The greater the mean score, the greater the potential for effective information processing.) These scores and results of the analysis of variance are presented in Table V.

As can be seen, there was a significant difference \( (p \leq 0.001) \) among the four organizational levels on the total integrative complexity score. However, there were no significant results produced among the four levels for the three stems which make up the total score for integrative complexity.

In order to identify the particular cells that contributed to the overall significant analysis of variance for the integrative complexity score, a Mann Whitney U statistic was next applied to the data. This statistic was applied comparing two organizational levels at a time on
the score of integrative complexity (see Table VI).

**TABLE V**

Analyses of Variance (H) for Mean Scores of Four Levels of Organizational Structure by Four Scores of Information Processing

<table>
<thead>
<tr>
<th></th>
<th>MGMT</th>
<th>PROF</th>
<th>SKILLED</th>
<th>SEMI-SK</th>
<th>H Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Doubt...&quot;</td>
<td>2.81</td>
<td>2.81</td>
<td>3.04</td>
<td>2.00</td>
<td>3.546 N.S.</td>
</tr>
<tr>
<td>&quot;Rules...&quot;</td>
<td>3.81</td>
<td>3.27</td>
<td>3.42</td>
<td>2.78</td>
<td>3.793 N.S.</td>
</tr>
<tr>
<td>&quot;Criticism...&quot;</td>
<td>3.38</td>
<td>3.08</td>
<td>2.96</td>
<td>2.98</td>
<td>1.142 N.S.</td>
</tr>
<tr>
<td>Integ. Complexity</td>
<td>3.33</td>
<td>3.05</td>
<td>3.16</td>
<td>2.57</td>
<td>9.954*</td>
</tr>
</tbody>
</table>

n=8 n=13 n=13 n=7 N=41

N.S. = not significant
* = p ≤ 0.05

The only group pair which differed significantly on their scores of integrative complexity was Management/Semi-Skilled (p ≤ 0.008). The remaining pairs (Management/Professional, Management/Skilled, Professional/Skilled, and Skilled/Semi-Skilled) did not differ significantly.

The first null hypothesis can be rejected in favor of the statement that there is a significant difference among the scores of integrative complexity and the four vertical levels of Agency X. However, the
### TABLE VI

Results of Mann Whitney U on Scores of Integrative Complexity Between Groups

<table>
<thead>
<tr>
<th>Group Pairs</th>
<th>U Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management vs. Professional</td>
<td>29.5 N.S.</td>
</tr>
<tr>
<td>$\bar{x} = 3.33/n=8$</td>
<td></td>
</tr>
<tr>
<td>$\bar{x} = 3.05/n=13$</td>
<td></td>
</tr>
<tr>
<td>Management vs. Skilled</td>
<td>42.5 N.S.</td>
</tr>
<tr>
<td>$\bar{x} = 3.33/n=8$</td>
<td></td>
</tr>
<tr>
<td>$\bar{x} = 3.16/n=13$</td>
<td></td>
</tr>
<tr>
<td>Management vs. Semi-Skilled</td>
<td>5.5 *</td>
</tr>
<tr>
<td>$\bar{x} = 3.33/n=8$</td>
<td></td>
</tr>
<tr>
<td>$\bar{x} = 2.57/n=7$</td>
<td></td>
</tr>
<tr>
<td>Professional vs. Skilled</td>
<td>80 N.S.</td>
</tr>
<tr>
<td>$\bar{x} = 3.05/n=13$</td>
<td></td>
</tr>
<tr>
<td>$\bar{x} = 3.16/n=13$</td>
<td></td>
</tr>
<tr>
<td>Professional vs. Semi-Skilled</td>
<td>24 N.S.</td>
</tr>
<tr>
<td>$\bar{x} = 3.05/n=13$</td>
<td></td>
</tr>
<tr>
<td>$\bar{x} = 2.57/n=8$</td>
<td></td>
</tr>
<tr>
<td>Skilled vs. Semi-Skilled</td>
<td>29 N.S.</td>
</tr>
<tr>
<td>$\bar{x} = 3.16/n=13$</td>
<td></td>
</tr>
<tr>
<td>$\bar{x} = 2.57/n=7$</td>
<td></td>
</tr>
</tbody>
</table>

N.S. = not significant  
* = $p \leq .01$

The significant relationship is primarily a function of the difference between the Management level and the Semi-Skilled level within the organization.

**HYPOTHESIS #2**

The second substantive hypothesis specified that the four vertical levels would differ on the scores of the three stems comprising the overall score of integrative complexity. These stems were directed towards (a) imposition of external standards, (b) interpersonal conflict, and (c) the presence of uncertainty and/or lack of structure in the environ-
ment—all of which appear to play a significant role in effective decision-making. The second hypothesis, stated in its null form reads:

\[ H_0: \text{There is no difference in the scores of each of the three stems composing integrative complexity, for each of the groups of individuals occupying different vertical levels of Agency X.} \]

In order to determine whether or not this second null hypothesis could be rejected, a Kruskal-Wallis One Way Analysis of Variance was also performed on the data.

### TABLE VII

**Analyses of Variance (H) for Three Stem Scores of Integrative Complexity by Mean Scores of Four Levels of Organizational Structure**

<table>
<thead>
<tr>
<th></th>
<th>DOUBT</th>
<th>RULES</th>
<th>CRITICISM</th>
<th>H Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANAGEMENT</td>
<td>2.81</td>
<td>3.81</td>
<td>3.38</td>
<td>3.92 N.S.</td>
</tr>
<tr>
<td>PROFESSIONAL</td>
<td>2.81</td>
<td>3.27</td>
<td>3.08</td>
<td>1.42 N.S.</td>
</tr>
<tr>
<td>SKILLED</td>
<td>3.04</td>
<td>3.42</td>
<td>2.96</td>
<td>.32 N.S.</td>
</tr>
<tr>
<td>SEMI-SKILLED</td>
<td>2.00</td>
<td>2.78</td>
<td>2.98</td>
<td>3.65 N.S.</td>
</tr>
</tbody>
</table>

N.S. = not significant

As reflected in Table VII, there were no significant differences between the three stems comprising integrative complexity among the four vertical levels of Agency X. The second null hypothesis cannot,
therefore, be rejected.

**SUMMARY**

The purpose of this study was to investigate a possible correlation between the decision-making position of an individual and his level of integrative complexity (a reflection of decision-making/cognitive ability). The first of two hypotheses presented in this chapter stated that there would be a difference in the scores of integrative complexity (three stem scores and one combined score) among the four vertical groups of Agency X.

