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# THE RELATIONSHIP IN DOGMATISM BETWEEN FIRST AND SECOND LEVEL CONGRUENT MANAGERS IN BUREAUCRATIC AND NONBUREAUCRATIC ORGANIZATIONS

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THE RELATIONSHIP IN DOGMATISM BETWEEN FIRST AND SECOND LEVEL CONGRUENT MANAGERS IN BUREAUCRATIC AND NONBUREAUCRATIC ORGANIZATIONS

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# CHAPTER I

## INTRODUCTION

Lyman Porter stated that two rather broad streams of research seem to be running parallel through Industrial Psychology, and that it is "time for a marriage between them." The areas referred to were "individual differences" and "organizational psychology."[1] Porter went on to state that personnel psychologists have typically ignored variables of concern to organizational theorists and suggested that the field could profit from a dually-oriented approach.[2]

Pugh similarly noted the chasm between organizational and individual research, and argued for studies involving conceptually distinct levels of analysis and employing common construct systems.[3]

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[1]Lyman W. Porter, "Personnel Management," in P. R. Farnsworth, et al., (eds.) Annual Review of Psychology, Vol. XVII, (Palo Alto, California: Annual Reviews, Inc., 1966).

[2]Ibid.

[3]D. S. Pugh, "Modern Organization Theory," Psychological Bulletin, Vol. LXVI, (1966), pp. 235-251.

Schein,[1] Lichtman and Hunt,[2] Argyris,[3] and Gibson[4] all conclude that a theory of organization can be no better than the assumptions it makes about the human personality, and that personality theory and organization theory should be more closely tied to each other than has been done previously.

In keeping with the current unification efforts, this research project entails blending segments of personality theory and organization theory. The segment of personality theory which is under consideration is Rokeach's Dogmatism Theory. This theory views an individual's belief structure as lying along a continuum from open to closed, depending on the extent to which he tends to rely upon an external authority to tell him what is or is not true in his world of reality. In this model, the more closed the

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[1]E. H. Schein, Organizational Psychology (Englewood Cliffs, New Jersey: Prentice-Hall, 1966).

[2]Cary M. Lichtman, and Raymond G. Hunt, "Personality and Organization Theory: A Review of Some Conceptual Literature," Psychological Bulletin, Vol. LXXVI (1971), pp. 271-294.

[3]Chris Argyris, "Personality and Organization Theory Revisited," Administrative Science Quarterly, Vol. XVIII, (1973), pp. 141-167.

[4]James L. Gibson, "Organization Theory and the Nature of Man," Academy of Management (September, 1966), pp. 233-245.

structure the greater the reliance placed on an external authority. According to Rokeach, the more closed the belief structure, the more the individual is said to be dogmatic.[1]

The segment of organization theory dealt with in this research project involves the classification of organizations. An empirical classification scheme based on structure was developed by D. S. Pugh and his associates. This classification scheme resulted in classifying organizations along two dimensions -- the extent to which authority in the organization is concentrated at the top levels (concentration of authority), and the extent to which the activities of the organization's members are specialized (structure of activities). This study is mainly concerned with organizations classified as low in concentration of authority and structure of activities (nonbureaucratic) and those classified as high on these dimensions (bureaucratic).

The central hypothesis of the study is derived not only from the common notion among management writers that bureaucratic types of organizations tend to contain significantly more authoritarian managers than nonbureaucratic

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[1]M. Rokeach, The Open and Closed Mind (New York: Basic Books, 1960).

organizations,[1] but also from a synthesis of the above personality and organization concepts. A detailed description of this synthesis will be presented in Chapter III.

The first part of this chapter will provide a review of management and organization theory. The approach taken in this review will stress not only the similarities in the various approaches in management and organization theory, but also will specifically bring out the different assumptions made about the individual. A critique of each of these approaches will also be presented.

The first part of the review concerns the classical approach to organization and management theory. This part is divided into two subsections. The traditional classical theorists held a rational economic view of man. Management theory in the classical approach centers around finding the one best way to perform a task. This theory holds that the one best way is achieved by proper structuring of the task and organization. The bureaucratic structuring of the formal organization was considered as the optimal type of organization structure, and the compliance of the individual in this type of organization was taken for granted.

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[1] V. Thompson, Modern Organization (New York: Knopf, 1961).

The second subsection of the classical approach is the modern classical approach which also held that the proper structuring of the organization would result in the best way to perform a task. The assumption held about the individual is that of a self-actualizer who seeks a maximum of autonomy and freedom. In this scheme, the optimum organization is a movement away from the bureaucratic structure to a more free flowing type of organization.

Both of these subsections hold a rather closed view of man in which effects flow from the environment (organization and/or task) to the individual. The basic difference in these approaches can be traced to their assumptions regarding the individual.

The personalistic approach views man as being open with his environment such that his perception of the environment is influenced by his needs, attitudes, and values which in turn influence his perception of the environment. The management and organization theory resulting from this approach centers around the concept that the organization consists of the perceptions of the individual. Thus, to change the organization, one must change the individual's perception of the organization. Management approaches emphasized the power of the group and participative techniques to effect changes in behavior.

The integrating approaches seek to more closely tie the approaches taken regarding the individual to management and organization theory. The social systems approach was the first attempt to do this, but it suffers from the inability to operationalize many of its variables. The contingency approach is currently in vogue, but it is perhaps too early to evaluate this approach.

This part of the introduction stresses that a management and organization theory can be no better than the assumptions it makes regarding the individual. As will be pointed out here, assumptions regarding the individual influence the resulting theories of management and organization.

The last part of the introduction deals with the purpose of the study followed by the scope of the study and its justification.

## Classical Approaches

The classical approaches to the individual are divided into the traditional classical and modern classical. This classification is based on the premise that these two subsets of the classical approach tend to view man as a closed system, with each doing so differently.

## Traditional Classical

The traditional classical assumption of man began with the classical economists' notion of the rational economic man. This notion assumes that man is perfectly rational and self-interested, that he responds primarily to material incentives, and is impervious to other motives.[1]

Although many management and organization theorists up to the 1930's held the rational economic assumption of man, the strawmen used in the description of the traditional classical approach are Fredrick Taylor, Max Weber, and Haynes and Massie.

The main criticisms of the traditional approach stem from the rigid, bureaucratic models resulting from their assumption about man. The brunt of the attack came from the modern classical theorists who advocated a modification of the bureaucratic structures which would better accommodate their self-actualization assumption of man.

### Description

Adam Smith, in The Wealth of Nations, stated that many theories can be reduced to a single statement. He then set forth his single statement regarding the basic mechanism of an economic system with the proposition that

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[1]Joseph A. Schumpeter, History of Economic Analysis, (New York: Oxford University Press, 1954).

"man strives to better his own condition."[1] Whether the term "condition" referred to material and/or psychological factors is not explicitly clear. Adam Smith was most likely referring to material conditions because The Wealth of Nations dealt rather exclusively with the material conditions of man. The classical economists since Adam Smith have held this rational economic notion of man.

Fredrick Taylor, the founder of Scientific Management, searched for the "one best way" to perform a task. He envisioned a mental revolution in which management, through time and motion studies and other scientific methods, would develop this one best way and the worker, in turn, would use the improved method to increase output. The monetary gains from this higher output would be shared by both management and the worker. Taylor's emphasis on such things as the "differential pay plan" for workers, his devotion to the Protestant ethic, and his vivid protrayal of the "first class man" all point to his assumption of the rational economic man.[2]

Max Weber developed his well known concept of bureaucracy around the structural properties of the formal organization. He envisioned the concept of bureaucracy as an ideal

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[1]Adam Smith, An Inquiry into the Nature and Causes of The Wealth of Nations, Edwin Cannon, Editor (New York: Random House, Inc., 1937), p. 508.

[2]F. W. Taylor, Scientific Management (New York: Harper and Row, 1911).

organizational arrangement, in which this bureaucratic ideal would serve as a normative model to ease the transition from small-scale entrepreneurial administration to large-scale professional administration. The essential elements of Weber's ideal bureaucracy were:

1. A division of labor in which authority and responsibility were clearly defined for each member and were legitimized as official duties.

2. The offices or positions would be organized in a hierarchy of authority resulting in a chain of command or the Scalar principle.

3. All organizational members were to be selected on the basis of technical qualifications through formal examinations or by virtue of training or education.

4. Officials were appointed, not elected.

5. Administrative officials worked for fixed salaries and were "career" officials.

6. The administrative official was not an owner of the unit being administered.

7. The administrator would be subject to strict rules, discipline, and controls regarding conduct of his official duties. These rules and control would be impersonal and uniformly applied in all cases.[1]

Weber's concept of the best administrative system is strikingly analogous to that of Taylor. For both men, management or administration meant the exercise of control on the basis of knowledge. Both sought technical competence

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[1]M. Weber, Essays in Sociology, translated by H. H. Gerth and C. Wright Mills (New York: Oxford University Press, 1947).

in leaders who would lead by virtue of fact and ability.[1]

The bureaucratic form of organization was (and is) prominent in business practice. The proponents of its use in this context formulated "principles" which are obviously in the Weberian tradition. Haynes and Massie have codified some of these principles as follows:[2]

1. The unity of command principle. No member of an organization should report to more than one superior.

2. The span of control principle. No superior should have responsibility for the activities of more than five to eight subordinates.

3. The exception principle. A superior should delegate authority for routine matters to subordinates.

4. The scalar principle. Every organization should have a well-defined hierarchial structure.

These principles have a similarity to those characteristics of Weber's ideal type in that each is normative in maintaining order and certainty in the carrying out of organizational activities.

The evidence supplied in the foregoing discussion suggests the assumptions regarding the nature of man in the traditional classical approach. March and Simon observe

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[1]Daniel Wren, The Evolution of Management Thought, (New York: Ronald Press Company, 1972).

[2]W. Warren Haynes and Joseph L. Massie, Management, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961).

that two "views" of organization members are pervasive in this approach. First, in general, there is a tendency to view the employee as an inert instrument performing the tasks assigned to him. Second, there is a tendency to view personnel as a given rather than as a variable in the system.[1] Mason Haire noted, "these are the implicit assumptions about man on which classical organization theory seems to me to be based: he is lazy, short-sighted, selfish, liable to make mistakes, has poor judgment, and may even be a little dishonest."[2]

The basic assumptions regarding man underlying the traditional classical approach were stated by William F. Whyte as follows:[3]

1. Man is a rational animal concerned with maximizing his economic gains.
2. Each individual responds to economic incentives as an isolated individual.
3. Men, like machines, can be treated in standard fashion.

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[1]J. G. March and H. A. Simon, Organizations (New York: Wiley, 1958).

[2]George B. Strather (ed.), Social Socience Approaches to Business Behavior (Homewood, Illinois: The Dorsey Press, Inc., 1962), p. 175.

[3]William F. Whyte, Money and Motivation (New York: Harper and Brothers, 1955), pp. 2-3.

Criticisms

The static nature of the organization as described by Weber inspired numerous attacks on bureaucratic theory. Notable among these criticisms were those suggested by Merton[1] and Gouldner.[2]

Merton analyzed the organizational need for control and the consequent concern for reliability of members' behavior. In order to get the desired results, the organization implements standard rules and procedures. Control is achieved by assuring that the members are following the rules. Merton points out three consequences that result from concern for reliability of behavior: (1) officials react to individuals as representative of positions having certain specified rights and privileges; (2) rules are viewed as ends rather than as means to ends; and (3) decision-making becomes routine application of tried and proven approaches and little attention is given to alternatives not previously experienced. The organization becomes committed to activities that insure the status quo at the expense of greater success in achieving organization objectives.[3]

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[1]R. K. Merton, Social Theory and Social Structure, (revised edition; New York: Free Press, 1957).

[2]A. W. Gouldner, "Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles - I, II," Administrative Science Quarterly, Vol. II (1957-58), pp. 281-306 and 444-480.

[3]Merton, Social Theory and Social Structure, 1957.

Gouldner gives additional support to the thesis that organizational techniques designed to implement control often entail unanticipated results. In his study of industrial organization he found, among other things, that the improvisation of rules to assure control results in the knowledge of minimum acceptable levels of behavior and that members of organizations gear their activities to these minimum levels of behavior if there is a high level of bifurcation of interest. As officials perceive this low performance, they react by increasing the closeness of supervision and by enacting additional rules and procedures. Again, the unintended consequences are increasing tension among members, increasing nonacceptance of organization goals, and increasing use of rules to correct matters.[1]

The unanticipated consequence of general, impersonal rules is the creation of minimum acceptable standards of organizational behavior. The minimum standards of performance tend to become the common pattern for most organization members and thus become the maximum standards as well. The person who deviates in the direction of higher performance is the rate buster, the eager beaver, or the company man. Minimum performance leads to a discrepancy

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[1]Gouldner, Administrative Science Quarterly, 1957-1958.

between organizational goals (held by leaders) and organizational accomplishment. Pressure is put on supervisors to check more closely on subordinates. This increases the visibility of power relations within the group, leads to an increase of interpersonal tension, and disturbs the equilibrium of the system.[1]

Thompson noted that the bureaucratic organizations tend to attract monocratic types to supervisory positions and that these supervisors tend to promote feelings of helplessness and insecurity in subordinates.[2]

Other writers such as Argyris,[3] Bennis,[4] and Haire,[5] have objected to bureaucratic theory because they believe it is based on the assumption that man is lazy and not to be trusted. These critics agree that classical assumptions of man held by the management of many organizations serve to stifle workers in their quest for self-fulfillment.

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[1] Gouldner, Administrative Science Quarterly, 1957-1958.

[2] Thompson, Modern Organization, 1961.

[3] Chris Argyris, Integrating the Individual and the Organization (New York: Wiley, 1964).

[4] W. G. Bennis, "Organizational Development and the Fate of Bureaucracy," in L. L. Cummings and W. E. Scott (eds.) Organizational Behavior and Human Performance, (Homewood, Illinois: Irwin-Dorsey, 1969).

[5] M. Haire, "Philosophy of Organization," in D. M. Bowerman and F. M. Fillerup (eds.) Management: Organization and Planning (New York: McGraw-Hill, 1963).

Although most writers in organization theory view bureaucracy as either an ideal type or an undifferentiated lump, Hall has shown that the major writers of bureaucracy cannot themselves completely agree on a list of definite characteristics.[1] In a review of the literature on bureaucracy, Hall noted that such writers as Weber, Litwak, Merton, Udy, Parsons, and Berger, had a different profile as to what constitutes a bureaucracy.[2] Parsons, for example, uses hierarchy of authority, division of labor, technical competence of participants, and limited authority of office in his description of bureaucracy. Litwak, on the other hand, differs from Parsons by adding procedural devices for work situations and rules governing behavior of members, while deleting limited authority of office.[3] It should be noted that both Parsons and Litwak differ from Weber in their defining characteristics of a bureaucracy.

Furthermore, in an empirical study, Hall demonstrated

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[1]R. Hall, "The Concept of Bureaucracy: An Empirical Assessment," American Journal of Sociology, Vol. LXIX, (1963), pp. 32-40.

[2]R. Hall, "Intraorganizational Structural Variation: Application of the Bureaucratic Model," Administrative Science Quarterly, Vol. VII, (1962), pp. 295-308.

[3]Ibid.

that organizations that are highly bureaucratic along one dimension may not be so on another. The dimensions studied by Hall were hierarchy of authority, division of labor, system of rules, system of procedures, impersonality, and emphasis on technical competence.[1]

## Modern Classical

The modern classical and the traditional classical approach have a general commonality -- the normative approach that the organization must be designed to fit the nature of the people. However, the modern classical theorists, by altering their assumptions concerning man, have suggested that the bureaucratic structure of organizations be changed.

Instead of assuming, as did the traditional classical theorists, that all workers are motivated by rational economic factors, the modern classical approach views man as striving for self-improvement, self-expression, autonomy, recognition and so forth. It is further assumed that these strivings exist in equal amounts in all people, and that their expression depends upon the degree to which the organizational structure is able to accommodate such strivings.[2]

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[1]Hall, Administrative Science Quarterly, 1962.

[2]Lichtman, Psychological Bulletin, 1971.

According to the modern classical theorists, the organization which was compatible with their assumptions of man was one with a structure which was loose enough to provide for individual freedom of movement. The main thrust of their effort, however, was a criticism of the bureaucratic structure. They provided little insight as to a specific type of organization structure which would be compatible to their assumptions about man. Thus, like the traditional classical writers, the modern classical writers held a closed view of man because their assumptions made no provision for mutual exchange between man and his environment. They assumed that the basis of man's motivations was built in drives. Furthermore, both approaches were unidirectional in that effects flow exclusively from the organizational structure to the individual.[1]

The modern classical writers selected to be discussed here are Argyris, McGregor, and Likert. Although this list of writers is not exhaustive, their theories are typical of other writers in this category, e.g., Herzberg,[2]

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[1] Lichtman, Psychological Bulletin, 1971.

[2] F. Herzberg, B. Mausner, and B. Snyderman, The Motivation to Work, (Second Edition; New York: Wiley, 1959).

Blake and Mouton,[1] and Gellerman.[2]

Description

One of the major advocates of the modern classical approach is Argyris. His chief premise is that there is a lack of fit between requirements of bureaucratic organizations and the needs of individual members to achieve "psychological success."[3] As evidence for his premise, Argyris cited a number of studies showing that workers at the lower end of the organizational hierarchy suffer from poorer mental health, lower job satisfaction, lower levels of self-esteem, feelings of insecurity, and other related phenomena.[4]

Argyris took the position that an organization which operates on the traditional classical premises suffers inefficiency to the extent that employees waste energy by engaging in activities of a compulsive and defensive nature. Thus, there is less human energy available for genuine productivity.