As results indicate, this first hypothesis was partially supported at p < .05. While analyses produced no significant differences for the four groups' scores of the three individual stems comprising integrative complexity, there was a significant difference (p < .01) between the Management and Semi-Skilled groups combined scores labeled Integrative Complexity.

The second substantive hypothesis presented in this chapter stated that there would be a difference in the scores for each of the three stems comprising integrative complexity, for each of the vertical groups of Agency X. As results indicate, this second hypothesis could not be supported at p ≤ .05.
CHAPTER VI

ANALYSIS OF RESULTS

This chapter will review the results of this study and explain them in terms of several environmental variables, which may affect an individual's cognitive ability.

It has been determined that several environmental properties can affect an individual's cognitive/decision-making ability, and as previously discussed in Chapter II, it is not possible to expect an individual's level of integrative complexity to remain stable over an extended period of time. These properties are of two types: primary and secondary.

Primary properties appear to have the most significant direct affect upon integrative complexity. These properties include (a) information load (or amount), (b) information diversity (or different types of information), and (c) information change (in terms of rate).

Secondary properties, on the other hand, are not necessarily related to the number and/or complexity of information units in a task; but they do affect the mediating process, and hence, the behavioral output of an individual. Characteristics of secondary properties include:

(a) Noxity-- the severity of adverse consequences of an individual's behavior in a specific situation.

(b) Eucity-- the amount of reward or promise presented by an environment.

(c) Involvement-- the degree of interest displayed by an individual operating in a task situation.

64
(d) Disorientation-- the degree to which the situation or its environment refutes or confuses an individual.

Specifically, these four properties have been shown to temporarily hinder or facilitate the degree to which an individual is willing to explore the environment—a key to increasing integrative complexity.

However, before applying these properties in an analysis of this study's results, it may be appropriate at this time, to more clearly outline the overall environmental processes which were seemingly in effect within Agency X at the time of data-gathering. The processes have been divided into external and internal factors.

ENVIRONMENTAL PROCESSES

External Factors: On January 29, 1973, President Richard Nixon announced to Congress that the Office of Economic Opportunity (OEO) was to be administratively phased out. For the previous seven years, Agency X had received its primary financial support from this governmental agency.

Nixon's decision was reportedly based on the fact that some of the OEO programs were obsolete, ineffective, and/or apparently able to operate more efficiently under other federal and state agencies. As a result, all OEO funded programs were told to secure other sources of funding; and Nixon proceeded to impound all existing monies.

The OEO programs were then advised to apply for funding from their local governmental agencies. However, it was estimated that even if all available monies through these agencies were received, it would result in a reduction from $100,000 to $3,500 per year for Agency X.
Specifically, the loss of funds and support nationally would occur as follows:

**DEPARTMENT OF LABOR**
- $150,000
- "Neighborhood Youth Corps" (out July 1, 1973)

**OFFICE OF ECONOMIC OPPORTUNITY**
- $97,000
- "Community Action Program" (out April 1, 1973)

Only federal funding agency left:
**HEALTH, EDUCATION & WELFARE**
**OFFICE OF COMMUNITY DEVELOPMENT**
- $255,469
- "Head Start/Day Care"
- $50,000 Nutrition Grant (expires July 1, 1973)

Only the Head Start/Day Care program of Agency X would be permitted to continue, providing that it could secure sufficient additional sources of revenue.

At the time of data gathering, Agency X, like many similar agencies throughout the country, was faced with a substantial loss of federal financial support, and thus the reduction or elimination of many of its programs.

**Internal Factors:** In his initial explanation for the cutback, Nixon charged that the agency monies were not being used for their intended
purposes. Nixon stated that much of this funding was being used to support an "action" role politically (i.e., boycotts, lobbying on state/federal levels, etc.).

With the federal administration choosing to eliminate OEO and continue only Head Start funding, it became apparent that the members of Corp. A, agency employees, and other low-income individuals were going to come into conflict over the issue of the role of the agency.

The executive director of Agency X and the Head Start director differed specifically on this question. The former believed that greater participation and initiative by the poor on an organized basis was needed to solve the poverty problem; and that he was totally committed to the "action" role.

The Head Start director and his staff, on the other hand, feared that by a continuation of this philosophy, that the entire program would be placed in greater jeopardy. As a result, the Head Start Policy Council (representing parents of children specifically within this program) gave the executive director a "vote of no confidence." In effect, then, a major internal power struggle had developed which directly or indirectly affected everyone connected with the agency.

These external and internal environmental stresses, on Agency X during data gathering, could have affected the obtained results. Properties of information load, diversity, and change often have rather large, negative effect upon individuals' integrative complexity, and may have done so in this case. The secondary properties of noxity and disorientation, too, may well have significantly influenced information processing scores. As can be noticed, very few individual scores for
either (1) the three stems (Doubt, Rules, Criticism), or (2) the four combined scores of integrative complexity were above 3.00. The score spread was rather small in terms of comparative populations and this appears to be the effect of both primary and secondary environmental factors affecting individuals of Agency X.

HYPOTHESIS #1

The first hypothesis postulated a correlation between the decision-making position of an individual and his/her level of integrative complexity: "There is a difference in the scores of integrative complexity among the groups of individuals occupying the four vertical levels of Agency X."

As presented in the previous chapter, the null form of this hypothesis was rejected, and it was concluded that there was a significant difference in the scores among the four groups. This difference \( p \leq 0.008 \), however, existed only between the uppermost level (Management) and the lowest level (Semi-Skilled) of the agency. This would appear to imply that those individuals within the agency with responsibility for decision-making were better able to function with interpersonal conflict, uncertainty/lack of structure, and imposition of external forces than those who performed the manual-supportive duties in entry-level positions.

One possible explanation for these results would be that the primary environmental properties of information change and diversity had a considerable negative effect on both groups, but more so on the Semi-Skilled group. It is plausible that the presidential decision to severely limit agency funds could cause a large number of employees to step up the search for alternate sources of support for the agency.
Such an information search would be broad in scope, given that many state and local agencies would need to be contacted to secure sufficient funds. Also, this search could be subject to an increased amount of change, in that there may be some conditions placed on these newly appropriated funds which would possibly force alterations in the agency's program content. Time pressures would be in effect, in addition, given the two or three month period needed to insure sufficient support.

As reviewed by Sieber and Lanzetta, individuals who operated at higher levels of integrative complexity are significantly better able to deal with environmental ambiguity and information; and to utilize group decision-making in crisis situations. The Management group, in this study may have been more capable of these behaviors given their highest score for integrative complexity ($\bar{X} = 3.33$). The Semi-Skilled group ($\bar{X} = 2.57$) would more likely be adversely affected in these environmental conditions due to the fact that individuals operating at lower levels of integrative complexity view their environment in black-white dimensionality.

It is also possible to assume that the internal power struggle over agency leadership and direction would have an effect on the diversity and rate of information change. This would especially be the case since there appeared to be a highly developed information grapevine in existence at the time of data gathering.

As further explanation of this result, the secondary properties of noxity and disorientation, which affect mediating processes could
affect both groups. Given their education level⁶ and previous professional experience, Management may not have been as concerned with potential future employment; whereas the low-income individuals occupying the Semi-Skilled group would not have as much opportunity if a substantial loss in programs were to eliminate their employment. Through informal conversation among these lower-level employees, it was apparent that they were experiencing a loss in job security.

Finally, while no further significant results were achieved in regards to this first hypothesis, the difference between the scores of integrative complexity for the Professional/Semi-Skilled groups registered a statistical level of $p \leq 0.10$. This result may suggest that, under different environmental conditions, additional support could be given to this hypothesis.

Failure for support in this specific case could be attributed, perhaps, to the idea that individuals in the Professional group were mainly graduate students and teachers performing as interns or using their expertise in part-time employment. Individuals such as these may not have produced higher mean scores for integrative complexity for two reasons.

First, their interest or involvement in the agency (a secondary environmental property) could be lower if they perceived the eventual termination of the entire agency program. Since their employment with the agency was not their sole means of financial support (as could be

⁶Mean ($\bar{x}$) averages in years of formal education:
Management = 15.2
Semi-Skilled = 11.4
the case for the Management, Skilled, and Semi-Skilled groups) their commitment to the agency may not have been as strong. Thus, the environment may not have "pressured" their information search or increased their noxity to the extent that the other groups would be affected.

Second, if as projected, the Head Start program would remain, these individuals would be more secure in their employment. This could have a tendency to reduce incentive to increase levels of integrative complexity as is the case under superoptimal environmental conditions. In other words, the Professional groups could be operating under "limbo" conditions--the status of the agency would neither help or hinder their employment to the extent that it would for the remaining three groups.

HYPOTHESIS #2

The second hypothesis attempted to determine whether or not the four vertical levels would differ in the scores of the three sentence stems comprising the overall score of integrative complexity: "There is a difference in the scores of each of the three stems composing integrative complexity, for each of the four groups of individuals occupying different vertical levels of Agency X." As pointed out in the previous chapter, this hypothesis was not supported.

While no significant results were produced in regards to this second hypothesis, a statistical level of $p \leq .10$ was achieved in the analysis of variance for Management's responses to the three stems comprising integrative complexity. This difference, upon cursory examination of the three mean scores, appears to be between "Rules..." (imposition of external forces or standards, $\bar{X} = 3.81$) and "Doubt..."
(presence of uncertainty or absence of structure, $\bar{x} = 2.81$).

This difference in stem responses for Management may be explained in that, although externally imposed restrictions were being exerted upon the agency over which they had little direct control, internal structure was still perceived as an important and necessary role in the effective decision-making processes of the agency. Thus, this stem produced the highest mean score. However, the lower mean score for "Doubt..." may have reflected, again, the potentially overwhelming external and internal factors which reduced a reduction of potential alternatives and the production of an increase in uncertainty over the agency's future.

In general, then, it appears that the agency's environment was such that it may not have been possible to achieve any type of normal score distribution. The significant differences which were produced, however, seem to indicate that at least Management was somewhat better able to cognitively function than the remaining lower levels. Although Management produced a higher score for the index of integrative complexity, it differed in its reaction to external controls and uncertainty and ambiguity. While they seemed willing to accept and work with the dictates of the federal government, the situation in which they perceived themselves still left them in doubt about their future employment and the existence of the agency.

As Bekhard77 points out, successful organizations have the ability to make decisions near the sources of information, communicate internally with little distortion or ambiguity, and treat conflict as content issues for joint problem-solving having already taken care of interpersonal
difficulties. It would seem that Agency X, due to the environmental changes externally imposed, had much difficulty achieving any of the above components for success. Perhaps the primary and secondary properties affecting individual's levels of integrative complexity were such that pressures would need to be reduced before significant, productive action could be taken to reestablish their goals and, once again move them in a productive direction.

In concluding this chapter, it must be pointed out that, although the inter-rater reliability achieved statistical significance, it did not reach the desired range of .80 - .95 as suggested in the PCT scoring manual. This failure to produce desirable rater reliability could be attributed to the fact that the raters, due to time pressures, were unable to achieve satisfactory preliminary correlations before rating the raw data.

Thus, if it were possible to increase the reliability coefficient, the hypothesis partially supported within this study would be strengthened and the trends previously discussed perhaps would become significant. This is only conjecture, however, and may be a result of the difficulty in attaining internal reliability using the PCT. This instrument will be discussed in greater length in the last chapter.
CHAPTER VII

CONCLUSION & IMPLICATIONS

The purpose of this study was to investigate a possible relationship between the level of integrative complexity at which an individual operates and his position in the vertical, managerial hierarchy of the organization by whom he is employed. Literature in organizational theory and human decision-making processes point to the idea that effective managers should be flexible in ambiguous environments, utilize interpersonal sensitivity, and avoid becoming bound in their information utilization in relation to decisions they must make. Parallel to this literature, theories of human information processing posit that individuals differ in their ability to cognitively function within information/decision-making environments.

A federally funded self-help agency was tested for levels of integrative complexity utilizing the Paragraph Completion Test. Two hypotheses were examined: (1) that there would be a difference in the scores of integrative complexity among the four vertical groups composing Agency X, and (2) that these groups would also differ in their responses to the three cognitive areas comprising the overall score of integrative complexity. These three areas dealt with environmental ambiguity and lack of structure, interpersonal sensitivity, and reaction to external forces or standards.

Results indicated that only one hypotheses could be partially supported. In regard to the first hypothesis, the uppermost vertical
group, Management, produced higher mean scores of integrative complexity than the lower three groups labeled Professional, Skilled, and Semi-Skilled. The only significant difference \( p < .01 \) occurred between the Management and Semi-Skilled groups. The second hypothesis was not supported.

An analysis of the above results was then outlined, based upon research presented and supported in Schroder et al.,\(^7^9\) which identifies certain primary and secondary environmental properties as having an effect upon integrative complexity. Such factors as information density, ambiguity, and lack of structure, in this case, appear to have affected the overall score spread of integrative complexity among the four vertical groups. Internal factors, such as the low scores on the "Doubt..." stem for the four groups, may also indicate that there was an overall inability to deal with this ambiguous state of affairs within Agency X, and that uncertainty over the agency's future was running high.