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[1]R. R. Blake and J. Mouton, Corporate Excellence Through Grid Organizational Development (Houston, Texas: Gulf Corporation, 1968).

[2]S. W. Gellerman, Motivation and Productivity, (New York: American Management Association, 1963).

[3]Argyris, "Personality and Organization Theory Revisited," Administrative Science Quarterly (1973), pp. 141-67.

[4]Ibid.

McGregor held a similar view when he proposed Theory Y as a general solution to the problem of organizational improvement. Theory Y represented a set of assumptions about human motivation based on Maslow's need hierarchy, which he felt should serve as a basis for organizational design. McGregor felt that the structure of the organization is responsible for unproductive employees and an alteration in this structure is called for.[1]

Although Likert's assumption regarding man may more closely parallel those of Kurt Lewin (discussed in the next section), he nevertheless argued that "System IV" (trust and participation) is the only management style which can yield maximum effectiveness in the long run.[2]

In Likert's scheme, the causal variables consisted of management systems ranging from I (exploitive authoritative) to IV (trust and participation). These causal variables acted upon the intervening variables, which were the perceptions, expectations, attitudes, behavior, etc., of the work group. The intervening variables in turn acted upon the output variables, which are production, costs, sales, earning, etc.[3]

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[1]D. M. McGregor, The Human Side of Enterprise (New York: McGraw-Hill Book Company, 1960).

[2]R. Likert, The Human Organization (New York: McGraw-Hill Book Company, 1967).

[3]Ibid.

Likert maintained that while a System I type of management may result in favorable output variables, it would be at the expense of the intervening variables which would eventually deteriorate to the extent that they would have a negative effect on the output variables. He maintained that only System IV could keep the intervening variables boosted up for an indefinite period of time, thus keeping the organization in high productivity and earnings.[1] Like Argyris and McGregor, Likert posited a "one best way" normative type of approach to management and organization theory.

Criticisms

The modern classical theorists have met with criticism on two grounds: their global personality assumptions, and their propensity to blame the structure of the organization as the basis for all management problems.

The first type of criticism was expressed by Strauss.[2] He felt that the notions of such people as Argyris,[3] Herzberg,[4]

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[1] Likert, The Human Organization, 1967.

[2] G. Strauss, "Human Relations - 1968 Style," Industrial Relations, Vol. VII (1968), pp. 262-272.

[3] C. Argyris, Personality and Organization (New York: Harper, 1957).

[4] Herzberg, The Motivation to Work, 1959.

Maslow,[1] and McGregor,[2] are laden with an inner-directed academic bias in which righteous professors impose their own values on members of population segments who may have a quite different idea of self-actualization. Strauss also felt that the injudicious use of power-equalization practices may actually adversely affect the security needs of those workers who are not prepared for the added responsibilities that accompany an expanded role.[3] Perrow also suggests that power-equalization techniques may be more expensive to employ than they are worth in highly programmed situations, where simply adequate performance is all that is required by the organization.[4]

An additional challenge to the structural suppositions of the modern classical theorists has come from an extensive review of the literature by Porter and Lawler. These authors studied the literature pertaining to seven aspects of organizational structure: organizational levels, line and staff hierarchies, span of control, sub-unit size,

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[1]A. H. Maslow, Motivation and Personality (New York: Harper, 1954).

[2]McGregor, The Human Side of Enterprise, 1960.

[3]G. Strauss, Some Notes on Power Equalization in H. Leavitt (ed.) The Social Science of Organizations, (Englewood Cliffs, New Jersey: Prentice-Hall, 1963).

[4]C. A. Perrow, "A Framework for the Comparative Analysis of Organizations," American Sociological Review Vol. XXXII, (1967), pp. 194-209.

total organizational size, hierarchial steepness, and degree of centralization. They then concluded:

> "Five of the seven properties of organization structure (span of control and centralization/decentralization being the two possible exceptions) have been shown to have some kind of significant relationship to either job attitudes or job behavior, or to both of these types of variables. However, . . . experimental 'proof' of cause-effect relationships between structure and employee attitudes and behavior is elusive and almost nonexistent.
>
> "There are already enough indications in the literature to support a greater research effort to investigate the interactions among structural properties of organizations in their relationship to employees' job behavior and attitudes. Too much previous theorizing in the area of organizations has neglected such interaction possibilities and hence, there has been an unfortunate tendency to oversimplify vastly the effects of particular variables. Organizations appear to be much too complex for a given variable to have a consistent unidirectional effect across a wide variety of types of conditions."[1]

Similar sentiments relative to the contingent nature of organizational processes have become commonplace in the literature. Their pertinence is underscored by recent work on determinants of formal organization structure and the

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[1]Lyman W. Porter and Edward E. Lawler, "Properties of Organization Structure in Relation to Job Attitudes and Job Behavior," Psychological Bulletin, Vol. LXIV, (1965), p. 50.

impact of formal structure on member characteristics.[1] Pugh has noted that the modern classical theorists reacting against the traditional classical approach seem to have an implicit bias against formal organization.[2]

The modern classical theorists with emphasis on human relations have made many of the same errors as did the traditional classical theorists against whom they were ostensibly reacting. Notably, their assumptions of global personality and organization characteristics give their theories the same one-sided, closed system quality of the traditional classical theorists. They proposed the one best solution to the efficiency of all organizations and the one best way to motivate all members.

The views taken by traditional and modern classical approaches regarding the nature of man are essentially closed ones. In both the traditional and classical approaches, man is assumed to possess internal drives of rational economic or self-actualization, respectively. In neither approach does the environment play a part in determining the nature of these internal inclinations.

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[1]D. J. Hickson, D. S. Pugh and D. C. Pheysey, "Operations Technology and Organizational Structure: An Empirical Reappraisal," Administrative Science Quarterly Vol. XIV, (1969), pp. 378-397.

[2]Pugh, Psychological Bulletin, 1966.

In the classical approach, a one-way cause and effect relationship is taken in which the structure of the organization must be designed to be compatible with the internal need states of the individual. In the case of the traditional classical, the bureaucratic structure was compatible with their rational economic assumption of man, whereas organizations with a more free flowing structure were compatible with the modern structuralist's assumptions of man. In either case, the model of man held by each plays a vital role in the development of the management and organization theory.

## Personalistic Approach

The general assumption of the personalistic view is that people react to their organization on the basis of their perception of it. Because these perceptions are based on people's needs, motives, and values, the only way to understand human behavior in organizations is to understand how individuals differ with respect to personalistic variables.

This approach maintains that to change organizations one must alter the perceptions of people. The impetus of this view rests largely with the writings of Kurt Lewin. Following this the views of the Hawthorne group and Likert will be presented.

Lewin's Field Theory and his work in group dynamics anticipated several important contemporary patterns of organizational analysis.[1] The group dynamics research was one of the main roots of T-group practices, while field theory constituted one of the early efforts in psychology toward a system-like interpretation of individual and group behavior. Lewin argued that action was no simple outcome from mechanical stimulus-response linkages, but was a complex result of co-acting mutually influential elements which comprised the individual's life space. Thus, Lewin saw behavior as a function of the individual and his environment or "field."[2]

Broadly phenomenological in orientation, Lewin felt that the characteristics of the life space could not be separated from the cognitions of the individual. The individual acted according to how he perceived his environment, and the environment, in turn, consisted of the individual's perception of it.[3]

According to this view, the organization has no properties, aside from people's perceptions of it based on their needs, values, and attitudes. It can have no real

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[1]Lichtman, Psychological Bulletin, Vol. LXXVII, 1971.

[2]K. Lewin, Field Theory in Social Science (New York: Harper, 1951).

[3]Ibid.

structure because it cannot exist independently of its particular time-relative membership.[1] The process of organizational analysis must then consist largely of personnel assessments and identification of ad hoc liaisons among other people in the individual's life space. Thus, organizational change must consist solely in the changing of people. Such a premise is fundamental (if implicit) to what may be termed "T-group" approaches to organizational development.[2]

About the same time as Lewin was writing, the Hawthorne or Western Electric studies were being conducted by Mayo,[3] and Roethlisberger and Dickson.[4] Although originally conceived as a test of Taylorism -- a search for the one best level of illumination, among other things -- the findings indicated that there was no one best level. Rather, workers stepped up production at all levels. The Hawthorne studies became important principally because the investigations went on to ask why there was no relation between illumination

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[1]R. G. Hunt, Review of E. J. Miller and A. K. Rice, "Systems of Organization," Administrative Science Quarterly, Vol. XIII (1968), pp. 360-362.

[2]E. H. Schein, and W. G. Bennis, Personal and Organizational Change Through Group Methods: The Laboratory Approach (New York: Wiley, 1965).

[3]Elton Mayo, The Human Problems of Industrial Civilization (New York: MacMillan, 1933).

[4]Frank J. Roethlisberger and W. J. Dickson, Management and the Worker (Cambridge: Harvard University Press, 1939).

and output, and the studies conducted to discover the answer led to neoclassical organization theory.

From their studies, the investigators concluded that friendship patterns were the heart of the organization. They subsequently advocated human relations as a set of techniques by which people could be motivated.[1] By maintaining that the organization is what is perceived by the employees to be the case, the proponents of neoclassical organization theory abandoned the formal structural notions of the classical theorists. The important system was no longer the formal organization structure, but the informal relations at all organizational levels. What has traditionally been called formal structure, then, was nothing but a manifestation of the workings of the informal system (or else somebody's idealization of it).[2]

As the Hawthorne researchers saw it, however, the implications for management did not lie in any gross restructuring of the organization, but rather in a program of individual counseling designed to change the perceptions of individual workers toward the organization.

The classic studies of Coch and French,[3] and

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[1]Lichtman, Psychological Bulletin, 1971.

[2]Ibid.

[3]L. Coch and J. R. P. French, "Overcoming Resistance to Change," Human Relations, Vol. I, (1948), pp. 512-533.

Lewin[1] were direct off-shoots of this line of thinking. In both of these studies, the persuasive potential of informal group membership was used as a vehicle for changing people's perceptions of their environment. In this approach there was no intention of changing the basic structure of the organization; there was only the attempt to get people to accept it. Although this new approach came to be called participative management, the fact was that management had no intention of altering the organization -- only of changing people's attitudes toward work.[2]

Likert typifies the personalistic approach by his advocating group decision processes at all levels. He proposes a type of organizational structure consisting of many overlapping groups that extend across adjacent management levels. Each foreman, for example, would be a member not only of the work group but was also a full-fledged member of the supervisory group. Thus, the supervisor in one group is a subordinate in the next, and so on, at successive levels. Horizontal as well as vertical linkages are built into this system. The emphasis is clearly on groups rather

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[1]K. Lewin, "Group Decision and Social Change," in E. Maccoby, T. Newcomb, and E. Hartley (eds.) Readings in Social Psychology (Third Edition; New York: Holt, Rinehart and Winston, 1958).

[2]Lichtman, Psychological Bulletin, 1971.

than on individuals.[1] "An organization will function best when its personnel function not as individuals but as members of highly effective work groups with high performance goals."[2] Likert felt that employee participation in decision making, when accomplished according to his "linking pin" notion, will not reduce supervisory influence, but rather will serve to change the attitudes of work-group members to better conform to organizational goals.[3] Moreover, like others of its genre, Likert's solutions to organizational problems rarely carry important implications of a basic structural order; by and large, they presume a generally bureaucratic system and look mainly at operations within it.[4]

Despite contemporary recognition of the influence of informal groups on the formal organization, many modern theorists have preferred to limit the domain of their analysis to individual experience. Vroom,[5] for instance,

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[1]Likert, The Human Organization, 1967.

[2]R. Likert, New Patterns of Management (New York: McGraw-Hill Book Company, 1961), p. 105.

[3]Likert, The Human Organization, 1967.

[4]W. G. Bennis, "Organic Populism," Psychology Today (1970), Vol. III, pp. 48-71.

[5]V. H. Vroom, Work and Motivation (New York: Wiley, 1964).

has applied Lewin's general theory of personality to the study of organizational behavior. He hypothesizes performance to be a function of the worker's perception of the abilities required by the job, the degree to which the person perceives himself as having these abilities, and the degree to which he values the possession of such abilities. Vroom, thus, stressed the affective consequences of the degree of consistency between a person's performance and his self-concept. In this view, a person is motivated to perform effectively when effective performance is consistent with his conception of his abilities and with the value he places on them. Porter and Lawler[1] have similarly hypothesized that managerial performance is a function of the perceived value of the reward, the probability that effort will bring the reward, and the accuracy of role perceptions. Smith and Cranny[2] have presented a similar formulation, and March and Simon,[3] and Cyert and March,[4] have also stressed personalistic variables in their individual

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[1]Porter, Psychological Bulletin, 1965.

[2]P. C. Smith and C. J. Cranny, "Psychology of Men at Work," Annual Review of Psychology (1968), Vol. XIX, pp. 467-496.

[3]March, Organizations, 1958.

[4]R. M. Cyert and J. G. March, A Behavioral Theory of The Firm (Englewood Cliffs, New Jersey: Prentice-Hall, 1963).

decision-making models of organizations.

The basic assumption of the phenomenological nature of man presented in the personalistic approach closely parallels the Gestalt psychologists who viewed man as being open with his environment and reacting according to his perceptions of the environment. This close correspondence of Lewin's field theory to Gestalt's theory should not be surprising, considering that Lewin studied at the University of Berlin under Max Wertheimer, one of the founders of Gestalt Psychology.[1]

In summary, notable is the fact that most of the management and organization theories discussed up to this point present a dichotomous model of man as either an open or closed system. The classical approach viewed man as a closed system, whereas the personalistic approach presented an open view of man. In neither approach is there adequate integration among the many facets of human behavior.[2] The task of the modern management and organization theorists is to combine the several views into a more accurate and operational model of organizational functioning.

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[1]Wren, The Evolution of Management Thought, 1972.

[2]Lichtman, Psychological Bulletin, 1971.

## Integrating Approaches

Increasing disenchantment with the myriad of one-sided and normative approaches to management and organization theory has led many writers to favor the use of alternative models. Such models typically represent attempts to integrate existing approaches and/or reflect the influence of situational factors on organizational functioning.

One of the integrating approaches discussed here is social systems and role theory. Although this type of integrating approach was successful from the standpoint of integrating the many facets of individual and organizational variables, it suffers from inability to operationalize many of these key variables. This inability to operationalize presents a major stumbling block in empirically verifying the approach. Many writers such as Newcomb,[1] Katz and Kahn,[2] and Homans,[3] have made contributions in this area. A brief description of Homans' model along with some concepts involved in role theory should provide adequate description of this group.

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[1]T. M. Newcomb, Social Psychology (New York: Dryden, 1950).

[2]D. Katz and R. L. Kahn, The Social Psychology of Organizations (New York: Wiley, 1966).

[3]George C. Homans, The Human Group (New York: Harcourt, Brace and World, 1950).

The other integrating approach discussed is situational theory. In situational theory, rather than attempting to isolate all of the many individual and organizational variables, attention is paid to the isolation of a few key variables. These variables are then operationalized and studied to determine their effect on each other, and/or the organization. This approach's strong points include the explicit attempt to operationalize the variables and the avoidance of presenting a normative one-sided view to management.

The work of Woodward, Burns and Stalker, Fiedler, and Lawrence and Lorsch will be briefly discussed here. Because of the newness of this approach, no criticisms can really be stressed at this point.

## Social Systems, Open Systems and Role Theory

Among the earliest and most generally useful social system theories of organizational behavior was the theory set forth by Homans. Homans commenced by positing that any social system exists in a three-part environment: a physical environment (geography, climate, etc.), a cultural environment (the norms and values and goals of the society at large), and a technological environment (the state of knowledge and instrumentation available to the system). At the next level the social system itself has certain requirements and goals that are translated into specified activities

and interactions for members of the system. The behavior required by the system or determined by its environment is called the external system by Homans. For example, in a work organization, management constitutes a large element of the external system by making decisions that bring certain people together through such mechanisms as job specifications, work methods, prescribed layouts, and selection of personnel.

Although the people drawn together by the management may be strangers at first, they eventually come to know one another, develop cliques and friendships, socialize on and off the job, help one another in their work, agree to restrict production, and so on. They now have another basis on which to associate, one that modifies and influences their behavior over and above (and perhaps instead of) the effects of the external system. The new form of behavior comes about as a reaction to the demands of the external system. Homans called this phenomenon the internal system.

Homans further specified that the elements of a social system can be sorted into three categories which contain aspects of both the internal and external systems: activities (the things people do, the acts they perform), interactions (activities that link people together so that the activity of one person has an effect on the activity of another), and sentiments (internal psychological states,

e.g., emotions, feelings, beliefs, values). Homans postulated that activities, interactions, and sentiments are mutually dependent on one another so that a change in any one will produce a change in the others. For example, positive sentiments between two people leads to increased interaction, or vice versa. Homans further argued that the internal and external systems are mutually dependent; for instance, technology influences interaction, which affects informal relationships.

Lastly, the two systems and the environment are mutually dependent. The environment may change the formal organizations (e.g., through federal and state legislation, union activities), which, in turn, will serve to alter informal organizational relations. Contained in Homans' formulations is the explicit recognition that a social organization, at any point in time, is the outcome of a pattern of interactions between the organization's stated requirements, its environment, and the characteristics of the people who populate it. It ties the emergent system of people's actual everyday behavior at organizations and the external system of formal plans, culture, and other groups that mold emergent behavior.[1]

The underlying notion of social systems theory is that everything that does or can happen is dependent on

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[1] Homans, The Human Group, 1950.

everything else that can or does happen. Thus, the concept of cause and effect is discarded.

The open system model was vigorously advanced by Katz and Kahn,[1] and the Tavistock group.[2] Of importance in this model, however, is the notion that human capabilities, preferences, and expectations are not necessarily personalistic elements, but may be influenced by experiences within the organization. Thus, the functions of personnel selection and organizational design are of equal importance -- human behavior in organizations is the result of the interaction between formal role requirments and the nature of people.[3]

The advent of the open systems approaches to the study of organizations gave the concept of role a new lease on life by balancing it with the personalistic approach. Prior to this, role theory was confined to a secondary position in sociology and anthropology with the main emphasis being placed on social structural forces.[4] Katz and Kahn, proposed role concepts as: "The major means for linking

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[1]Katz, The Social Psychology of Organizations, 1966.

[2]E. L. Trist, G. W. Higgin, H. Murray and A. B. Pollack, Organizational Choice (London: Tavistock, 1963).

[3]R. G. Hunt, (Role and Role Conflict) in E. P. Hollander and R. G. Hunt, editors, Current Perspectives in Social Psychology (Second Edition; New York: Oxford, 1967).

[4]Lichtman, Psychological Bulletin, 1971.

the individual and organizational levels of research and theory; It is at once the building block of social systems and the summation of the requirements with which such systems confront their members as individuals."[1]

The basic concept behind role theory is that because persons occupy multiple positions in life and are partly involved in any single position they occupy, they have multiple identities that combine in various ways to affect their view and enactments of their singular roles. Thus, the individual's participation in social systems will be reflected in his concept of himself and the "fabric" of his personality. The essential point is that role theory exemplifies the merging of social and individual phenomena previously treated separately. Roles, then, do more than link the individual and the social structure -- they unite them.[2]

Open system approaches do not possess the fundamental weakness of the previous approaches in that individual differences are treated concurrently with social structure in an attempt to arrive at a unified approach. What is missing from this integrating approach, however, is an explicit and operational model of man. In the integrating

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[1]Katz, The Social Psychology of Organizations, 1966, p. 197.

[2]Hunt, Current Perspectives in Social Psychology, 1967.

approach mentioned in this section, individual differences are discussed in terms of role concepts and are thus micro in scope. Also, the systems approaches have been characterized by the inability to effectively operationalize many of their critical variables, thus limiting their predictive ability.[1]

Kast and Rosenzweig, in dealing with the problems of open systems theory and the promising new approach of contingency theory, state:

> "The open systems model has stimulated many new conceptualizations in organization theory and management practice. However, experience in utilizing these concepts suggests many unresolved dilemmas. Contingency views represent a step toward less abstraction, more explicit patterns of relationship, and more applicable theory. Sophistication will come when we have a more complete understanding of organizations as total systems (configurations of subsystems) so that we can prescribe more appropriate organizational designs and managerial systems. Ultimately, organization theory should serve as the foundation for more effective management practice."[2]

## Contingency Theory

The underlying concept of contingency theory is that

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[1]William G. Scott and Terence R. Mitchell, Organization Theory: A Structural and Behavioral Analysis (Illinois: Richard D. Irwin, Inc., and The Dorsey Press, 1972).

[2]Fremont E. Kast and James E. Rosenzweig, "General Systems Theory: Applications for Organization and Management," Academy of Management Journal (December, 1972), pp. 447-465.

there is no one best organizational structure or leadership style. Instead, a given organizational structure or management style may be appropriate under a given set of circumstances, but not appropriate under another set.[1] Contingency theory, then, seeks to identify the significant dimensions of the organization, task, and individual which are relevant to a particular problem and operationalize these dimensions such that they have application to the researcher and/or manager.[2]

The work of Joan Woodward in the 1950's marks the beginning of a contingency approach to organization and management theory. Her research in a variety of British companies indicated that organizational structure and human relationships were largely a function of the existing technological situation such that the type of production process determined how many hierarchial levels are found in an organization and how wide the supervisor's span of control was.[3]

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[1]Robert J. Mockler, "Situational Theory of Management," Harvard Business Review (May-June, 1971), pp. 146-155.

[2]John J. Morse and Jay W. Lorsch, "Beyond Theory Y," Harvard Business Review (1970), Vol. XLII, No. 2, pp. 61-68.

[3]Joan Woodward, Industrial Organization: Theory and Practice (London: Oxford University Press, 1965.

Burns and Stalker, starting with some of the classical assumptions about division of labor, span of control, and hierarchy of authority, attempted to determine whether effective organizations in different kinds of industries actually adhered to those assumptions.[1] They found that the effective organization tended to have a structure that was adapted to the kind of technology it was in. For example, in stable industries which depended upon a stable technology, Burns and Stalker concluded that "mechanistic" (bureaucratic) organizational structures were most effective. In the more dynamic or organic structures (non-bureaucratic) less attention was paid to formal rules, more decisions were reached at lower levels, and communication was more common among lateral positions than vertical. This type of structure was most effective in a fast moving industry such as electronics.[2]

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[1]Tom Burns and Graham M. Stalker, The Management of Innovation (London: Tavistock, 1961).

[2]Ibid.

The work of Fred Fiedler, emphasizing the importance that the situation has in leadership effectiveness, has produced a significant breakthrough in situation leadership theory. His contingency model of leadership effectiveness is based on years of empirical research.

In developing the leadership contingency model, Fiedler divided the leaders' situation into three operationalized dimensions: (1) the leader's personal relations with members of his group (leader-member relations), (2) the degree of structure in the task that the group has been assigned to perform (task-structure), and (3) the power and authority that his position provides (position-power).[1] Fiedler defines the favorableness of the situation as "the degree to which the situation enables the leader to exert his influence over his group."[2]

In this model, eight possible combinations of these three situational dimensions can occur. As a leadership situation varies from high to low on these variables, it will fall into one of the eight combinations (situations). The most favorable situation for a leader to influence his

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[1]Fred Fiedler, A Theory of Leadership Effectiveness, (New York: McGraw-Hill Book Company, 1967).

[2]Ibid., p. 13.

group is one in which there is good leader-member relations, high position power, and a well-defined job (high task-structure).

Fiedler then developed an instrument to classify the leader. The instrument was an attitude scale (LPC) which measures the extent to which the leader likes or dislikes the least preferred co-worker of the group. Fiedler then classified the leaders according to whether they indicated a positive response for the least preferred co-worker (relationships-oriented leader) or negative response for the least preferred co-worker (task-oriented leader).

Combining the leadership and situational variables, Fiedler concluded that the task oriented leader was most effective in helping the group to accomplish their primary task in situations which were either very favorable or very unfavorable to the leader. The relationship-oriented leader, on the other hand, was most effective in situations of moderate favorableness or moderate unfavorableness.[1]

Paul R. Lawrence and Jay Lorsch formulated a contingency theory of organization in Organization and

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[1]Fiedler, A Theory of Leadership Effectiveness, 1967.

Environment.[1] Their general point is that there is no "one best way" to organize, but that different companies in different industries require different kinds of organizational structures.

In studying two groups of companies in two different industries, the authors found that where the industry technology is stable (the container industry), a traditional, autocratic, pyramidal organization is best; and where the industry technology is unpredictable and the products diverse (the plastics industry), a decentralized, non-hierarchial organization is best.

The objective of studies like Lawrence and Lorsch's is to examine and categorize different types of organization needs, different stages of company growth, different kinds of environments and the like, and then identify organization structures that might be appropriate for each of these different situations. Thus, their approach assumes that it is unproductive to study the mechanics of different types of traditional structures only, since changing business requirements often must be met with new and different types of organization structures -- some of which may be quite unknown today, and most of which will be unique to

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[1]Paul R. Lawrence and Jay W. Lorsch, Organization and Environment (Homewood, Illinois: Richard D. Irwin, Inc., 1969).

the company developing them.[1]

At this point, levying any cogent criticisms of contingency theory might be somewhat premature. Lately, however, the Fiedler leadership model has been under criticism due to some problems in measuring the situational variables and interpreting the LPC instrument.[2]

If a criticism can be levied on the approaches taken in contingency theory, it is in reference to the concept stressed earlier that a theory of organization can be no better than the assumptions it makes about the human personality. Contingency theory to date appears to stress the organizational aspects of the theory and has been rather vague regarding a model of man. For example, Lawrence and Lorsch, in the beginning of Organization and Environment, mention a model of man as centering around a basic need for competence.[3] But the competence need is not incorporated in their theory. They deal primarily with organizational and environmental variables. In a subsequent work, however, the competence motive is operationalized and more closely

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[1]Lawrence, Organization and Environment, 1969.

[2]Terence R. Mitchell and Anthony Biglan; Gerald Roncken and Fred E. Fiedler, "The Contingency Model: Criticisms and Suggestions," Academy of Management Journal (December, 1972), Vol. XXV, pp. 253-267.

[3]Lawrence, Organization and Environment, 1969.

related to the other aspects of their theory, but the bulk of the effort appears to be stressing the organizational variables.[1] Perhaps contingency theory could be more effectively advanced if a more balanced approach could be taken regarding the personality and organization variables.

## Purpose of the Study

The overall purpose of this study is to add to the conceptual and empirical body of knowledge related to the combining of personality theory and organization theory. This contribution will be made by studying the relationship between the formal structure of the organization and a selected personality variable, Rokeach's dogmatism theory. Rokeach's dogmatism theory views the individual's belief system as lying along a continuum from open to closed. The more closed the belief system, the greater the reliance placed on an external authority source to tell the individual what is or is not true in the individual's world of reality. The more closed the belief system, the more the individual is said to be dogmatic. The more open the belief system, the greater the reliance placed by the individual himself to verify what is or is not true in his world

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[1]Morse, Harvard Business Review, 1970, pp. 61-68.

of reality.

This research effort attempts to determine whether managers in bureaucratic organizations tend to be more dogmatic than managers in nonbureaucratic organizations, and whether managers at the lower levels of a bureaucratic or nonbureaucratic organization are more dogmatic than managers at the higher levels. The two primary research questions can be stated in their general form as follows:

1. Are managers in bureaucratic organizations more dogmatic than managers in nonbureaucratic organizations?
2. Are managers at the bottom levels of a given organization more dogmatic than managers at the higher levels?

## Scope of the Study

In order to make this study manageable for a dissertation project, and to attempt to reduce some possible sources of unexplained error, the scope had to be limited. These limitations are discussed under the headings of personality variable, organization variable, and managerial variable.

### Personality Variable

Considerable research has been performed on many

personality variables, and the literature is filled with research efforts which have isolated and operationalized several personality variables.

Rokeach's dogmatism theory was selected for this project for two main reasons. The first reason deals with the nature of the theory, whereas the second is concerned with its operationalization.

## Nature of the Theory

Rokeach's dogmatism theory is essentially a theory of general authoritarianism which identifies individuals or groups according to the extent that they place emphasis on an external authority. The emphasis placed on authority makes an authoritarian personality theory desirable for this study because the concept of authority also plays a vital role in many formal organization theories, especially those theories dealing with organizational structure.

The concept of authority in this study, then, serves as a unifying thread between the personality theory and the organization theory. A more complete discussion of the unification of personality theory and organization theory by applying the common denominator of authority is given in Chapter III.

Although other personality theories are based on the concept of authority, e.g., Adorno, et al., 1950, these concepts of authority are based on the content of the

authority. For example, in Adorno's Theory of Authoritarianism, the type or content of authority is identified as coming from a politically conservative source. The Rokeach Theory, however, does not attempt to identify a specific authority source but instead is concerned with whether the individual tends to seek any outside authority source to help him determine what he does or does not believe. Thus, in the Rokeach theory, individuals who are strongly politically conservative are less likely to differ in dogmatism than they would under the Adorno concept of authoritarianism, which is based on a politically conservative type of authoritarianism.[1] If a content oriented authority theory of the individual were used in this study, then differences between managers would have to be attributable, in part, to the specific source or content of the authority. The theory linking personality theory to the organization theory would then have to take explicitly the content of the authority into account. The general authority concept of Rokeach does not present this difficult obstacle.

## Operationalization of the Theory

The Rokeach dogmatism theory has been operationalized into a short (40 items) and easy to administrate and score instrument. As will be discussed in Chapter II, the instrument has good reliability and validity for a personality

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[1]Rokeach, The Open and Closed Mind (New York: Basic Books, 1960).

instrument.[1]

## Organizational Variables

The organizational variables dealt within this study are those pertaining to the formal organization classification scheme developed by D. S. Pugh in 1969.[2] This classification scheme classified organizations into four categories, based on two factorially extracted structural dimensions -- the extent to which authority is concentrated at the top of the organization and the extent to which the activities in the organization are specialized.

Although four categories of organizations are possible in the Pugh classification scheme (see Figure 1), only the bureaucratic and nonbureaucratic organizations were considered in this study.

This limitation in the scope of the study was a result of problems in locating suitable organizations in the other classifications, and also from the contention that organizations high in each dimension (bureaucratic) are more likely to contain managers with a higher degree of dogmatism

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[1] Rokeach, The Open and Closed Mind, 1960.

[2] D. S. Pugh, D. J. Hickson, and C. R. Hinings, "An Empirical Taxonomy of Structures of Work Organizations," Administrative Science Quarterly, Vol. XIV, 1969, pp. 115-126.

| Concentration of Authority | | | |
|---|---|---|---|
| | High | Personal Bureaucracy | Bureaucratic |
| | Low | Non-Bureaucratic | Pre-Workflow Bureaucracy |
| | | Low | High |

Structure of Activities

Figure 1. Organizational Classification Scheme

than organizations which are low on each dimension (non-bureaucratic).

It should be noted that the above classification scheme by D. S. Pugh represents a modification of the original work which used an additional structural dimension. This dimension was the line control of workflow, which measured the extent to which the line controlled the actual production process as opposed to staff control of the workflow. If only manufacturing firms are used in the classification, then the line control of workflow dimension is not applicable, and the classification scheme is reduced to the above two dimensions.[1] Thus, for purposes of the study,

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[1]John Child, Contents of a letter from Dr. Child, December, 1973, See Appendix A, page 244.

the type of organizations studied includes only manufacturing firms. This was done primarily because the two dimensional instrument was available for this study, whereas the three dimensional instrument utilizing the line control of workflow was not.

The Pugh classification methodology was selected for two primary reasons. First, as will be detailed in Chapter III, the structural dimensions of this classification scheme can be readily discussed in the context of authority relationships, thus forming the link to Rokeach's concept of dogmatism. Second, the classification scheme is based on relatively objective data, thus providing a more rigorous basis for interpretation of the results and possible longitudinal study.

In clarifying the second point, suppose that the basis for the organizational classification was the Likert questionnaire which views organizations (management systems) as ranging from autocratic (System 1) to participative (System 4). The perceptions of the people in the organization are the basis for determining whether the organization is classified as System 1, 2, 3, or 4.

If the dogmatism instrument was also given to these people, the only conclusion that could be drawn is that people with a certain dogmatism score also tend (or do not tend) to perceive the organization as being a particular

system. As to which variable is the cause and which is the effect, however, would be difficult to determine because both variables rely on the beliefs of the same individual. If a longitudinal study was conducted later and it was concluded that those people with a given dogmatism score now perceive the organization as being a different management system, what conclusion can be drawn? Simply stated ... "perceptions have changed" appears to be the limit of the conclusions.

If the organizational classification scheme is based on relatively objective data such as the number and type of specialists, level at which a given decision is made, etc., then the methodology is strengthened by a relatively stable reference point which not only allows for easy identification of the organization with the classification scheme, but serves as a stabilization factor for longitudinal research, as noted by Campbell and Fiske,[1] Von Gilmer,[2] and Payne and Pheysey.[3]

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[1]D. T. Campbell and D. W. Fiske, "Convergent and Discriminant Validation by the Multi-Trait -- Multimethod Matrix," Psychological Bulletin, Vol. V (1959), pp. 250-69.

[2]Garlie A. Forehand and B. Von Gilmer, "Environmental Variation in Studies of Organizational Behavior," Psychological Bulletin, Vol. LXII (1964), No. 6, pp. 361-82.

[3]R. L. Payne and D. C. Pheysey, "G. G. Sterns Organizational Climate Index: A Reconceptualization and Application to Business Organization," Organizational Behavior and Human Performance, Vol. VI (1971), pp. 77-98.

## Managerial Variables

The managerial variables which were isolated and controlled to reduce the possibility of unexplained error in the study are as follows:

1. Line vs. Staff Managers -- line managers are those managers who are directly involved in the manufacturing process, whereas staff managers are those who serve in an advisory capacity, e.g., accounting manager.

2. Lower Level vs. Higher Level Managers -- lower level managers are those at the first and second levels of supervision in the organization, whereas higher level managers are those from the third level up.

3. Congruent vs. Noncongruent Managers -- congruent managers are those who are not only satisfactory from the organization's standpoint, but also are satisfied with their job, whereas noncongruent managers are those who lack one or both of the above characteristics.

### Line vs. Staff Managers

In this study, line managers are classified as those dealing directly in the production process. Although managers

involved in the marketing function are also generally classified as line, they are not included in this study because the bureaucratic organization's sales managers were widely scattered throughout the United States, thus making their participation in the research project most difficult. Therefore, the limitation to production managers in each organization resulted in more equal comparisons among the organizations.