Theories of information processing are based upon the assumption that individuals who can differentiate stimuli within their environment have more opportunity to integrate it into new information than those who can not. The greater the differentiation, the greater the potential for integration and the more complex the integration of dimensions or the higher the level of integrative complexity. Individuals who score high on integrative complexity appear to exhibit behavior which indicates an ability to function in an ambiguous environment, are more sensitive interpersonally (relates to Bierl's\(^8^0\) concept of differentiation in perceiving and predicting other's behavior); and are able to deal with greater amounts and varieties of conflicting/supporting information.
In the present study it may be assumed that because of the environmental processes which affected individuals, individual cognitive dissonance may be at a higher than normal level. It is possible, that Management could withstand the pressure and deal somewhat more effectively than the other groups given their higher scores for integrative complexity. Crano and Schroder \(^\text{81}\) noted that concrete individuals seem to reduce dissonance through simple mediating processes—thus Semi-Skilled low scores.

Theories of managerial decision-making point to the belief that those who are given the responsibility for coordination of an organization should be able to function effectively and efficiently in ambiguous situations—making decisions, but remaining open to change if new, and/or conflicting information is made available. The present study appears to confirm this belief. However, this study also seems to indicate that perhaps management personnel may react differently to pressures within the environment, given the statistical "trend" for this group's responses to the stems of "Doubt." and "Rules."

However, the validity and reliability of the above investigation is questionable, in that it suffers from a number of methodological shortcomings. These are as follows:

1. As mentioned in the previous chapter, the inter-rater reliability correlations do not meet the suggested levels of .80 - .95, although statistically, they were significant. This fact would tend to alter the data in such a way that perhaps, if higher correlations were achieved, the hypotheses presented would have been supported.
While the concepts involved in human information processing and its relationships to decision-making processes remain important, the methodology of the PCT and its scoring procedures appear to suffer from ambiguity. Although the raters utilized in this study had undergone intensive training over a period of weeks, it was still quite difficult to reach the desired correlations. This problem may be reduced if the PCT, or a different instrument, could be revised/created which would reduce the subjectivity involved in scoring the responses. At this point it appears that the margin for congruency is still too large. In addition, the scoring process itself, takes a great deal of time which could possibly affect the raters' concentration and consistency in judgment.

2. Agency X is atypical as a "normal" organization. Typical functioning or environmental processes do not usually include a potential budget cut of over 75% in one year and one-third loss in programs. The very survival of this organization was in question at the time of data gathering and it had not undergone similar circumstances in its previous history of seven years.

Although differences were discovered and attempts made to analyze the results in accordance with prevailing theory, if this study is replicated, it would be preferable to select an organization with less external and internal turmoil in order to produce a more desirable score spread.

3. The number of individuals from Agency X utilized in this study was not large. Given that only one organization was sampled and only
61% of the organization tested, it is not possible to assume too much in generalizing these findings to other organizations, or even other self-help agencies. Due to time and financial limitation under which this project was performed it was not possible to increase the percentage of participation by agency employees. A percentage of 85-90% would have been more advantageous in interpreting the results.

4. Again, due to time limitations, it was not possible to incorporate more specific measures to identify primary and secondary environmental properties affecting this sample. Using more precise instruments, other than informal conversation and observation would have increased the specificity in analyzing the results. As the present study exists, the analysis is plausible at best.

Given the above shortcomings of this study, it is still possible to assume that there will be a difference in scores of integrative complexity among individuals occupying various levels of a managerial structure. In order to provide more generalizable results, a longitudinal study could be undertaken to reduce the above mentioned faults. Such a study could incorporate the following factors:

(a) Attempt to procure information processing data from a cross sampling of organizations rather than relying on data from only one organization. Such a sampling could be taken from organizations who have a similar purpose and/or goals (e.g. furniture chain, military bases, or even self-help agencies). By increasing the number of
organizations, the sampling population would be increased and individual organizational idiosyncrasies would be more evenly distributed.

(b) Prior to testing for integrative complexity, attempt to more specifically identify levels of informational characteristics (load, density, change), environmental ambiguity, and both intra and interpersonal conflict. These factors may be tapped through a combination of directed observation, questionnaires, and interviews.

(c) Following testing for integrative complexity, combine individuals who score similarly in order to replicate facets of studies involving decision-making behaviors to compare field study results with experimental research environments.

Despite the limitations in generalizing the results of this study, it does bear some implications upon the constructs of managerial decision-making processes.

First of all, and despite the unsatisfactory inter-rater reliability, significant results were achieved on scores of integrative complexity between the uppermost and lowest managerial levels of the agency. This would seem to suggest that individuals given the responsibility for organizational decision-making perform different cognitive behaviors than do those who do not have this responsibility. In other words, there appears to be some support for the construct that if managers are to be successful, they must exhibit different and more productive cognitive skills than those whom they manage.

If these skills (such as effective interpersonal transactions, the generation of internal guidelines rather than external controls, and increased productivity in conflicting or ambiguous environments) can
be identified, then managers would be able to identify their strong and weak areas and move towards improvement. Thus, the constructs of integrative complexity appear to have practical applicability in much of the work being performed under the heading of Organizational Development.

Secondly, and as previously discussed, the methodology involved in information processing research needs critical examination. The problems of reliability, time and effort in scoring, and the inability to tap other cognitive/behavioral characteristics involved in decision-making need to be objectified to a greater degree. This should be done through the generation of different instruments which direct themselves to the same areas; or by a major reworking of the PCT. Perhaps these difficulties have been partly responsible for the decrease in published information processing research since the mid 1960's. If this is achieved, then the concepts subsumed within information processing may have a more beneficial use to theorists and practitioners of organizational behavior.
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APPENDIX A

ORGANIZATIONAL CHART

OF AGENCY X

SPRING 1973
APPENDIX B

SAMPLE OF PARAGRAPH COMPLETION TEST
The following exercise is short; in fact, only about ten minutes long. On the top of the next three pages is a statement which is unfinished. You will have two minutes to complete the unfinished statement with as many complete sentences as you can write within the time limit. Do so quickly.

Please consider each of the three statements as the beginning of a sentence you yourself are about to finish.

I will tell you when to start and stop, and when to turn the page. When I say STOP, please complete your sentence in two or three words. Do not go on to the next page until I say so.

NOW WAIT UNTIL I TELL YOU TO TURN THE PAGE!

STOP. DO NOT TURN PAGE.

When I am in doubt . . .

STOP. DO NOT TURN PAGE.

Rules . . .

STOP. DO NOT TURN PAGE.
When I am criticized . . .

STOP.

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(Page 5)

1. Age: _______
2. Sex: _______
3. How many years of formal education have you completed? _______
4. Do you belong to a minority group? Yes_____ No_____
   If "yes," to what group? _______________________________________
5. How long have you been associated with the Community Action Agency? _______________________________________
6. What is your official title within the C.A.A.? ____________________________
POSITION GUIDE

COMMUNITY ACTION WORKER

Specialty: Executive Director
September 1, 1972

Name ___________________________ Date Employed __________________
at Present Job ____________________

Reports to (Supervisor) ____________________________

Days & Hours of Work ____________________________

PURPOSE

The purpose of this position is to provide overall direction and leadership for the Community Action Agency. He coordinates all aspects of the agency's activities and programs and is responsible to the Board of Directors for the proper administration of these activities and programs. He is expected to have knowledge of all MMHR activities and programs. He has overall responsibility for the Planning Program, development and implementation, Personnel Management, Fiscal Management, coordination with other agencies, mobilization of resources, community relations, evaluation of programs and activities, career development and training of staff and volunteers, and reporting to board members and the community on expenditures of funds and major problems in the accomplishment of goals. The Executive Director also plays a major role in making recommendations of all programs and activities of the agency and is on call 24 hours a day.

MAJOR RESPONSIBILITIES AND TASKS

1. Fiscal Management--He is responsible for organizing a system for proper management of fiscal expenditures of the agency's funds. He is responsible for seeing that this system is maintained and changes made when necessary.

2. Planning--Is responsible for the establishment and maintaining of a planning process in the agency which will insure the determination of agency goals, priorities and strategies for achieving these goals.

3. Is responsible for program development and implementation of programs designed to meeting the needs of people to be served by these programs.
4. Is responsible for organizing and monitoring a system of personnel management for the agency which will insure the recruitment, screening, selection, and evaluation of the best qualified persons for each position and which will insure that low-income persons will have the greatest opportunity for competition for positions and career development both within the agency and outside the agency.

5. Is responsible for establishing and seeing that a public information system is maintained which will interpret the agency's programs and activities to the low-income and general community, as well as board and advisory committee members.

6. Is responsible for organizing a system for assuring the coordination of the agency's activities with other public and private programs and organizations in the community, state, regional and national levels.

7. Organizes and sees that a system for evaluation of the agency's projects and programs is maintained.

8. Is responsible for organizing and maintaining a system whereby staff, volunteers, board members, advisory board members and interested citizens can have their needs identified to become more effective and to receive training in which these needs can be met.

9. Is responsible for mobilization of resources in the community designed to meet the needs of the low-income community.

10. Reports periodically to the board of directors, funding services, and the community on progress in achieving agency goals.

11. Directly supervises persons in charge of certain aspects of the agency's programs. These include persons in charge of Fiscal and Office Management, Planning, Head Start, 4C's and Neighborhood Service Systems.

**ACTION FUNCTIONS**

1. Writes documentation on issues of poverty, quality of service, etc. as they come to his attention.

2. Assist in helping to resolve individual crisis situations as they arise and come to your attention. These should relate directly to his primary duties.

3. Encourage low-income persons to participate in action groups which are dealing with neighborhood or community issues and problems which may be of particular concern with that low-income person.
4. Participate in and support the efforts of low-income groups in their attempts to deal with neighborhood and community, state, regional and national issues of poverty.

5. Act as an advocate of low-income persons and groups in dealing with the community.


7. Encourage and assist low-income people to apply for jobs (OEO and other) as vacancies occur.
POSITION GUIDE
COMMUNITY ACTION WORKER

Specialty: Head Start Director/Coordinator
September 1, 1972

Purpose

The purpose of this position is to provide overall direction, supervision and coordination for Missoula-Mineral Human Resources total Head Start/Day Care Program. Direct the administration of Missoula-Mineral Counties Head Start/Day Care Programs to effect a permanent increase in the ability of children, individuals, family units, groups and communities afflicted by low income, to improve their own education, social and economic positions through educational processes. Foster social and economic reform from community through federal levels which would cause broad awareness and acceptance of community problems.

Major Responsibilities and Tasks

1. Develop and maintain systems of controls to insure proper use of human and physical resources and economical spending of budgeted monies.

2. Provide guidance to Head Start Council and Center Committees and assistance in developing and revising Head Start/Day Care Program budgets.

3. Provide guidance and assistance in the effective execution of current, short and long range plans and projects.

4. Explore all human and physical resources at every level to obtain the maximum possible support for the agency.

5. Promote, implement, guide and assist a Public Relations Program which will increase public awareness of community problems, erase public misconceptions and enlist sincere public support of the Head Start programs and goals.
6. Serve as an effective liaison between the agency and all other private and public persons and interests.

7. Serve in an advisory capacity to MMHR Head Start policy groups, committees and councils. Assist them in effective development, organization and implementation of programs and projects which would serve to increase and improve their position through self-improvement processes.

8. Foster creation of opportunities for low-income persons and groups from CAP agency level through community and state and to national levels of interest.

9. Assure a proper and progressive training program is continuously effective for all Head Start/Day Care personnel and related persons and groups.

RESPONSIBILITIES RELATED TO ALBERTON, ST. REGIS-SUPERIOR AND DAY CARE PROGRAMS

1. Provide direct supervision and assistance for these programs.

2. Approve or counterapprove expenditures for these programs.

3. Approve or counterapprove personnel actions for these programs.

4. Assist in recruiting personnel for Head Start/Day Care Programs as requested.

5. Review monthly financial reports for these programs.

6. Prepare or have prepared monthly reports on activities and programs for Alberton, St. Regis-Superior and Day Care Programs.

RESPONSIBILITIES RELATED TO THE TOTAL HEAD START/DAY CARE PROGRAM

1. Directly supervise Head Start/Day Care Program Supervisors in the development and implementation of programs which will provide the most effective, comprehensive and responsive services possible.

2. Monitor all programs to assure progressiveness, continuity and flexibility of basic Head Start/Day Care philosophy and goals.

3. Where needed, develop and coordinate supportive services between the various Head Start/Day Care components and community resources.

4. Assist the agency's training officer in the identification of training needs of staff, volunteers and policy committee/council members and in the development and coordination of programs and activities to meet these needs.
5. Develop uniform agency-wide role definitions for Head Start staff, i.e., psychologist, teacher, speech therapist, etc.