Line managers are isolated from staff managers in this study because it is anticipated that line managers are more likely to be affected by changes in organizational structure than are staff managers.[1]

Because the number and types of staff groups vary widely among organizations, it is important to locate as similar types of staff groups as possible and still have a sufficient size for statistical comparisons. A staff group common to many organizations is the accounting function. Because this group was most likely to contain more members than other staff groups, it was chosen for this study.

Thus, for purposes of this study, line managers are classified as those dealing directly with the production process and the staff managers selected are those in the accounting function.

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[1]Diana C. Pheysey, Roy L. Payne, and Derek S. Pugh, "Influence of Structure at Organization and Group Levels," Administrative Science Quarterly, Vol. XVI, No. 1, (1971) pp. 61-73.

Lower Level vs. Higher Level Managers

Lower level managers are classified here as first and second level managers and higher level managers are classified as managers from the third level up to the highest level. The lower level managers were selected exclusively for statistical reasons. The bureaucratic and non-bureaucratic organizations did not contain sufficient numbers of production managers at the higher levels to be statistically meaningful. These numbers were considered to be too small to provide any meaningful interpretations. Thus, the study is limited to only those production managers at the first and second levels.

As previously cited in a reference from Hall,[1] the structure within a given organization may vary. This variation can occur not only among the horizontal subunits, but between levels as well. In order to control for possible structural variation between levels, the first level line managers were isolated from the second level line managers, and direct comparisons were made between the same levels of the two organizations. Also, comparisons in dogmatism were made between the first and second levels within each organization.

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[1]Hall, Administrative Science Quarterly, 1962.

Congruent vs. Noncongruent Managers

A congruent manager is defined as one who is satisfied with the organization and at the same time, the organization is satisfied with him. Managers who did not satisfy the above two conditions were considered noncongruent and were isolated from the congruent managers for the purpose of this study.

The congruent and noncongruent managers were isolated in an effort to reduce a possible error factor. For example, a manager in a nonbureaucratic organization may have a dogmatism score which falls within the area typical for those in bureaucratic organizations, but continue to remain in the nonbureaucratic firm for reasons other than those related to the structure of the organization. In this study, because it is hypothesized that a significant relationship exists between the organization structure and a personality variable, then a control measure must be taken to isolate those managers who remain in the organization for reasons other than those being studied here.

## Research Questions

The major research questions, based on the scope of this study, can now be expanded to four parts and are given as follows:

1. Are first level congruent line managers in the bureaucratic organization significantly more dogmatic than those in the nonbureaucratic organization?

2. Are second level congruent line managers in the bureaucratic organization significantly more dogmatic than those in the nonbureaucratic organization?

3. Are first level congruent line managers in the bureaucratic organization significantly more dogmatic than the second level congruent line managers?

4. Are first level congruent line managers in the nonbureaucratic organization significantly more dogmatic than the second level congruent line managers?

The above research questions form the major hypotheses. The minor hypotheses are derived from the isolation of the variables discussed in the above sections and are more fully developed in Chapter III. Essentially, the minor hypotheses are statements which allow for the testing of the possible unexplained error factors to determine their

effect on the major hypothesis of this study.

## Justification

The primary basis for the justification of this project centers around the central proposition that congruent managers are the result of a proper match between the belief structure (dogmatism) of the manager and the structure of the formal organization. If this proposition is substantiated by the research, then a contribution will have been made to management theory and practice from the following viewpoints:

1. This chapter has stressed the importance of developing a common construct unifying theories pertaining to the individual and the organization. The various approaches mentioned here have encountered difficulties in developing and verifying such a theory.

   A theory was developed for this study in which authority is used to unite a theory pertaining to the belief structure of the individual and the structure of the organization. This theory, hopefully, incorporates the strengths, while avoiding the weaknesses of the previous attempts to unify theories of the individual and the organization.

The first justification, then, centers around the development of a theory unifying the individual and the organization. This theory might, after modifications resulting from empirical investigations, provide a contribution to management thought in the form of a more accurate framework for individual functioning within a given organization and management level.

2. This study can be viewed as an indirect test of the modern classical approach pertaining to the effect of the organization on the individual.

The modern classical theorists imply that the bureaucratic organizations tend to attract a monocratic, control-oriented individual or develops this type of individual. Because a dogmatic individual tends to be more oriented toward accepting the dictates of an external authority than is a nondogmatic individual, the major hypotheses stating that dogmatic managers are more likely to be found in bureaucratic organizations appears to support the contentions of the modern classical writers.

The second justification can be viewed as an empirical test of the modern classical approach.

If the major hypotheses of this study are verified, then the theory underlying the modern classical theorists are, in part, substantiated.

3. Contingency theory of management appears to be currently in vogue. If the hypotheses of this study are confirmed, it may help to clarify the identification and measurement of two situational variables -- personality and organization structure.

The third justification, then, centers around providing contingency theory with two interrelated variables which may eventually be used to predict the effectiveness of a given individual in a given organization and management level.

# CHAPTER II

## LITERATURE REVIEW

The purpose of this chapter is to review the literature pertaining to the three theoretical areas of this study: organizational structure, dogmatism, and managerial congruence.

The organizational classification scheme of D. S. Pugh, et al., will be discussed first.[1] This classification was developed by Pugh after reviewing the literature pertaining to organization structure. From this review they discerned six primary dimensions of organizational structure. Many of these primary dimensions contained several subdimensions. The operationalization of these dimensions was accomplished by developing 64 scales pertaining to these dimensions and subdimensions. The researchers then applied these scales to a random sample of 46 organizations from a population of 293 organizations in the Birmingham, England area. Those scales which did not apply to all the organizations studied were eliminated because the aim of the research was to identify structural characteristics which applied to all organizations.

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[1]Henceforth referred to as Pugh.

Multivariate analysis was applied to the significant 16 scales in order to group these scales into similar categories. Two structural dimensions emerged. The first dimension, structuring of activities, pertains to the extent of the specialization of labor. The second dimension, concentration of authority, pertains to the extent to which authority is concentrated at the higher levels in the organization.

The organizational classification scheme, based on the structural differences of the organizations, identifies organizations on each of the two dimensions. This study is concerned with nonbureaucratic organizations (those which are low along the two dimensions) and bureaucratic organizations (those who are high along the two dimensions). The Inkson short form is the instrument used to measure these structural dimensions.

Research efforts pertaining to the contextual (environmental) variables are discussed. The contextual variables of size and dependency upon external organizations were found to have the strongest correlation with the structural dimensions. Contextual variables were useful in identifying the nonbureaucratic and bureaucratic organizations.

The dogmatism theory of Rokeach is the second theoretical construct presented. Dogmatism theory consists of three interrelated dimensions pertaining to the belief-disbelief, central-peripheral, and time-perspective belief

dimensions. A dogmatic individual is defined as one who relies on external authorities to tell him what to believe or not believe in his world of reality. These external authority sources do not communicate with each other in the cognitive framework of the dogmatic individual, such that the individual may make "wholesale" or party-line changes in other beliefs according to the dictates of a given external authority source. In the dogmatic individual, little regard is given to whether a belief change contradicts the beliefs pertaining to other external authority sources. The nondogmatic individual on the other hand uses external authority sources as a tentative basis for what he does or does not believe. A change in belief occurs in the nondogmatic individual only after the new belief is viewed as being consistent with his other beliefs. With the nondogmatic individual there is communication in his cognitive framework among his external authority sources. The concept of dogmatism is not dichotomous. Instead, individuals are viewed as being relatively less (more) dogmatic than other individuals.

The Dogmatism Scale (DS) was developed by Rokeach by selecting items pertaining to each of the three dimensions of the theoretical construct. The individual responds to the items according to the extent to which he agrees (from +1 to +3) or disagrees (from -1 to -3) with the item.

After a series of revisions, the present form, which consists of 40 items, was validated as the one best able to distinguish among individuals previously diagnosed as being high and low in dogmatism.

Studies pertaining to the validity of the DS based on observable behavior are discussed. The validity of the DS as a measure of general authoritarianism (general tendency to rely on external sources) is also reviewed.

Factor analytic studies revealed that the DS is a good measure of general authoritarianism, and that dogmatism should be interpreted only on a total score basis. The conclusion is that the DS is a valid and reliable measure of general authoritarianism for the purposes of this study. This instrument was administered to the first and second level line managers and CPA accountants in the bureaucratic and nonbureaucratic organizations.

The concept of managerial congruence was developed for the purpose of this study. A congruent manager performs satisfactorily and is satisfied with the organization. The performance ratings of the managers into satisfactory and unsatisfactory categories are determined by a consensus agreement among the personnel manager and the third level line manager. The satisfaction measurement is the Institute for Social Research job satisfaction questionnaire. A satisfied manager is defined as one whose total score indicates

that he is at least generally satisfied with all aspects of his job situation. A noncongruent manager is one who is not satisfied with his job and/or is not performing satisfactorily.

A model depicting the interrelationships of the three theoretical constructs is presented on the following page. This model is provided for the reader as a frame of reference.

## Organizational Conceptual Scheme and Taxonomy

D. S. Pugh, et al., set forth a conceptual scheme for organizational analysis consisting of a set of independent and dependent variables relating to the formal aspects of organizational structure and functioning. This scheme centers around three conceptually distinct levels of analysis in organizations: 1) organizational structure, 2) group composition and interaction, and 3) individual personality and behavior.[1]

The study of the structure of an organization is seen by Pugh as existing in a dependent relation with its social and economic environment (contextual variables). At the next level of analysis, group composition and interaction variables exist in a dependent relationship with

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[1]D. S. Pugh, D. J. Hickson, C. R. Hinings, K. M. MacDonald, C. Turner, and T. Lupton, "A Conceptual Scheme for Organizational Analysis," Administrative Science Quarterly, Vol. VIII (1963), pp. 289-315.

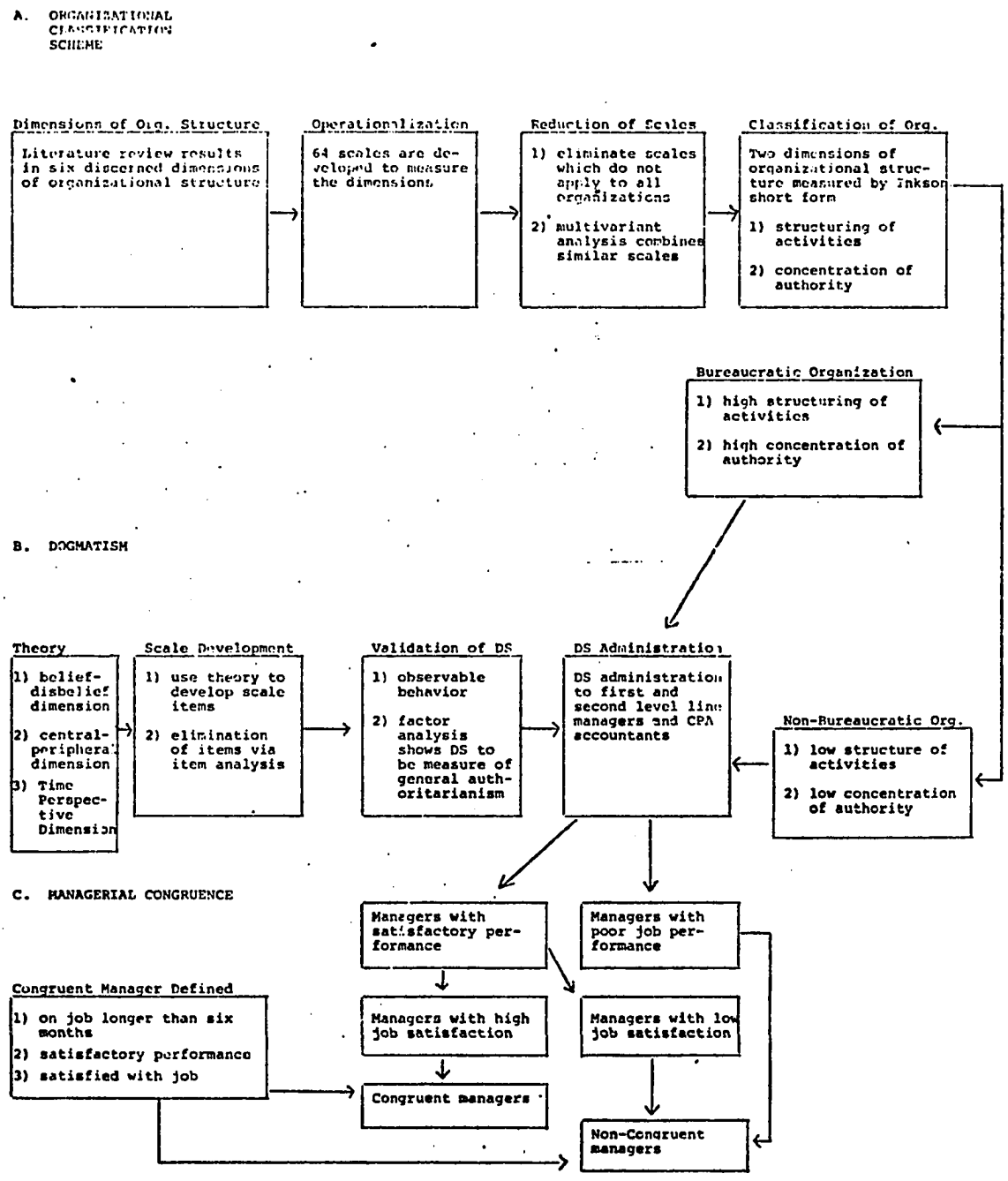


Figure 2. Model Showing Relationships Among the Three Theoretical Constructs

the organizational context and organizational structure. Finally, individual behavior and personality variables are viewed as dependent variables to the organizational structure and group composition and interaction.[1] Figure 3 depicts the above relationships.

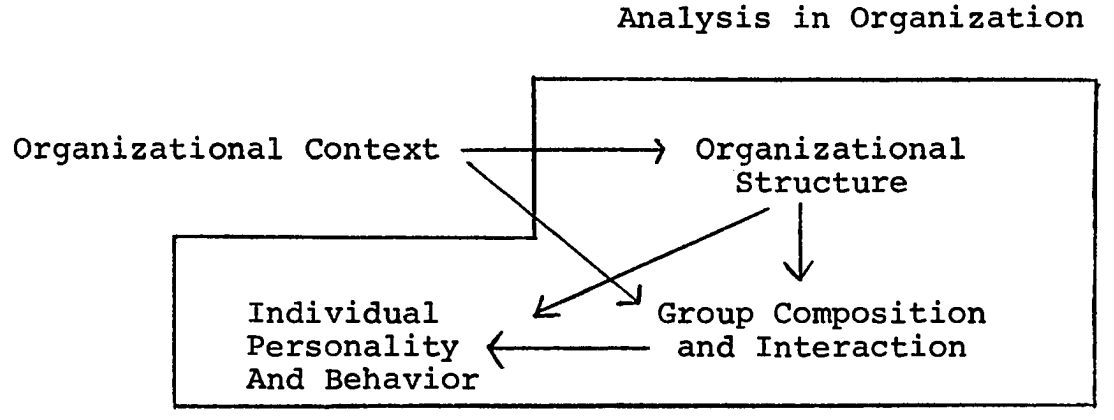


Figure 3. Pugh conceptual model of organizational functioning.

The pivotal point for the Pugh conceptual and empirical analysis begins with the structure of the organization in which Pugh first identified the major components of organizational structure as discerned from an extensive literature review. After developing scales for each of these dimensions and subdimensions, they then performed a series of multivariant analyses to eliminate those dimensions and/or subdimensions accounting for only a small percentage of the structural variation.

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[1]Pugh, Administrative Science Quarterly, 1963.

The multivariate analysis yielded two independent dimensions of organization structure -- structuring of activities and concentration of authority. Structuring of activities is a composite dimension composed of scales and subscales of specialization, formalization and standardization. Concentration of authority is a composite dimension composed of autonomy (extent to which the organization is able to make decisions independent of its parent organization) and centralization.

Inkson developed a short form instrument which correlated highly with the original Pugh instrument. This instrument was used in their research and is the instrument used in this study.[1]

The resulting taxonomy of organizations is based on the above two structural dimensions. The two types of organizations used in this study are implicitly structured organizations (nonbureaucratic), which are low along both structural dimensions, and bureaucratic organizations, which are high along both dimensions.

Some empirical studies have been performed using the Pugh conceptual scheme as a framework. The most convincing of these studies has been in connection with operationalization of the contextual variables and their relationship to organization structure. Contextual variables of size,

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[1]J. H. Inkson, D. S. Pugh, and D. J. Hickson, "Organization Context and Structure: An Abbreviated Replication," Administrative Science Quarterly, 1970, pp. 318-329.

technology (extent of automated, continuous equipment) and dependency (degree of dependence upon the parent and other organizations) were isolated and compared to the structural dimensions. In these studies, size had a strong positive relation to structuring of activities and dependence had a strong positive relationship to structuring of activities. Technology was only weakly related to the structuring of activities.

This section will first dicuss the discerned dimensions of organizational structure from the literature review performed by Pugh. Following this will be a description of the methodology used to arrive at the structural dimensions of concentration of authority and structuring of activities. The research efforts using the conceptual scheme of Pugh will be presented, followed by a brief description of intra organizational structure and its implications for this study.