6. Prepare or assist in preparing the goals, objectives, work program and budgets for the total Head Start/Day Care Program.

7. Work with the agency's training officer to develop a uniform training system for Head Start/Day Care volunteers.

8. Work with the agency's career development officer to develop and implement a career development plan for Head Start/Day Care employees as part of the agency's total plan.

9. Set up and implement a system for providing basic resource material for the Head Start/Day Care components.

10. Provide overall supervision for the educational program components of Head Start/Day Care.

11. Set up and supervise a uniform system for agency-wide daily and weekly lesson plans for Head Start/Day Care classes.

12. Set up and supervise an agency-wide system for reporting the child's progress through parent-teacher conferences.


14. Supervise implementation of all requirements of the Head Start Manual for all Head Start/Day Care Programs.

15. Act as an advocate for Head Start/Day Care in the Missoula-Mineral County community.

16. Provide reports when requested to Head Start Policy Council, Executive Director and MMHR Board on the progress and problems of the total Head Start/Day Care Program.

17. Report directly to the Executive Director of MMHR.

18. Supervise all staff and contract personnel hired through Head Start Council budget unless they are specifically assigned to another MMHR program or supervisor.

RESPONSIBILITIES RELATED TO THE HEAD START POLICY COUNCIL

1. Has primary responsibility for working with Head Start Council and attending all their meetings unless requested by the Council not to attend.
2. Work with the Council in developing policies which will affect the total Head Start/Day Care Program.

3. Carry out instructions and policies as directed by the Council.

ACTION FUNCTIONS

1. Write documentation on issues of poverty, quality of service, etc., as they come to your attention.

2. Assist in helping to resolve individual crisis situations as they arise and come to your attention. This should relate directly to your primary duties.

3. Encourage low income persons to participate in action groups which are dealing with neighborhood or community issues and problems which may be of particular concern with that low income person.

4. Participate in and support the efforts of low income groups in their attempts to deal with neighborhood and community issues of poverty.

5. Act as an advocate of low income persons and groups in dealing with the community.

6. Help identify low income people—especially "powerless" people.

7. Encourage and assist low income people to apply for jobs (OEO and other) as vacancies occur.

QUALIFICATIONS

Performance rather than a degree is the more accurate indicator of competence. The director must have a wide variety of professional competency in the areas of administration, personnel management, education, medical/dental services, economics, federal, state and local programs, budgets, program planning, organization, and public relations.

The director's personality should reflect sincerity and he should be a low key manager who is not only personable and responsive, but he must be truly compassionate.
POSITION GUIDE
COMMUNITY ACTION WORKER

Specialty: Head Start Teacher
September 1, 1972

Name ___________________________ Date Employed _______________________

at Present Job ____________________

Reports to (Supervisor) Head Start Director ______________________________

Days and Hours of Work _____________________________________________

PURPOSE

The purpose of this job is to provide the best possible learning situation for Head Start and Day Care children in the Missoula area and specifically one's classroom group of preschool low-income neighborhood children. The purpose includes the training and counseling of the teacher aide in the classroom to assure progress in her career development. Another major purpose of this job is to work with low-income parents to help them gain coping strengths, involving them in community and neighborhood activities which affect their lives, and help them to better understand and care for their children.

MAJOR RESPONSIBILITIES AND TASKS

Classroom -

1. Setting up a center which is conducive to learning and planning and directing the daily program.

2. Work with the project director and the Director of Education to develop an effective curriculum for child development.

3. Train and supervise a project aide in developing techniques for working with children and parents.

4. Encourage and supervise a project aide in a career development program.

5. Make periodic home visits to the parents of the children in the center to talk over problems and ways of working with their child.

6. Encourage parents to become involved in their classroom programs, community action programs, and neighborhood groups. Help parents
become more involved with their children and their children's
education through active participation in classrooms, advisory
boards and other low-income groups.

7. Attend staff meetings and in-service training sessions as directed
by the director.

8. Arrange and participate in periodic staffings about children in
the center.

9. Work with special service personnel in the program and in the community,
i.e., speech therapist, nurse, psychologist, nutritionist, Mental
Health Clinic, to make a more effective overall program.

10. Order supplies and special equipment as needed for the center.

11. Keep anecdotal records on each child, including parent contacts.

12. Supervise volunteer workers and NYCs in the center.

13. Keep accurate inventory of materials and equipment in the classroom.

14. Any other services related to the fulfillment of the child development
concept inherent in this.

ACTION FUNCTIONS

1. Write documentation on issues of poverty, quality of service, etc.,
as they come to your attention.

2. Assist in helping to resolve individual crisis situations as they
arise and come to your attention. This should relate directly to
your primary duties.

3. Encourage low-income persons to participate in action groups which
are dealing with neighborhood or community issues and problems
which may be of particular concern with that low-income person.

4. Participate in and support the efforts of low-income groups in
their attempts to deal with neighborhood and community issues of
poverty.

5. Act as an advocate of low-income persons and groups in dealing with
the community.


7. Encourage and assist low-income people to apply for jobs (OEO and
others) as vacancies occur.
8. Help train a low-income person in basic supervisory and administrative skills or other special skills which you possess, if you are in a position to do so. In this way, low-income people will become prepared to take on the responsibilities of administrative, supervisory, teaching and other jobs as vacancies occur or new positions are created.

DOCUMENTATION AND RECORD KEEPING

1. Keep individual and group contact records.
2. Keep classroom attendance records and volunteer time.

EXPERIENCE

Classroom teaching experience is necessary. Experience in child development centers, kindergartens, nursery schools, or primary public schools is desirable. Knowledge of and residence in the community is also desirable. Understanding of the problems of poverty is important.

SKILLS

Applicant should possess or be capable of developing the following skills:

1. Ability to work with young children.
2. Ability to work with low-income families and groups.
3. Ability to work with professional and paraprofessional personnel.
4. Ability to organize work, make schedules, arrange meetings and set up center activities.
5. Ability to keep records and reports.
6. Teaching skills appropriate to the Head Start age child.
7. Ability to work with members of the community at large.
8. Ability to train and supervise an aide in her career development.
9. Ability to cope in a positive way with problems arising in the job.

EDUCATION: STEP I TEACHER

A high school diploma or GED is required. Some training and/or experience in child development is preferable.

SALARY - $443/month. Preference given to qualified low-income applicants.
POSITION GUIDE
COMMUNITY ACTION WORKER

Specialty: Head Start Teacher's Assistant
September 1, 1972

Name ___________________________ Date Employed ____________

Date at Present Job ______________

Reports to (Supervisor) Head Start Teacher(s) Days & Hours of Work ______

PURPOSE

The assistant works with children, parent volunteers and the teacher in the classroom, assisting the teacher in providing the best possible learning situation for low-income children. The assistant learns classroom and teaching techniques from the teacher as a method for her own career development. Also the assistant works with low-income parent groups and individuals, makes home visits to parents and supports neighborhood groups.