## Discerned Dimensions of Organizational Structure

Pugh did not explicitly define organizational structure in any of the writings. Perhaps they intended this definition to be incorporated in their description of the 6 dimensions of organizational structure which they discerned from the literature and later empirically derived. A definition of organizational structure which appears to be consistent with the manner in which Pugh applies it was

given by Kelly:

> The structure of an organization refers to the relations between different roles that have been created to achieve the purpose of the organization and most typically defines objectively who can tell whom to do what, who speaks to whom, who can initiate contracts, who can spend what, where, when, and why. A logical prerequisite of structure is the need to have policies, programmes, standing orders, procedures, and operating instructions which will enable the organizational members to behave in a prescribed manner.[1]

This definition of organization pertains primarily to formal work organizations in which the members of the organization are all employed by it. The organizations Pugh used to develop the taxonomy were those containing more than 250 members and included some which were divisions of a larger parent organization, providing that the parent organization formally recognized the division as such. Thus, the term organization here refers to work organizations employing more than 250 people which may be independent or may be a division or subsidiary of a parent organization.

Pugh conducted an extensive review of the literature regarding organization structure and from this discerned six primary dimensions of structure: 1) specialization, 2) standardization, 3) formalization, 4) centralization, 5) configuration, and 6) flexibility.[2] Although a complete

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[1]Joe Kelly, Organizational Behavior (Illinois: Richard D. Irwin, Inc., and The Dorsey Press, 1969), p. 264.

[2]Pugh, Administrative Science Quarterly, 1963.

list of their bibliography will not be presented here, a partial list includes Bakke,[1] March and Simon,[2] Weber,[3] Hage,[4] Woodward,[5] Burns and Stalker,[6] and Etzioni.[7]

Specialization

Specialization refers to the division of labor within the organization. Two main aspects were distinguished. The first aspect pertains to the number of specialisms. This is obtained by a count of those functions that are performed by specialists, i.e., those who perform that function and no other and are not in the direct chain of command. The second aspect pertains to the degree of role specialization which refers to the specificity and narrowing down of the tasks assigned to any particular role. An

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[1]E. W. Bakke, Bonds of Organization (New York, 1950).

[2]J. G. March and H. A. Simon, Organizations (New York: Wiley, 1958).

[3]M. Weber, Essays in Sociology, Translated by H. H. Gerth and C. Wright Mills (New York: Oxford University Press, 1947).

[4]Jerald Hage, "An Axiomatic Theory of Organizations," Administrative Science Quarterly, Vol. X (1965), pp. 289-320.

[5]Joan Woodward, Management and Technology (London: Oxford University Press, 1958).

[6]Tom Burns and Graham M. Stalker, The Management of Innovation, (London: Tavistock, 1961).

[7]A. Etzioni, "Two Approaches to Organizational Analysis: A Critique and a Suggestion," Administrative Science Quarterly, Vol. V (1960), pp. 257-278.

example of the second aspect would be a well known fact that the role of the foreman has been considerably narrowed down in modern industry with the rise of control specialisms such as production planning the control and quality control specialisms. Specialization is concerned with the number and type of specialisms and represents a composite of the above two aspects.[1]

Standardization

Two aspects of standardization are considered -- standardization of procedures and standardization of roles. A procedure is defined as an activity that has regularity of occurrence and is legitimized by the organization. Procedures were classified as those concerned with 1) decision seeking, 2) decision making, 3) information conveying and, 4) procedures for operating and carrying out decisions. Procedures are standardized when there are rules or definitions that cover all circumstances. These rules would include those on how to proceed in cases not specifically covered.[2]

Standardization of roles is concerned with the degree to which the organization prescribes standardization of 1) role definition and qualifications for office, 2) role

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[1]Pugh, Administrative Science Quarterly, 1963.

[2]Ibid.

performance measurement, 3) titles for office and symbols of role status and 4) rewards for role performance. The operationalization of standardization of roles centered around measuring the degree to which either achievement or ascriptive attributes are taken into account. Some organizations tend to look closely at what the individual in the organization has accomplished, whereas other organizations stress his title, status, time of service, etc.[1]

Formalization

Formalization distinguishes the extent in which communications and procedures in an organization are written down and filed. Formalization includes statements of procedures, rules, roles, and operations of procedures which deal with decision seeking (applications for capital, employment, etc.), conveying of decisions and instructions, and conveying of information.[2]

This dimension was operationalized by selecting documents concerned with the past, present and future of the organization and counting the number and types of documents.[3]

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[1] Pugh, Administrative Science Quarterly, 1963.

[2] Ibid.

[3] Ibid.

Centralization

Centralization concerns the locus of authority to make decisions affecting the organization. Although two types of authority are recognized by Pugh as being formal (institutional) authority and personal (acceptance) authority, this dimension stressed the formal aspect of authority in its operationalization.[1]

The first measure of centralization was the rate of restriction of control. In a highly centralized organization, control is quickly lost as one moves away from the chief executive. A centralized organization is characterized by a high rate of restriction. The second measure was the range of levels down the organization to which the performance evaluations of the chief executive are applicable to members lower in the hierarchy. An organization would be less centralized if not only the executive, but levels below him were evaluated in terms of profitability. In a centralized organization the performance evaluation changes for the lower level members and would be more likely to include more aspects dealing with conformity to management rules. Centralization as described by Pugh, then, becomes a composite measure of authority derived at levels within a given organization. Problems of comparability of levels

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[1] Pugh, Administrative Science Quarterly, 1963.

between organizations are therefore bypassed.[1]

Configuration

Configuration pertains to the authority structure, which is a system of relationships between positions or jobs described in terms of authority and responsibility of superiors and subordinates. This conceptualization is commonly expressed in the form of an organization chart. The shape or configuration of this structure is then compared across different organizations. The various measurements of this dimension include span of control, number of management levels, percentage of line to staff officials, and so forth.[2]

Flexibility

Flexibility pertains to the changes in organizational structure. It involves determination of changes in each particular organization over a period of time and includes such aspects as the amount of change, the speed of change, and the acceleration of change.[3]

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[1]Pugh, Administrative Science Quarterly, 1963.

[2]Ibid.

[3]D. S. Pugh and D. J. Hickson, C. R. Hinings, and C. Turner, "Dimensions of Organization Structure," Administrative Science Quarterly, Vol. XIII (1968), pp. 65-105.

Pugh chose to exclude this dimension from operationalization because of the time required to gather information pertaining to this dimension. In a later study in which they operationalized the above dimensions they added a dimension of traditionalism -- the extent to which activities are performed according to organizational custom. This dimension, however, was not operationalized and the researchers did not provide any explanation for its omission. The only speculation provided at this point is that this dimension was not characteristic of all organizations studied by the researchers and therefore had to be excluded.

Pugh felt that the above six dimensions seemed to include those which adequately expressed differences in organization structure as described in the literature. They also stated that further major dimensions may be developed and added as a result of additional empirical investigation.[1]

The next step was to operationalize the dimensions of organization structure by developing scales to measure the dimensions and subdimensions. Standard scales were developed by converting the scales to a common measurement system, which allowed the summation of different scales. Factor analysis was then performed to arrive at the empirical dimensions of organizational structure.

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[1]Pugh, Administrative Science Quarterly, 1968.

Empirical Dimensions of Organizational Structure

In order to operationalize the discerned dimensions of organizational structure, scales were developed for the first five of the above mentioned dimensions and their subdimensions. In some cases, the process of operationalization resulted in a further breakdown in the number of subdimensions. Scales were also constructed for aspects of organizational context (environmental variables). These scales underwent a multivariant analysis similar to the structural dimensions and were subsequently used as predictors for various types of organizational structure. Table 1 on page 78 presents the titles of the dimensions and subdimensions.

The organizations administered these scales consisted of a random sample of 46 organizations in the Birmingham, England area. These organizations were stratified by size, product or purpose, according to the Standard Industrial Classification of the British Ministry of Labor. The sample was drawn from a total population of 293 employing organizations which had more than 250 employees.

The data for the scales were obtained from field interviews with the chief executive and departmental members of varying status. Since the data were descriptive about organizational structure as opposed to attitudinal, the researchers felt that it was not necessary to standardize the interview procedure. The interviews took place between

TABLE 1

ORGANIZATIONAL DIMENSIONS AND SCALE TITLES

| Scale Number of Dimension | Scale Title |
|---|---|
| Specialization | |
| *51.01 | Functional specialization |
| 51.02-51.17 | Specializations No. 1-16 |
| 51.18 | Qualifications |
| 51.19 | Overall role specialization |
| Standardization | |
| 52.00 | Overall standardization |
| 52.01 | Procedures defining task and image |
| 52.02 | Procedures controlling selection, advancement, etc. |
| Formalization | |
| 53.00 | Overall formalization |
| *53.01 | Role definition |
| 53.02 | Information passing |
| 53.03 | Recording of role performance |
| Centralization | |
| 54.00 | Overall centralization of decisions |
| | Criteria to evaluate performance: |
| 54.01 | Finance |
| 54.02 | Costs |
| 54.03 | Time |
| 54.04 | Quality |
| 54.05 | Labor relations |
| 54.06 | Output volume |
| 54.07 | Decisions affecting whole organization |
| 54.08 | Decisions affecting subunits of organization |
| 54.09 | Decisions affecting individual |
| +54.10 | Autonomy of organization to make decisions |

TABLE 1 (Continued)

| Scale Number of Dimension | Scale Title |
|---|---|
| Configuration | |
| 55.08 | Chief executive's span of control |
| 55.09 | Subordinate ratio |
| 55.42 | Status of specializations |
| 55.43 | Vertical span (height) of workflow hierarchy |
| 55.44 | Direct workers (%) |
| 55.46 | Female direct workers (%) |
| 55.47 | Workflow superordinates (%) |
| 55.48 | Non-workflow personnel (%) |
| 55.49 | Clerks (%) |
| 55.50-55.65 | Size of specializations |

*Scale title used in Inkson Short Form for structuring of activities.

+Scale title used in Inkson Short Form for concentration of authority.

Source: Pugh, Administrative Science Quarterly, 1968.

mid- 1962-1964. The method involved a wide range of interviews within the organization and it required several weeks within each organization to gather all the data needed.[1]

Because the research strategy was to undertake a wide survey to obtain the structural guidelines, the researchers decided to eliminate those scales which were not applicable to all organizations studied. Several scales had to be sacrificed to meet this end. This was considered by the researchers as both the strength and weakness of the project. On the one hand, the structural dimensions which were used can be said to be representative of organizations in general, but it should also be noted that scales which apply to perhaps 95 percent of the organizations were excluded because they were not applicable to the remaining 5 percent. Also, the Pugh project dealt with organizational structure pertaining to what is officially expected to be done and what in practice is allowed to be done. The research did not include what is actually done in the sense of behavior beyond that instituted in organizational forms.[2]

The basic methodological problem which the researchers faced was whether the results on single items in the scale measures could be added up to form an equal interval

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[1]Pugh, Administrative Science Quarterly, 1968.

[2]Ibid.

dimension or at least a stable ordered scale to represent the dimension. This condition was necessary in order to undertake the Pearson-Product Moment correlational analysis and subsequent factor analysis.[1]

The problem was approached by carrying out an item analysis of the data on a particular variable and using the Brogden-Clemans coefficient to test whether the items scaled could be regarded as representing a dimension.[2] The advantage of using this type of statistical procedure is that it does not require any assumptions about the underlying distribution of the scales.[3]

The measures described above allowed comparisons between organizations on any one scale, but not on scales of different variables, such as a comparison of an organization's formalization score with its centralization score. This comparability was obtained by converting the raw scores of the scale into scores with a common mean of 50 and a standard deviation of 15. After eliminating those scales, which did not represent all organizations studied, the

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[1]Pugh, Administrative Science Quarterly, 1968.

[2]Ibid.

[3]H. E. Brogden, "A New Coefficient: Applications to Biserial Correlation and to Estimation of Selective Efficiency," Psychometrica, Vol. XIV (1949), pp. 169-182.

researchers reduced the number of scales from 64 to 16.[1]

Correlation analysis was performed on the resulting 16 scales and the correlation coefficients are presented in Table 2 on the following page. The high intercorrelations such as those between overall formalization (Scale No. 53.00) and overall standardization (Scale No. 52.00) suggested that the interpretation of these data could be improved by factor analysis. Factor analysis is a statistical summarizing method in which those scales that correlate highly with each other but not with other scales are grouped together. A descriptive title is then assigned to these factor groupings.

Principal components factor analysis was applied to the data in Table 2 and four factors were initially extracted, accounting for 33, 19, 14 and 8 percent of the variance, respectively. The loadings of the variables on the factors are given in Table 3 on page 86.[2]

The meanings of the factors are readily apparent. Factor 1 is most heavily loaded on the variables of standardization, specialization, and formalization. This dimension is called structuring of activities and is defined by the degree to which the behavior of employees is overtly defined. This factor incorporates the degree of role

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[1]Pugh, Administrative Science Quarterly, 1968.

[2]Ibid.

TABLE 2

PRODUCT-MOMENT CORRELATION BETWEEN SELECTED SCALES OF STRUCTURE (n=46)

| Scale No. | Title | Functional specialization | Legal specialization | Overall role specialization | Overall standardization | Standardization--selection, etc. | Overall formalization | Recording of role performance | Overall centralization | Autonomy of organization | Chief executive's span | Subordinate ratio | Vertical span (height) | Workflow superordinates (%) | Non-workflow personnel (%) | Clerks (%) | Traditionalism |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51.01 | Functional specialization | -- | | | | | | | | | | | | | | | |
| 51.16 | Legal specialization | 0.32 | -- | | | | | | | | | | | | | | |
| 51.19 | Overall role specialization | 0.87 | 0.34 | -- | | | | | | | | | | | | | |
| 52.00 | Overall standardization | 0.76 | 0.27 | 0.80 | -- | | | | | | | | | | | | |
| 52.02 | Standardization-selection,etc. | -0.15 | 0.47 | 0.09 | 0.23 | -- | | | | | | | | | | | |
| 53.00 | Overall formalization | 0.57 | 0.26 | 0.68 | 0.83 | 0.38 | -- | | | | | | | | | | |
| 53.03 | Recording of role performance | 0.66 | 0.11 | 0.54 | 0.72 | -0.12 | 0.75 | -- | | | | | | | | | |
| 54.00 | Overall centralization | -0.64 | -0.04 | -0.53 | -0.27 | 0.30 | -0.20 | -0.27 | -- | | | | | | | | |
| 54.10 | Autonomy of organization | 0.50 | -0.15 | 0.40 | 0.06 | -0.52 | -0.02 | 0.10 | -0.79 | -- | | | | | | | |
| 55.08 | Chief executive's span | 0.22 | 0.15 | 0.34 | 0.28 | 0.04 | 0.32 | 0.32 | 0.10 | 0.02 | -- | | | | | | |
| 55.09 | Subordinate ratio | 0.25 | -0.14 | 0.05 | 0.13 | -0.46 | 0.04 | 0.39 | -0.14 | -0.14 | -0.16 | -- | | | | | |
| 55.43 | Vertical span (height) | 0.57 | 0.48 | 0.66 | 0.57 | 0.23 | 0.48 | 0.33 | -0.28 | -0.06 | 0.24 | -0.05 | -- | | | | |
| 55.47 | Workflow superordinates (%) | -0.53 | 0.21 | -0.38 | -0.37 | 0.39 | -0.24 | -0.52 | 0.42 | 0.47 | 0.12 | -0.55 | -0.01 | -- | | | |
| 55.48 | Non-workflow personnel (%) | 0.58 | 0.11 | 0.56 | 0.51 | -0.02 | 0.46 | 0.43 | -0.40 | -0.32 | 0.10 | 0.01 | 0.21 | -0.43 | -- | | |
| 55.49 | Clerks (%) | 0.17 | 0.12 | 0.29 | 0.31 | 0.31 | 0.29 | 0.08 | -0.04 | -0.05 | 0.12 | -0.24 | -0.01 | -0.05 | 0.36 | -- | |
| 56.00 | Traditionalism | -0.36 | -0.13 | -0.26 | -0.24 | 0.06 | -0.47 | -0.54 | 0.39 | 0.30 | -0.22 | -0.17 | -0.14 | 0.19 | -0.26 | -0.05 | -- |

Source: Pugh, Administrative Science Quarterly, 1968.

specialization in task allocation, the degree of standardization of organizational routines, and the degree of formalization of written procedures.[1]

Factor II is marked by the inverse relationship of centralization and autonomy and is therefore concerned with concentration of authority.

Concentration of authority is defined as the degree to which authority for decisions rested in controlling units outside the organization and is centralized at the higher hierarchial levels within it. As might be expected, specialization is associated with dispersal of authority, and with more specialization, authority tends to be further dispersed down the organization.[2]

In factors III (line control of workflow) and IV (relative size of the supportive component), variables of configuration predominate. Further statistical analysis resulted in the elimination of these factors because they did not actually account for as large a percentage of the variance as the initial (first order) factor analysis indicated. Configuration scales of recording of role performance (use of formal performance appraisals) and subordinate ratio (span of control) dominate the line control of workflow factor, while vertical span (number of management

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[1] Pugh, Administrative Science Quarterly, 1968.

[2] Ibid.

levels) and percentage of clerks loaded heavily on Factor IV. The scales which loaded high on Factors III and IV also tended to load rather heavily on either Factors I or II. Further factor analysis and graphic rotation resulted in the variances of Factors III and IV being either accounted for by Factors I and II or neutralized by selecting organizations identical along that factor. In a later study only two factors, structuring of activities and concentration of authority, emerged as being most representative of the organizations studied.[1]

## Empirical Taxonomy of Organizations

Pugh, in a research article in the Administrative Science Quarterly, developed an empirical taxonomy of organizations which used the first three organizational structural factors (shown in Table 3) as dimensions. This classification is illustrated in Figure 4 on page 87 as a three dimensional model. Although seven types of organizations are identified on this model, this three dimensional taxonomy was short lived.[2]

Inkson eliminated the third dimension, line control of workflow, and rearranged the classification such that

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[1] Inkson, Administrative Science Quarterly, 1970.

[2] D. S. Pugh, D. J. Hickson and C. R. Hinings, "An Empirical Taxonomy of Structures of Work Organizations," Administrative Science Quarterly, Vol. XIV, 1969, pp. 115-126.

TABLE 3

Principal-Components Analysis of Selected Scales of Structure After Graphic Rotation

| No. | Scale Title | Factor I Structuring of Activities | Factor II Concentration of Authority | Factor III Line Control of Workflow | Factor IV Relative Size of Supportive Component |
|---|---|---|---|---|---|
| 52.00 | Standardization | 0.89* | -0.01 | -0.21 | 0.10 |
| 51.19 | Role specialization | 0.87* | -0.33 | 0.01 | -0.13 |
| 53.00 | Formalization | 0.87* | 0.14 | -0.21 | 0.17 |
| 56.00 | Traditionalism | -0.41*** | 0.18 | 0.32 | -0.02 |
| 55.08 | Chief executive's span | 0.42*** | 0.23 | -0.07 | -0.03 |
| 55.01 | Functional specialization | 0.78* | -0.47*** | -0.21 | -0.17 |
| 55.48 | Non-workflow personnel (%) | 0.58** | -0.43** | 0.06 | 0.41*** |
| 55.16 | Legal specialization | 0.51** | 0.25 | 0.31 | -0.43*** |
| 55.43 | Vertical span | 0.69* | 0.03 | 0.03 | -0.54** |
| 55.49 | Clerks (%) | 0.40*** | -0.09 | 0.42*** | 0.67* |
| 53.03 | Recording of role performance | 0.69* | -0.05 | -0.64* | 0.13 |
| 55.09 | Subordinate ratio | -0.05 | -0.19 | -0.80* | -0.06 |
| 52.02 | Standardization-selection, etc. | 0.40*** | 0.59** | 0.50** | 0.09 |
| 55.47 | Workflow superordinates (%) | -0.23 | 0.60* | 0.50** | -0.22 |
| 54.00 | Centralization | -0.33 | 0.83* | 0.01 | 0.21 |
| 54.10 | Autonomy of the organization | 0.10 | -0.92* | 0.00 | -0.13 |
| | Variance (%) | 33.06 | 18.47 | 12.96 | 8.20 |

* Weightings 0.06
** Weightings 0.5
*** Weightings 0.4

Source: Pugh, et al., "Dimensions of Organizational Structure," Administrative Science Quarterly (June, 1968), p. 85.

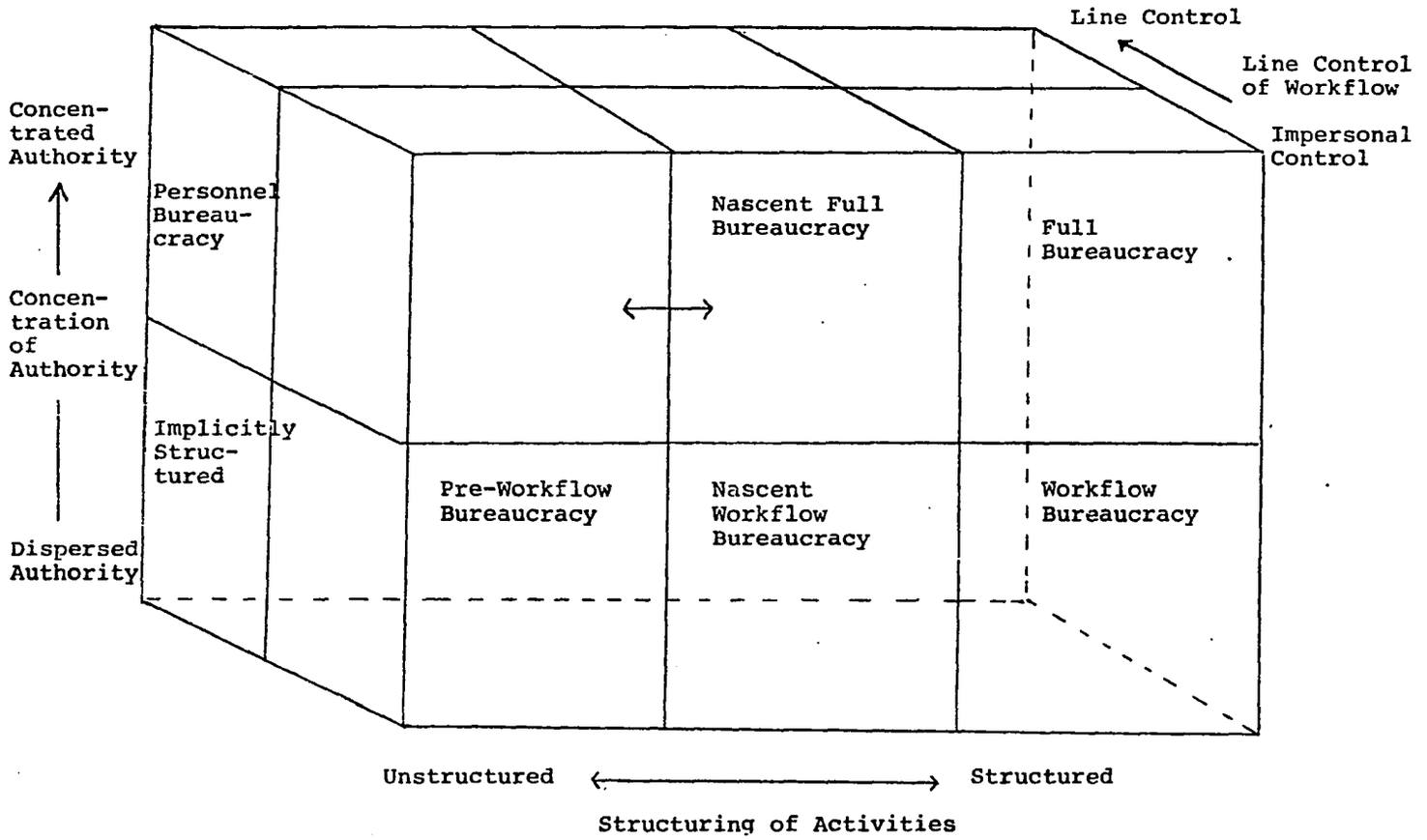


Figure 4. Organizational Classification Scheme of Pugh, et al.

only four organization types were possible. The reason for eliminating this dimension was not given in the article. A subsequent letter from Dr. John Child, the current director of research at the Graduate School of Business in Aston, England, stated that the line control of workflow dimension does not distinguish much variation among manufacturing firms.[1] Manufacturing firms were those used in Inkson's replication study. Thus, the taxonomy is reduced to two dimensions for purposes of this study because only manufacturing firms were studied.

In view of the length of time required to administer the original instrument, Inkson developed a short form instrument to measure two contextual variables (technology and dependence) and the two structural variables (structuring of activities and concentration of authority). The structuring of activities dimension of the short form correlated .97, and the concentration of authority correlated .93 with the original version of the instrument. The reader can note that the structuring of activities is represented in Table 1 by scale numbers 51.01, a subdimension of specialization, and 53.01 a subdimension of formalization. These two scales are added together to form the structuring of activities dimension. The combined scores on these

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[1]Child, Letter (December, 1973). See Appendix A, page 244.

subscales not only represent the structuring of activities (a summary or abstraction of many scales), but also are a direct measure for functional specialization and role definition, respectively. In a similar manner, the subscale autonomy of organization to make decisions (number 54.10) correlates (.93) with concentration of authority and is a direct measure of autonomy.[1] The short form instrument was used in subsequent research efforts and is the one used in this study. This short form instrument is presented in Appendix B on page 246.

Organizations are classified according to two structural dimensions. The scores of these structural dimensions can be easily obtained with the Inkson short form instrument after one to two hour interview with the chief executive or someone else knowledgeable of the total operation of the firm such as the personnel manager. This classification scheme, unlike typological and other processural classification schemes, is based solely on empirically derived, objective and continuous scale variables. Like any classification scheme, certain problems of measurement are involved such as the cut-off points for placing an organization in a given classification. Pugh attests to this weakness by noting that some of the organizations studied

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[1]Inkson, Administrative Science Quarterly, 1970.

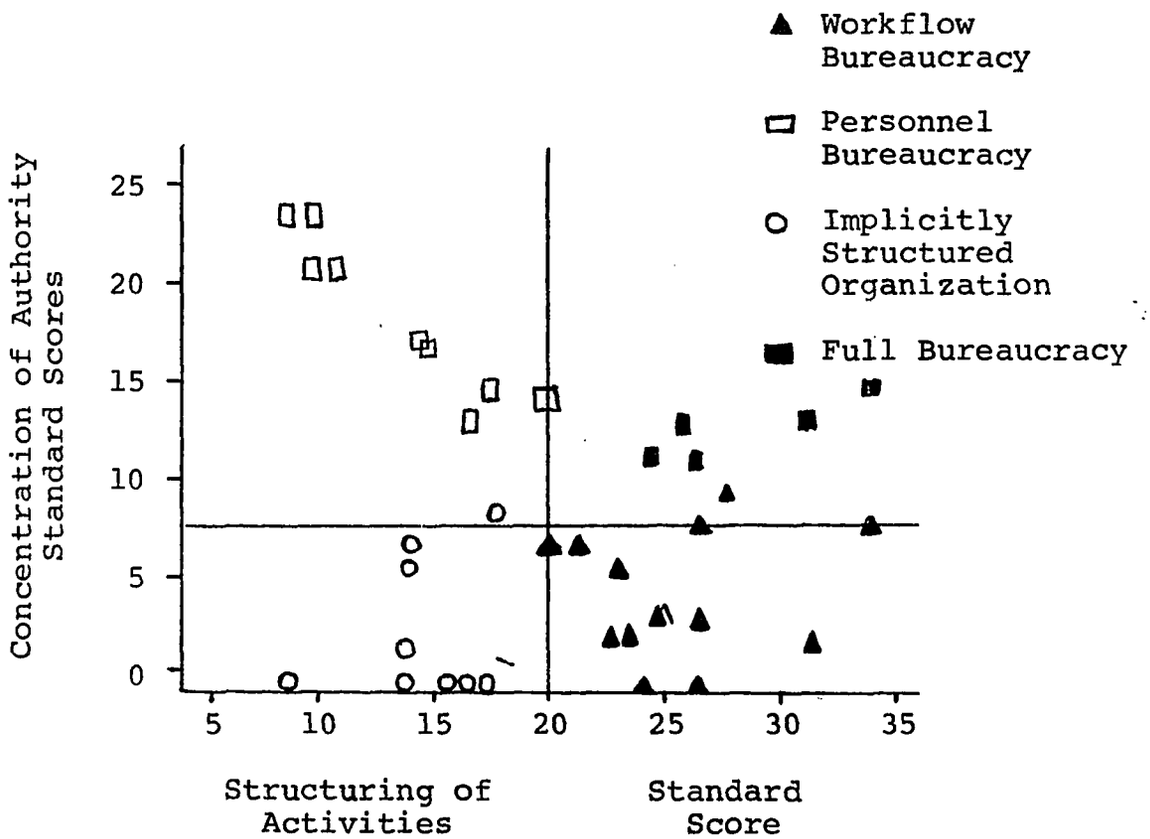


Figure 5. Classification of organizations using the Inkson instrument.

Source: Inkson, Administrative Science Quarterly, 1970.

do not neatly fall into a given classification.[1] This problem is not unique in organizational classification schemes, but the researchers felt that their classification scheme, because it is based on empirically established dimensions and not according to a particular a priori typological scheme is a superior method of organizational classification.[2] A model of this classification scheme is illustrated in Figure 5 on page 90. A description of each type of organization is presented below.

1. Implicitly Structured (nonbureaucratic). These organizations score low on both structural dimensions. A wide range of organizations falls in this classification and vary from service organizations to manufacturing firms. Such organizations tend to be relatively small and tend to be privately owned. Although they exhibit measurable characteristics of formal structure, much of their control often resides with the owner-manager.
2. Personnel Bureaucracy. These organizations are low on structure of activities and high on concentration of authority. Control in these organizations often rests in some outside parent organization. Such

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[1] Pugh, Administrative Science Quarterly, 1969.

[2] Ibid.

organizations tend to be local or central government departments and the smaller branch factories of large corporations.

3. Workflow Bureaucracy. These organizations are high on structure of activities, but low on concentration of authority. In these organizations the high degree of structure of activities results in the substitution of impersonal control through formalization, standardization, and specialization for the personal control involved in nonbureaucratic organizations. Medium sized manufacturing firms and large retail stores comprise many of the organizations in this category.
4. Full Bureaucracy. These organizations are high along both structural dimensions and represent rather mature organizations. Organizations such as the giant corporations and its branch operating units fall in this category.

## Research Efforts on the Pugh Conceptual Scheme

The Pugh organizational conceptual scheme cited earlier points to independent-dependent relationships between the organizational context and organizational structure, from organizational structure to group processes, and from organizational structure and group processes to individual behavior. Research efforts applicable to this

conceptual scheme are discussed in the sections below.

Organizational Context and Structure

The structure of an organization is closely related to the context under which it functions and some of the variation in organizational structure may be predicted and explained by contextual factors.

Contextual factors are called "contextual" in the sense they can be regarded as the setting in which organization structure is developed. The contextual variables were discerned by Pugh from an extensive review of the literature on organization theory. Because these contextual variables are largely self-explanatory and will be subsequently reduced in number by factor analysis, a sufficient list should be: 1) origin and history, 2) ownership and control, 3) size, 4) charter (purpose and ideology of the organization), 5) technology (extent of automated and continuous equipment), 6) location (national and regional differences, urban and rural locations, etc.), and 7) dependence (dependence with suppliers, customers, etc.).[1]

The procedures used to develop the scales and subscales and reduce the contextual variables to common headings were similar to those used to arrive at the two main structural variables.

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[1]Pugh, Administrative Science Quarterly, 1963.

A total of 37 scale measures was developed to represent the contextual variables. Those scales which were not characteristic of all (46) organizations studied were eliminated, thus reducing the total number of scales to 14. These 14 scale titles are depicted in Table 4, along with their correlation with the two structural variables. After further multivariant analysis of the contextual variables the number of scales was reduced to 4, with the two size scales later being combined into a unified contextual dimension of size. Table 5 on page 96 shows the correlations of these four contextual scales with the two structural dimensions. The salient contextual factors emerge as size, technology, and dependence. A description of these contextual variables is given below along with their implications for organizational structure.

Size

There are two aspects pertaining to the size of the organization: the size of the organization in question and the size of the parent organization.

The size of the organization is interpreted as the logarithm of the number of employees in the organization. The correlation between the size and structuring of activities (r=.69) lends strong support to descriptive studies regarding the effect of size on bureaucratization. The lack of correlation between size and concentration of

TABLE 4

ELEMENTS OF ORGANIZATION CONTEXT

| Original Elements of Context | Product-Moment Correlation With Structural Factors | |
|---|---|---|
| | Structuring of Activities | Concentration of Authority |
| Origin and history (3)* | | |
| Impersonality of origin | -0.04 | 0.64 |
| Age | 0.09 | -0.38 |
| Historical changes | 0.17 | -0.45 |
| Ownership and control (7) | | |
| Public accountability | -0.10 | 0.64 |
| Concentration of ownership with control | -0.15 | -0.29 |
| Size (3) | | |
| Size of organization** | 0.69 | -0.10 |
| Size of parent organization** | 0.39 | 0.39 |
| Charter (7) | | |
| Operating variability | 0.15 | -0.22 |
| Operating diversity | 0.26 | -0.30 |
| Technology (6) | | |
| Workflow integration | 0.34 | -0.30 |
| Labor costs | -0.25 | 0.43 |
| Location (1) | | |
| Number of operating sites | -0.26 | 0.39 |
| Dependence (10) | | |
| Dependence | -0.05 | 0.66 |
| Recognition of trade unions | 0.51 | 0.08 |

* Numbers in parentheses indicate number of original primary scales.

** Logarithm of number of employees.

Source: Pugh, Administrative Science Quarterly, 1969.

TABLE 5

SALIENT ELEMENTS OF CONTEXT (PRODUCT-MOMENT CORRELATIONS WITH STRUCTURAL FACTORS).*

| Elements of Context | Structuring of Activities | Concentration of Authority |
|---|---|---|
| Size of organization** | 0.69 | .10 |
| Size of parent organization** | 0.39 | 0.39 |
| Workflow integration+ | 0.34 | -0.30 |
| Dependency | -- | 0.66 |

* With N = 46, correlations of 0.29 are at the 5% level of confidence, and correlations of 0.38 are at the 1% level of confidence.

** Logarithm of number of employees.

+ This is referred to as technology.

Source: Pugh, Administrative Science Quarterly, 1969.

authority is equally striking (r=0.10).[1]

Closer examination of the relationship of size to the main structural variables underlying concentration of authority points up to a limitation in the multivariant approach, which established the basic structural dimensions by factor analysis. The structural factors represent an attempt to summarize a large amount of data on a large number of variables in order to make empirically based comparisons possible. The cost is that the factor may obscure particular relationships with the source variables which it summarizes. Concentration of authority summarizes and, therefore, partially conceals two small but distinct relationships with two of its component variables -- autonomy and centralization. There is no relationship between size and autonomy (r=0.09), but there is a negative relationship between size and concentration of authority (r= -0.39).[2]

The relationship with centralization has clear implications for the concepts of organizational structure. Centralization correlated negatively with all scales of structuring of activities except one: the more specialized, standardized, and formalized the organization, the less it is centralized. Essentially, what takes place is that the

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[1]Pugh, Administrative Science Quarterly, 1969.