MAJOR RESPONSIBILITIES AND TASKS

Classroom assistants will of necessity perform many of the same duties they performed as aides. The major difference between aide and assistant will be in degree of proficiency.

1. Planning and working with the teacher in the classroom to produce a positive learning situation for the children. Plan and carry out supplementary activities of the classroom—music, stories, field trips and walks, art activities and circle time, etc.

2. Develop one's own teaching skills toward growth as an assistant and advancements as stated in the Career Development Plan. (Two weeks of student teaching are necessary in preparation to make the advancement to senior teacher assistant).

3. Assist other Community Action Agency staff in working with low-income people in the CAA, neighborhood groups and the community at large.

4. Help in preparing and serving the lunch and snacks—seeing that the proper foods are included. Also, encouraging children to pour juice and set the tables. In line with this, you will keep track of the supplies and order supplies from the nutritionist.
5. Make frequent home visits with Head Start parents, assist them in any way possible, and encourage them to become involved in parent and neighborhood groups.

6. Work with the teacher on anecdotal records, maintain other records, and make reports on individual children.

7. Attend staff meetings and in-service training sessions as directed by the project director.

8. Make and collect materials for the classroom—puppets, dramatic play kits, puzzles, manipulative materials, etc.

9. Work with all special service personnel and community resources, i.e., speech therapist, nurse, mental hygiene clinic, psychologist, nutritionist, to make a more effective program.

10. Work with teacher to develop curriculum and classroom activities throughout the year. Assist teacher in making weekly and daily lesson plans.

11. Visit other classrooms, kindergartens, periodically.


13. Plan and carry out supplementary activities with individual children or with small groups of children.

14. Help coordinate Head Start activities for parents with neighborhood groups and activities under supervision of Head Start teacher and parent involvement staff.

15. Keep records and pertinent information in the classroom in keeping with the competence and advancement of the assistant.

**ACTION FUNCTIONS**

1. Write documentation on issues of poverty, quality of service, etc., as they come to your attention.

2. Assist in helping to resolve individual crisis situations as they arise and come to your attention. This should relate directly to your primary duties.

3. Encourage low-income persons to participate in action groups which are dealing with neighborhood or community issues and problems which may be of particular concern with that low-income person.

4. Act as an advocate of low-income persons and groups in dealing with the community.
5. Help identify low-income people—especially "powerless" people.

6. Encourage and assist low-income people to apply for jobs (OEO and other) as vacancies occur.

7. Keep individual and group contact records for MIS report.

EXPERIENCE

The teacher's assistant is promoted through career development from the teacher's aide level.

SKILLS

1. Ability to learn and develop skills on the job.

2. Ability to work with the teacher in a training situation.

3. Ability and interest in making a career for one's self in child care or teaching.

SALARY

The salary for a teacher's assistant should start at $2.25 per hour. There is compensation for time and training according to the career development step ladder plan. (This is a part time job, at 5/8 time.)

This job is open only to low-income applicants on a career development basis.
POSITION GUIDE
COMMUNITY ACTION WORKER

Specialty: Head Start Teacher Aide
September 1, 1972

Date Employed ____________________________

Name ____________________________

Reports to (Supervisor) ____________________________

Days and Hours of Work ____________________________

PURPOSE

The teacher aide works with children, parent volunteers and the teacher in the classroom, assisting the teacher in providing the best possible learning situation for low-income children. The aide learns classroom and teacher techniques from the teacher as a method for her own career development. Also, the aide works with low-income parent groups and individuals, makes home visits to parents and supports neighborhood groups.

MAJOR RESPONSIBILITIES AND TASKS

1. Planning and working with the teacher in the classroom to produce a positive learning situation for the children. Plan and carry out supplementary activities of the classroom—music, stories, field trips and walks, art activities, circle time, etc.

2. Develop one's own teaching skills toward growth as an aide and advancement as stated in the Career Development Plan.

3. Assist other Community Action Agency staff in working with low-income people in the CAA, neighborhood groups and the community at large.

4. Help in preparing the lunch and snacks—seeing that the proper foods are included. Also, encourage the children to help pour juice and set the tables. In line with this, you will keep track of the supplies and order supplies through the nutritionist.

5. Make frequent home visits with Head Start parents, assist them in any way possible, and encourage them to become involved in parent and neighborhood groups.
6. Work with the teacher on anecdotal records, maintain other records, and make reports on individual children.

7. Attend staff meetings and in-service training sessions as directed by the project director.

8. Make and collect materials for the classroom—puppets, dramatic play kits, puzzles, manipulative materials, etc.

9. Work with all special service personnel and community resources, i.e., speech therapist, nurse, Mental Hygiene Clinic, psychologist, nutritionist, to make a more effective program.

10. Work with teacher to develop curriculum and classroom activities throughout the year.

11. Visit other classrooms, kindergartens periodically.

12. Plan and carry out supplementary activities with individual children or with small groups of children.

13. Help coordinate Head Start activities for parents with neighborhood groups and activities under supervision of Head Start teacher and volunteer coordinator.

14. Keeping records and pertinent information in the classroom in keeping with the competence and advancement of the aide.

**ACTION FUNCTIONS**

1. Write documentation on issues of poverty, quality of service, etc., as they come to your attention.

2. Assist in helping to resolve individual crisis situations as they arise and come to your attention. This should relate directly to your primary duties.

3. Encourage low-income persons to participate in action groups which are dealing with neighborhood and/or community issues which may be of particular concern with that low-income person.

4. Participate in and support the efforts of low-income groups in their attempts to deal with neighborhood and community issues of poverty.

5. Act as an advocate of low-income persons and groups in dealing with the community.

7. Encourage and assist low-income people to apply for jobs (OEO and other) as vacancies occur.

8. Keep individual and group contact records for MIS reporting.

EXPERIENCE

No experience is required.

SKILLS

1. Ability to learn and develop skills on the job.

2. Ability to work with the teacher in a training situation.

3. Ability to relate well to children, teachers and parents.

4. Ability and interest in making a career for one's self in child care or teaching.

EDUCATION

A high school diploma or GED are not required for the aide position, but the aide is encouraged to work towards this or other training through supplementary training in order to progress to the level of teacher's assistant, senior teacher's assistant and finally, teacher.