[2]Ibid.

increase in the structuring of activities allows for the application of the impersonal control mechanism from staff specialists, formal procedures and roles, such that centralized control is not necessary immediately as the organization grows. Indeed, the negative correlation of centralization to size indicates a downward dispersion of authority. This phenomenon was empirically verified by Inkson in a longitudinal study of 40 firms over a 4 to 5 year period.[1] A later study by Hinings and Lee confirmed Inkson's findings.[2]

The size of the parent organization is the second aspect of size and is the logarithm of the number of employees of any larger organization to which the unit belongs. The literature on bureaucracy often implies that it is the size of the larger parent organization that influences the structure of the subunit.[3] Thus, the structure of a small government agency may not be a result of its own size but that of the larger unit of which it is a part. Similarly, the structure of a subsidiary company may be more related to the size of its holding company. In verifying this, Pugh found a positive correlation between size of the parent

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[1]Inkson, Administrative Science Quarterly, 1970.

[2]C. R. Hinings and Gloria L. Lee, "Dimensions of Organization Structure and Their Context: A Replication," Sociology, Vol. V, No. 1 (1971), pp. 83-93.

[3]Pugh, Administrative Science Quarterly, 1963.

organization and structuring of activities (r=.39) and concentration of authority (r=.39). According to these findings, the impact of the size of an organization (r=.69) is considerably greater than the size of the parent organization (r=.39) on structuring of activities, but the concentration of authority is more dependent on the size of the parent organization (r=.39) than it is on the size of the organization (r=.10).[1]

Technology

Technology is defined by Pugh as the sequence of physical techniques used upon the workflow of the organization, even if the physical techniques involve only pen, ink, and paper. This concept of technology covers both the patterns of operations and the equipment used. The scales used to measure this dimension are applicable to service as well as to manufacturing organizations. Workflow integration is the major variable of technology considered and is the degree to which the workflow is characterized by an automated, continuous, and fixed sequence operation.[2]

Although earlier studies by Woodward,[3]

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[1]Pugh, Administrative Science Quarterly, 1969.

[2]Ibid.

[3]Woodward, Management and Technology, 1958.

Udy,[1] Zwerman,[2] show technology to be a major correlate of organization structure, at least upon those structural variables depicting features of the "slope" of the organizational pyramid (e.g., spans of control, number of hierarchial levels, etc.), recent research efforts have tended to mollify these findings. A study by Mohr found only a moderate relationship between aspects of technology and structure. He concluded that many of the previously diverse findings with respect to technology and organization structure could be traced to differences in the definition of technology. His conclusions regarding the effect of technology on organization structure take these different definitions of technology into account.[3]

Hickson analyzed data from the study of the 46 organizations used to develop organizational structure and found that, overall, technology had only a relatively weak association with structure, especially compared to the size of the organization. He did find a slight significant relationship such that the more integrated the technology the greater the structuring of activities and the less the

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[1]Stanley Udy, "The Comparative Analysis of Organizations," in James G. March (ed.), Handbook of Organizations (Chicago: Rand McNally, 1965), pp. 678-709.

[2]W. L. Zwerman, New Perspectives on Organization Theory (Westport, Connecticut: Greenwood Publishing Co., 1970).

[3]L. B. Mohr, "Organizational Technology and Organizational Structure," Administrative Science Quarterly, Vol. XVI, pp. 444-459.

concentration of authority.[1]

A recent study by Child and Mansfield looked at 82 business organizations.[2] They concluded that technological variables are found to be slightly associated only with structuring of activities in certain definable aspects, but on the whole, size has a much stronger relationship with both structural dimensions.

The conclusion here is that technology has only a weak relationship with structuring of activities and the concentration of authority.

Dependency

Dependency is a rather complex contextual variable which attempts to tap the extent to which the organization is dependent upon other organizations in its environment. Such organizations include suppliers, government, labor unions, and parent organizations.

The correlation of dependence with the structural dimensions focus largely on concentration of authority (r=0.66). The Inkson longitudinal study tended to confirm this as he concluded that dependent organizations tend to

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[1]D. J. Hickson, D. S. Pugh and D. C. Pheysey, "Operations Technology and Organizational Structure: An Empirical Reappraisal," Administrative Science Quarterly, Vol. XIV, 1969, pp. 378-97

2J. Child and Roger Mansfield, "Technology, Size and Organizational Structure," Sociology, Vol. VI, No. 3, (1972) pp. 370-393.

have a more centralized authority structure and less autonomy in decision making; independent organizations have more autonomy and decentralize decisions down the hierarchy. There was no relationship between dependency and structuring of activities.[1]

Culture

Although no contextual variable related to culture was developed by Pugh, a study was conducted by other members of the Aston research group from a sample of 70 U.S., Canadian, and British organizations. These samples were then matched according to product and size. The results of the study indicated that large organizations tend to have similar bureaucratic structures as a basic feature of modern industrialization. Apparently the results of the study show a cultural influence with respect to one aspect -- formalization of documentation. This contrast was noted between the American and British organizations, in which the American firms were characterized by a higher degree of formalization. The researchers hypothesized that this difference occurred because Americans feared abuse of authority and had elaborate rules providing for formalized work procedures and

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[1]Inkson, Administrative Science Quarterly, 1970.

for appeal against authority.[1] The British firms on the other hand placed more trust in authority and, therefore, did not rely on the formalization measures. As expected, the Canadians were between the U.S. and British firms in this respect. Only marginal differences occurred between firms in the three countries with respect to the other variables studied: autonomy and specialization.[2]

In summary of this part, organizational size, with respect to both the size of the organization and the size of the parent organization, appeared to correlate highly with the structure of activities. Dependence is closely associated with concentration of authority. Technology, although marginally related to structure of activities, does not appear to be as good an indicator of organization structure as size or dependence.

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[1]Charles J. McMillan, David J. Hickson, C. R. Hinings, and R. E. Schneck, "The Structure of Work Organizations Across Societies," Academy of Management Journal, (December, 1973), pp. 555-569.

[2]McMillan, Academy of Management Journal, 1973.

Organization Structure and Group Process

In a study conducted by Pheysey, et al., groups of line managers were studied in implicitly structured (non-bureaucratic) and bureaucratic organizations. Line managers were studied because the researchers felt that line managers would be more likely to be affected by the structure of the organization than would staff managers. It was hypothesized that the members of the groups in the bureaucratic organization would perceive their co-workers as being more formal at all levels in the hierarchy and having less autonomy. It was also hypothesized the organizational climate would be less developmental.[1]

The first two hypotheses were confirmed but the third hypothesis was not confirmed. Group members of the bureaucratic organization also perceived the organizational climate as being developmental, thus generating at the group level in both organizations the same involvement of managers with their groups.[2] This indicates that satisfaction with the group is not dependent upon organizational structure, and thus partially refutes Argyris' incongruity hypothesis regarding the structure of the organization on

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[1]Diana C. Pheysey, Roy L. Payne and Derek S. Pugh, "Influence of Structure at Organization and Group Levels," Administrative Science Quarterly, Vol. XVI, (1971), pp. 61-73.

[2]Ibid.

behavior variables.[1] It also tends to refute some of the dysfunctions attributed to bureaucracy by Gouldner[2] and Merton.[3]

Organizational Structure and Individual Behavior

Child attempted to study the effects of organizational structure on the behavior of the individual members in the organization.[4] More specifically, he set out to determine whether bureaucratic organizational structures cause dependency and conformity as hypothesized by Merton[5] and Argyris[6] or allow for self-direction and challenge as found by Porter[7] and Kohn.[8]

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[1]Chris Argyris, "Personality and Organization Theory Revisited," Administrative Science Quarterly, Vol. XVIII, No. 2, 1973.

[2]A. W. Gouldner, "Cosmopolitans and Locals: Toward An Analysis of Latent Social Roles -- I, II," Administrative Science Quarterly, Vol. II, 1957-58.

[3]R. K. Merton, Social Theory and Social Structure (Revised Edition; New York: Free Press, 1957).

[4]John Child, "Strategies of Control and Organizational Behavior," Administrative Science Quarterly, Vol. XVIII, No. 1, 1973.

[5]Merton, Social Theory and Social Structure, 1957.

[6]Argyris, Administrative Science Quarterly, 1973.

[7]Lyman W. Porter, "Where is the Organization Man?," Harvard Business Review, Vol. XXXXI (1963), pp. 53-61.

[8]Melvin L. Kohn, "Bureaucratic Man: A Portrait and an Interpretation," American Sociological Review, Vol. XXXVI (1971), pp. 461-474.

To determine the effect of organizational structure on human behavior, Child hypothesized that two main strategies of organizational control (structuring of activities and centralization) will give rise to conforming behavior and low levels of conflict through the prescribing of individual roles.[1]

The study conducted by Child explored a sample of 787 senior British managers working for 78 business organizations. The results of the study indicated that structuring of activities is found to be associated with higher levels of conflict and hardly at all with conforming behavior. Centralization is associated with higher levels of conforming behavior, but not with conflict. Child concluded that the pattern of relationships between variables located at different levels of organizational analysis is more complex than previously anticipated.[2]

## Intraorganizational Structure Variation

Thus far this section has dealt exclusively with interorganizational structure variation (variations in structure among different organizations). The instrument used here

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[1]John Child, "Strategies of Control and Organizational Behavior," Administrative Science Quarterly, Vol. XVIII (1973), pp. 1-17.

[2]Ibid.

is concerned with measuring this interorganizational structural variation. Organizations also possess intraorganizational structural variations, and this phenomenon will be briefly discussed along with the implications for this study.

In a study conducted by Hall,[1] using 10 organizations as a sample, variations in structure within organizations were studied using the bureaucratic model of Weber. It was demonstrated that organizational segments, both vertical and horizontal, varied significantly in their degree of bureaucratization. This variation existed along the six dimensions of bureaucracy as measured by attitudinal questionnaires completed by the employees. Hall concluded that the higher levels of the organization were less structured than the lower levels, which were characterized by a higher degree of specialization, procedures, impersonality, and adherence to formal rules. Although the technical qualifications dimension was positively related to the management levels, Hall concluded that, in general, the higher levels were characterized by less structure than those of the lower levels.[2]

Inkson found that executives at the top of structured (bureaucratic) organizations perceived their jobs as being

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[1] R. H. Hall, "Intraorganizational Structural Variation: Application of the Bureaucratic Model," Administrative Science Quarterly, Vol. VII (1962), pp. 295-308.

[2] Ibid.

less clearly defined and less routine than those of senior executives in unstructured organizations, and those lower in the hierarchy.[1]

Rather than searching for a suitable intraorganizational structure instrument, the scope of this study was limited according to the conclusion reached by the literature regarding intraorganizational structure variation.

## Summary

The Pugh study involved an extensive literature review to discern six (6) primary dimensions of organization structure. They then developed scale measures for these dimensions and subdimensions, and through multivariate (mainly factor analysis) statistical techniques, were able to empirically establish the two main factors of structure which accounted for most of the structural variance across

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[1]J. H. K. Inkson, D. J. Hickson, D. S. Pugh, "Administrative Reduction in Variance in Organization and Behavior," unpublished paper given to the British Psychological Society Annual Conference, April, 1968 (as cited in Child, Administrative Science Quarterly, 1973).

46 work organizations. These two structural dimensions are given below.

1. Structuring of Work Activities. The degree to which the behavior of employees is overtly defined, incorporating the degree of role specialization in task allocation, the degree of standardization of organizational routines, and the degree of formalization of written procedures.
2. Concentration of Authority. The degree to which authority for decisions rests in controlling units outside the organization (autonomy) and was centralized at the higher hierarchial levels within it.

Inkson developed a short form instrument which combined scale measures of subdimensions of specialization and formalization as a measure of structuring of activities. The scale measure of autonomy is used to measure concentration of authority.

The resulting taxonomy of organizations, which emerged from the Pugh study and was later modified by Inkson, recognized four types of organizations. In this study, implicitly structured organizations (nonbureaucratic) and bureaucratic are used and consist of organizations which place low and high along each structural dimension, respectively.

In subsequent studies, Pugh and other researchers set out to test the hypothesized independent-dependent relationships between organizational context and structure,

organizational structure and group processes, and organizational structure and individual behavior. Most of the research effort has been directed at the contextual variables, in which it was concluded that size and dependency have the strongest relationship with organization structure. Size is positively related mainly to structuring of activities, whereas dependency is related to concentration of authority. The contextual variables can be used to approximate the classification of the organizations into bureaucratic and non-bureaucratic categories.

The taxonomy of organizations presented here, although having the advantage of being empirically based, does have some drawbacks. Only a sampling of the possible structural variables were explored. Furthermore, as pointed out in the relationships between size and concentration of authority and size and centralization, the structural dimensions are a summary and abstraction of more than one dimension and/or subdimensions, and may not precisely represent the characteristics of any one of these dimensions.

In spite of these limitations, the resulting taxonomy and Inkson short form have the advantages of being empirically established, and using relatively objective and easy to obtain data. The conclusion here is that the short form instrument is able to differentiate organizations for the purposes of this study. The literature review indicates that the top levels of a given organization tend to be less structured than the bottom levels. The scope of this study does not include actual measurement of this intrastructural

variation, but is controlled by separately analyzing the data from the first and second level line managers.

## Dogmatism

The concept of dogmatism, as developed by Rokeach,[1] is similar to the well-known concept of authoritarianism of Adorno,[2] in that the fundamental basis of each concept is to view an individual according to the extent he relies on an external authority source to validate what he does or does not believe. The main difference between these two concepts is that dogmatism is relatively free from political idealogy. Authoritarianism is oriented more toward a politically conservative type of authoritarianism.[3] Dogmatism attempts to tap the belief structure of an individual, whereas the Adorno authoritarianism concept is oriented more toward a politically conservative belief content.[4] According to Rokeach, "it is not so much what

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[1]M. Rokeach, The Open and Closed Mind (New York: Basic Books, 1960).

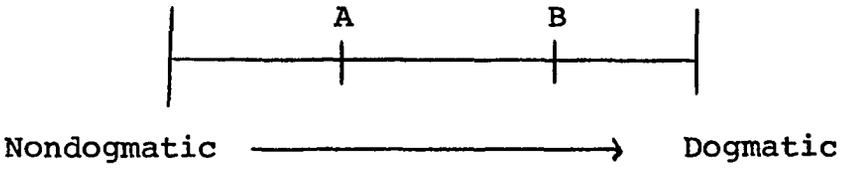
[2]T. W. Adorno, E. Frenkel-Brunswik, D. J. Levinson, and R. N. Stanford, The Authoritarian Personality (New York: Harper, 1950).

[3]Fred Kerlinger and Milton Rokeach, "The Factorial Nature of the F and D Scales," Journal of Personality and Social Psychology, Vol. IV, No. 4 (1966), pp. 391-399.

[4]Rokeach, The Open and Closed Mind, 1960.

you believe that counts, but how your believe."[1]

Dogmatism is not a dichotomous concept. Rather, it is considered to lie along a continuum according to the extent that an individual possesses a belief system that is dependent upon an external authority source for information and/or validation of that information (see Figure 6). Thus, instead of viewing an individual as dogmatic or nondogmatic, it is more appropriate to state that one individual or group of individuals is relatively more or less dogmatic than another group of individuals. For the remainder of this paper, "dogmatic" should be construed to mean "relatively more dogmatic" rather than a dichotomous phenomenon.




Dependence of Belief System
on External Authority

Figure 6. Model showing Individual B as being relatively more dogmatic than Individual A.

Dogmatism, as applied in this study, is a theory of the general cognitive functioning of the individual. This theory is not intended to be an all-encompassing or global

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[1] Rokeach, The Open and Closed Mind, 1960, p. 6.

theory of the individual. Rather, it is considered to be one of many significant dimensions of individual behavior. The Rokeach Dogmatism Theory was chosen for this study on the basis of its link to organization structure and its orientation around belief structure rather than belief content.

The first part of this section will deal with a description of the theoretical constructs followed by the development of the Dogmatism Scale (DS). The validity and reliability of the DS will be discussed along with a brief description of some research efforts whose results are particularly relevant to this study.

## Description of Theory

Rokeach's theory of dogmatism is centered around three dimensions which are organized such that if an individual is high on one dimension, he also tends to be high on the other two dimensions. These dimensions are as follows:[1]

1. Belief-Disbelief Dimension. At one end of this dimension are all those beliefs which the individual holds to be true, and at the opposite end are those beliefs which the individual holds to be untrue.

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[1]Rokeach, The Open and Closed Mind, 1960.

2. Central-Peripheral Dimension. This dimension consists of three regions which are: 1) the central regions composed of all fundamental or primitive beliefs pertaining to the nature of the physical world and the "self," 2) the intermediate region which represents the authority sources that tell him what to believe or not believe, and 3) the peripheral region which represents the beliefs derived from authority.

3. Time Perspective Dimension. This dimension varies from narrow to broad. A broad-time perspective is one in which the person's past, present, and future orientations are balanced among each other. A narrow-time perspective occurs when the individual placed heavy emphasis on one perspective, especially the future. According to Rokeach, the more open the belief system the better the balance among the past, present, and future time perspective, whereas a closed belief system is characterized by a narrow future oriented time perspective.