SALARY

The salary is $2.00 per hour. There is compensation for time and training according to the Career Development step-ladder plan. This is a part-time job (5/8 time).

This job is open only to low-income applicants.
POSİTİON  GUIDE
COMMUNITY ACTION WORKER

Specialty: Food Deliverer
September 1, 1972

PURPOSE
To deliver mail, food and other necessary supplies to the classroom.

MAJOR RESPONSIBILITIES AND TASKS
1. Pick up and deliver necessary mail and papers to the teaching staff.
2. Pick up and deliver all foods served in the classrooms.
3. Aid the Nutrition staff in carrying cases of food or supplies.
4. Aid in the distribution of food-related supplies to the classroom.
5. Aid and work with Nutrition staff in performing any necessary tasks that will result in a more efficient operation.
6. Informing the Nutrition Director or Nutrition Educator or Head Start staff if a situation arises in which the delivery cannot be made at the earliest possible time.

ACTION FUNCTIONS
1. Write documentation on issues of poverty, quality of service, etc., as they come to your attention.
2. Assist in helping to resolve individual crisis situations as they arise and come to your attention. This should relate directly to your primary duties.
3. Encourage low-income persons to participate in action groups which are dealing with neighborhood or community issues and problems which may be of particular concern with that low-income person.
4. Participation and support of efforts of low-income groups in their attempts to deal with neighborhood and community issues of poverty.

5. Act as an advocate of low-income persons and groups in dealing with the community.


7. Encourage and assist low-income people to apply for jobs (OEO and other) as vacancies occur.

8. Help train a low-income person in basic supervisory and administrative skills or other special skills which you possess, if you are in a position to do so. In this way, low-income people will become prepared to take on the responsibilities of administrative, supervisory, teaching and other jobs as vacancies occur or new positions are created.
APPENDIX D

SAMPLE SCORING GUIDE TO
DETERMINE LEVEL OF INTEGRATIVE COMPLEXITY
Sample Scoring Guide To
Determine Integrative Complexity

Check One

(1) Reveals a view that differences, uncertainty, ambiguity and/or conflict are unpleasant and/or a flaw or weakness in people and/or functions.

(3) Reveals or otherwise indicates the existence of similarities and differences between conflicting, uncertain, and/or ambiguous views without considering relationships.

(5) Reveals the integration of two different, uncertain, ambiguous and/or conflicting interpretations so as to preserve and not "ward off" the conflict.

(7) Reveals different, uncertain, ambiguous and/or otherwise conflicting alternatives as leading to new conceptual organization and information.

(1) Seeks rapid and/or unambiguous closure and/or resolution, in such a way as to engage internally consistence processes that reduce incongruity and/or dissonance.

(3) Recognizes the existence of at least two different interpretations of an event without considering relationships.

(5) Reveals the generation of various meanings of conflicting and/or alternate perceptions, such as assigning various meanings to conflicting views of a person or stimuli.

(7) Reveals the use of different, uncertain, ambiguous, and/or conflicting alternatives as means to obtain new information.

(1) Offers a specific guide or rule for reducing and/or eliminating differences, uncertainties, ambiguity and/or conflict.

(3) Reveals the existence of "either-or" type responses expressing a possible conditional rule about two ways of categorizing differences, uncertainty, ambiguity and/or conflict.
(5) Implies and/or provides evidence that implies the ability to take another person's intentions (or perspectives) into account and to relate uncertain, ambiguous and/or conflicting different perceptions of different people.

(7) Reveals the generation of functional relationships between similar, different, uncertain, ambiguous and/or conflicting alternatives.

(1) Implies and/or otherwise indicates that an absolute solution can be found.

(3) Implies, states and/or otherwise indicates that there is a probability of different views or outcomes existing.

(5) Reveals or otherwise implies that one's behavior is effected by the way another behaves obtaining closure as in a give-and-take strategy game.

(7) Reveals consideration of relationships among similarities and differences of a problem or question and development of relationships between alternate reasons as to why these differences and similarities exist.

(1) Reveals, states, and/or otherwise indicates that effects are compartmentalized, and/or are all seen one way or another.

(3) Reveals reactions against absolutism in general and indicating the possession and/or existence of more than one view without the rejection of a particular view which would indicate low-level fixed rule strategy.

(5) Reveals a view of social relationships as anchored in mutual responsibility (as opposed to fixed beliefs or rules) in which a person can "place himself in the other person's shoes" (relate alternate schemes).

(7) Reveals the consideration of inter-personal relationships (similarities and differences) as the basis for new alternatives and reasons arising from differences, uncertainty, ambiguity and/or conflict.
(1) Reveals one-sided presentation of a problem while ignoring differences and similarities with other views.

(3) Reveals the avoidance of dependency or extensional imposition; the availability of alternatives (vs. opposition).

(5) Reveals the consideration of alternate reasons for similarities and differences between different, uncertain, ambiguous and/or conflicting views.

(7) Reveals the production of more "connectedness" between different, uncertain, ambiguous, and/or conflicting alternatives by generating new information about why these conditions and/or reasons exist.
APPENDIX E

DESCRIPTION OF ROLE
CONSTRUCT REPERTORY TEST
Description of Role Construct
Repertory Test 82

This test consists of a matrix or grid across the top of which a subject (S) lists a certain number of persons in his/her social environment. The S is asked successively to consider three of these persons at a time and to decide in what important personal way two of them are alike and different from the third. From this, a series of constructs or modes of perceiving others is formed which is assumed to be relatively characteristic of him as an individual. Each time a construct is formed, check marks are placed in the grid under the names of the persons perceived as similar in some way and the name of the construct is entered next to the grid.

After all these sorts have been completed and a certain number of constructs established, the individual is asked to go through each construct row again and check all the other persons in that row, in addition to the two already checked, whom he considers that particular construct applies to most. No limits are placed upon how many others in each construct row the S may check.

This procedure yields a matrix of check patterns which represents how S perceives and differentiates a group of persons relative to his personal constructs. By considering how similar each construct row is to every other construct row in the matrix, in terms of similarity of check pattern, one can objectively ascertain the degree of differentiation the constructs have for the persons in the matrix. That is, if two construct rows have identical check patterns, then these two
constructs are presumed to be functionally equivalent, regardless of
the verbal labels given the constructs by S.

Should many of the construct rows have identical or highly similar
check patterns, then the person would be said to have low cognitive
complexity (i.e., cognitive simplicity) in his perceptions of others.
At the opposite extreme, if an individual's construct rows have check
patterns which are all quite dissimilar to one another, the he is
considered as having high cognitive complexity in his perceptions of
others.