Belief-Disbelief Dimension

In discussing this section, it is necessary to define the basic terms which will frequently occur in the description of the theoretical constructs. These definitions as used by Rokeach are as follows:[1]

> System. An organization of parts (beliefs in this case) that may or may not be logically interrelated.
>
> Authority. Any source whom the individual seeks for information about the universe or to check information he already possesses.
>
> Belief System. All the beliefs, sets, expectancies, or hypotheses, conscious and unconscious, that a person at a given time accepts as true of the world he lives in.
>
> Disbelief System. A series of subsystems rather than merely a single system, and contains all the disbeliefs, sets, expectancies, conscious and unconscious, that to one degree or another, a person at a given time rejects as false.

A person's beliefs are organized in two parts-- a disbelief system and a belief system. The disbelief system

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[1]Rokeach, The Open and Closed Mind, 1960, pp. 32-35.

is composed of several disbelief subsystems which vary in their degree of similarity to the belief system. The more similar a disbelief subsystem is to the belief system, the more acceptable (or less disagreeable) it will appear to the individual. Someone who is a devout Catholic may see the beliefs of the Lutheran Church as more agreeable to him than those of Judaism.

Although Rokeach sets forth many defining characteristics of the belief-disbelief dimension, the ones which pertain to this study are the accentuation of differences between the belief and disbelief system, the coexistence of logically contradictory beliefs within the belief system, and the relative amount of knowledge possessed between those beliefs which are held to be true and those held to be untrue.

Accentuation of Differences

The more dogmatic the individual, the greater is his tendency to deny <u>similarities</u> between his true and untrue beliefs. Such individuals are said to isolate the belief and disbelief systems such that there is little communication between what is held to be true and what is held to be untrue. A person who held a closed view of democracy would tend to see <u>no</u> similarities between Russia and the United States. From a dynamic standpoint, such accentuations of differences are viewed as attempts to ward off a threat to

the validity of one's own belief system. From a structural standpoint, it is viewed in terms of isolation between the belief and disbelief system.

Coexistence of Logically Contradictory Beliefs

This is the well-known psychoanalytic mechanism of compartmentalization, which is the desire of a person to see himself as consistent. Because of the isolation of the belief and disbelief systems in the dogmatic individual, there is a tendency for him to hold contradictory beliefs. An example of this tendency toward contradictory beliefs is illustrated by the individual when reacting to a situation where animals were treated cruelly, was quoted as saying "the people who did this to these poor animals should be publicly flogged." Such a characterization represents extreme dogmatism. A more moderate expression of contradictory beliefs might be one who believes in the basic intelligence of the common man and at the same time believes the masses are stupid.

Relative Amount of Knowledge Possessed

This characteristic follows from the concept that the belief system is generally more differentiated than the disbelief subsystems, such that the more dogmatic the individual, the relatively more information he possesses about what he does believe rather than what he does not believe.

Central-Peripheral Dimension

This dimension comprises the core of Rokeach's theory of dogmatism and consists of three layers which are the central, intermediate and peripheral regions.

Central Region

The central region contains the individual's primitive beliefs. These beliefs are assumed to have been formed early in life and deal with the fundamental aspects of the individual's world of reality. The individual does not question or doubt the validity of these beliefs.

The primitive beliefs include the nature of physical reality (color, form, sound, space, and so forth) and the physical properties of the individual's world of reality. Next, the primitive beliefs are concerned with the individual's social world -- "Whether this world is basically a friendly or unfriendly place to live in, whether parental or authority figures are loving or punishing, whether people in general are to be trusted or feared."[1] Finally, there are primitive beliefs about the self. These beliefs are concerned with individuals' self-identity, beliefs about autonomy or dependence on others, about his self-worth, and so forth.

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[1]Rokeach, The Open and Closed Mind, 1960, p. 41.

The primitive beliefs are further characterized as those which the individual holds and believes everyone else holds. For example, if Individual A believes the sun is shining, he would also believe that all persons in a position to know (excluding infants, blind persons, etc.) would agree that the sun is shining. All such persons could be said to be external referrants or authorities for these primitive beliefs.

A final characterization of the primitive beliefs is the converse of the above. These are beliefs which the individual holds, but it would be extremely difficult for an external authority to dislodge these beliefs. For example, an individual may have claustrophobia, but all reassurances from those in a position to know cannot dislodge this belief regarding the danger of confining areas.

Rokeach points out that the primitive beliefs are not meant to be exhaustive, but are designed to illustrate what is meant by the term. Essentially, the primitive beliefs are the basic beliefs which the individual forms early in life. Such beliefs are <u>not</u> vulnerable to an external authority because the individual believes that everyone else already holds the belief, or else the belief is so firmly entrenched that most external authority sources are powerless to change it.[1]

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[1]Rokeach, <u>The Open and Closed Mind</u>, 1960.

Intermediate Region

The intermediate region is comprised of those beliefs which are concerned with the nature of the positive and negative authorities which help the individual fill out the map of his world of reality. Authority is defined as any source to whom the individual seeks to tell him what is true or untrue. A person high in dogmatism does not differ from a person low in dogmatism because the former relies on authority, whereas the other does not. Rather, they have different ideas regarding the nature of authority. In the case of the dogmatic individual, there is an arbitrary and absolute reliance on the authority, whereas in the nondogmatic individual the reliance on the authority is tentative and subject to scrutiny.[1]

With respect to the characteristics of the positive and negative authorities, Rokeach states that the individual is assumed to have not only a set of beliefs about positive authority but also about negative authority. The positive authority guides the individual as to what is "true" about his world, whereas the latter tells him what is false. In the case of the dogmatic individual the positive and negative authorities tend to be the same, but with the nondogmatic individual the positive authority and negative

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[1]Rokeach, The Open and Closed Mind, 1960, p. 44.

authority may be from two different sources. To illustrate this, suppose an individual held a certain religious belief called religion A. A dogmatic individual would seek sources in religion A to tell him about the teaching of religion A and would also seek these religion A sources to tell him about the teachings of religions B, C, D, etc. A nondogmatic individual belonging to religion A would seek religion A sources to tell him about the teaching of that religion, but would seek direct sources of religions B, C, D, etc., to tell him about their teachings. Unlike the central region, the concern in the intermediate region is with the structure or the manner in which beliefs are held. A nondogmatic individual tends to seek both positive and negative authority sources for a given belief. The dogmatic individual does not do this.

Peripheral Region

The peripheral region contains those beliefs which are derived from those of the intermediate region. Favorable or unfavorable beliefs about such things as birth control or whether one branch of the government should maintain a low or high degree of power would be considered as peripheral beliefs because they may have been derived from the authority sources in the intermediate region regarding the

Catholic Church and the ideology of democracy, respectively. If the specific nature of a person's intermediate beliefs is known, it should be possible to deduce from these the content of many other beliefs.

Although the specific content of the peripheral beliefs and disbeliefs will vary from person to person, the major concern here is not so much their content but the structural interconnections among the peripheral beliefs and the structural relations with those beliefs represented in the intermediate and central regions.

The role of the interconnection between these three regions is involved when the individual receives information from his environment and he is attempting to decide whether to accept or reject this information. To do this, the information goes through a screening process among these levels, beginning with the central region. This initial screening may lead to the rejection or narrowing out of this information so that nothing further need be done with it. For example, one may reject any information regarding the validity of extrasensory perception no matter how good the evidence because it violates his primitive belief that the world can be known only through the basic senses. From the central region, the information is further evaluated by the intermediate region, where this information may or may not be compatible with one's intermediate beliefs. Rokeach states that it is "for this reason people often selectively

avoid contact with stimuli, people, events, books, etc., that threaten the validity of their ideology or proselyte for competing ideologies."[1] The narrowing of the information in this region can occur at the institutional level where the authority source itself tells the individual to read only certain books, ban others, or condemn those whose beliefs are different. Narrowing can also occur at the individual level in which the individual systematically avoids information which may threaten the validity of the beliefs or disbeliefs in the intermediate region. Not all new information need be filtered in the above manner. If the new information can be altered or rationalized, especially under the guidance of the authority source, then it may be held as being compatible to the individual. If the information fulfills the requirement of the intermediate stage, then it is filed into whatever world outlook one has come to call his own (peripheral belief region).[2]

In this conception, the new information passes from the central to the intermediate to the peripheral regions where it becomes a belief or disbelief. Such a belief or disbelief may or may not communicate with or be perceived as being related to the other peripheral beliefs in the system. The degree of communication depends upon the degree of isolation among the belief-disbelief systems. The effect

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[1] Rokeach, The Open and Closed Mind, 1960, p. 48.

[2] Ibid.

of this isolation is covered in a quote by Rokeach.

> "The greater the isolation, the less direct effect will a change in one part (belief) of the peripheral region have upon adjacent parts (beliefs). But there can still be indirect communication among peripheral beliefs via the intermediate (authority) region. It is essentially in this way that we can now conceptualize what happens cognitively when one is said to undergo a 'party-line' change. A 'party-line' change is assumed to take place in a person if he changes a particular peripheral belief as a result of some instruction emanating from his authority figures. That is, there is high communication between peripheral and intermediate regions. But this is not enough. Such a change in peripheral belief should not affect other beliefs in the peripheral region, as the peripheral beliefs are isolated from each other in a 'party-line' change. A more 'genuine' change may be conceived of as taking place if a new belief or a change in an old belief, even though preceded by a communication from one's authority figures, sets off a sequence of autonomous activity that changes other peripheral beliefs, thereby changing the internal organization of the peripheral region and, possibly, of the intermediate and primitive regions as well.
>
> "It should be emphasized at this point that the processing-coding operation we have just tried to describe is not always to be conceived of as a 'coercing operation.' The extent to which information about the world is coerced into the system depends upon the degree to which the total belief-disbelief system is closed or open. At the closed extreme, it is the new information that must be tampered with--by narrowing it out, altering it, or containing it within isolated bounds. In this way, the belief-disbelief system is left intact. At the open extreme, it is the other way around: New information is assimilated <u>as is</u> and, in the hard process of reconciling it with other

> beliefs, communicates with other peripheral, as well as intermediate beliefs, thereby producing 'genuine' (as contrasted with 'party-line') changes in the whole belief-disbelief system."[1]

It is the structural interconnections among central, intermediate and peripheral beliefs that gives the total belief-disbelief system its integrated, holistic, and systematic behavior.[2] The belief-disbelief system, no matter how illogical, is still viewed by a given individual as highly organized. All the rules applied by a given individual have not been discovered. Rokeach's dogmatism theory is viewed by him as a first step in discovering the process by which an individual evaluates information.[3]

Time Perspective Dimension

The time perspective dimension is concerned with an individual's beliefs regarding the past, present and future and the manner in which they are interrelated. A narrow time perspective is one in which the person overemphasizes or fixates on the past, present, or future without recognizing

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[1]Rokeach, The Open and Closed Mind, 1960, pp. 49-50.

[2]Ibid.

[3]Ibid., p. 51.

the continuity and connections that exist among them. A broad time perspective is one in which the person's past, present, and future are seen by the individual as being interrelated.

The time perspective dimension centers around the interrelations given to the past, present, and future, and not necessarily the length of time involved.

According to Rokeach, the future-oriented variety of narrow time perspectives is characterized by most dogmatic individuals. Such individuals typically express overtly a greater confidence of what the future holds in store, and a greater readiness to make predictions about the future.[1]

## Criticisms of Theory

The Rokeach dogmatism theory, like virtually all theories of human behavior, cannot be presented as an "air tight," all-encompassing theory. Criticisms of the dogmatism theory have been posited not only by others, but also by Rokeach in The Open and Closed Mind, in which he explicitly states that the "theory regarding the organization of belief systems is by no means complete."[2] He goes on to state that there are probably other properties of belief systems which may have been overlooked.

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[1]Rokeach, The Open and Closed Mind, 1960, p. 53.

[2]Ibid., p. 48.

The criticisms levied by Rokeach and others tend to center around the incompleteness of the theory, rather than its validity. As will be pointed out in a later section, the validity of the current state of the theory has been rather well substantiated.

A criticism levied by Rokeach is that he has not studied the breadth or scope of the belief-disbelief system. A person may know a lot (or a little) about the total spectrum of possible belief system or he may know a lot (or little) about a narrow band of the spectrum "close in." Thus, the assumption cannot be made that an open-minded person is necessarily broad or that a closed-minded person is necessarily narrow.

Another criticism by Rokeach is that the theory is incomplete regarding the internal structure of belief systems, and that it would be desirable to know to what extent the various characteristics of open and closed systems are interrelated. Will a person with an isolated belief system also show isolation in the disbelief system, isolation between beliefs and disbelief systems, and isolation among peripheral beliefs?[1]

Ehrlich and Lee have criticized the theory to the extent that it suggests that if a person is dogmatic about

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[1]Rokeach, The Open and Closed Mind, 1960.

a certain belief content such as religion, then he is dogmatic regarding the other belief contents. They suggest that the extent to which this may or may not be the case depends on five intervening variables relating to such things as the authority-source of the new beliefs, relevance of their mode of communication, and their centrality to the individual.[1]

The above two writers are not meant to be exhaustive, but to illustrate that criticisms have been levied. However, Vacchiano, et al., in an extensive literature review, report that the major theoretical constructs of Rokeach's dogmatism theory have been verified, especially those stating that the more dogmatic the individual the more reliance he places on an external authority.[2]

## Dogmatism Scale

In constructing the dogmatism scale (DS), Rokeach developed items which would reflect openness or closedness of belief systems with respect to an individual's beliefs about his world of reality. The theoretical constructs which center around the three dimensions involved in dogmatism provided the guidelines for the types of items used in

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[1]Howard J. Ehrlich and Dorothy Lee, "Dogmatism, Learning and Resistance to Change: A Review and a New Paradigm," Psychological Bulletin, Vol. LXXI, No. 4 (1969), pp. 249-259.

[2]Ralph B. Vacchiano, Paul Strauss and Leonard Hochman, "A Review of Dogmatism," Psychological Bulletin, Vol. LXXI, No. 4 (1969), pp. 261-273.

the instrument.

The selection of items for the DS applied the method of known groups methodology in which one selects and rejects the items to be used in the scale on the basis of their ability to differentiate between groups of people known (by Rokeach and others) to differ significantly in dogmatism.[1] The primary criterion used in selecting items for the DS was that each statement had to be void of specific ideological positions. This was necessary in order to measure the structure of belief systems of individuals adhering to various ideologies. Rokeach sought statements which expressed ideas familiar to the "average type" person in everyday life. Although some of the statements were based upon actual statements of individuals intuitively believed to be dogmatic, most of the statements were constructed by Rokeach.[2] The DS is presented in Appendix C and is titled "Personal Opinion Survey."

## Validity and Reliability of the DS

Although many studies have been conducted to validate the DS, only a few of the more important studies will be briefly described here. The two aspects of validity concerned

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[1]Rokeach, The Open and Closed Mind, 1960.

[2]Ibid.

with this study deal with the ability of the scale to distinguish among subjects previously diagnosed as differing in dogmatism, and the major construct of the theory that the DS is a valid measure of general authoritarianism. A third factor, response set, is also discussed. Response set occurs when an individual answers an item in a certain manner without regard to the nature of the item. It is concluded here that the DS has good validity and reliability for a personality instrument.

## Observable Validity

One test of the validity of a construct is to determine the extent to which that construct provides an explanation of observed behavior.

The initial validity studies were conducted by Rokeach, in which he instructed graduate students in psychology to select individuals who were high and low in dogmatism from among their friends and acquaintances. The 10 highest dogmatic and 10 lowest dogmatic individuals formed the groups used to validate the present DS instrument.[1]

Insko instructed students in an undergraduate course in personality to administer the DS to the most dogmatic

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[1]Rokeach, The Open and Closed Mind, 1960.

and least dogmatic persons to whom they had access. Data were compared from 19 Ss judged to be open minded (two were eliminated earlier after admitting familiarity with the scale) and from 21 Ss judged to be closed-minded.[1]

There was a significant difference between the means of the two groups. Insko observed that, since most of the Ss were residents of Hawaii and did not have a European racial and ethnic ancestry, these findings also indicated some degree of cross-cultural validity of the DS. These findings were generally interpreted as supporting the validity of the DS.[2]

An ariticle by Haiman and Duns included a report of several studies. Each study investigated the usefulness of attitude scales as predictors of overt behavior, four of which pertained to the DS. The first study was designed to determine whether expert judges (public speech teachers at Northwestern University) could predict students' scores on the DS after listening to each student present a three-minute impromptu speech on a controversial subject and listening to each student answer questions for two minutes. The students who participated in this study were comprised

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[1] C. A. Insko, "Replication of One of Rokeach's D Scale Validation Studies," Psychological Reports, Vol. XIV (1964), pp. 925-926.

[2] Ibid.

of male and female students at Northwestern University.[1]

The judges for this study ranked the students on dogmatism as high, moderate, low and very low. Computation of the chi square statistic revealed that the judges could significantly identify the dogmatism category of the subjects. The results were marginally significant in distinguishing subjects either very high or very low in dogmatism. After replications of the above study with three other studies which were similar in nature, Haiman and Duns proposed that there may be two personality types who score very open-minded: individuals who fulfill the open-minded criteria described by Rokeach and individuals for whom open-mindedness is a matter of intellectual doctrine which does not carry over into these individuals' overt behavior.[2]

The conclusion from the findings of these four studies was that observers can predict the dogmatism levels of others with a moderate but significant degree of accuracy.[3]

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[1]Franklyn S. Haiman and Donald F. Duns, "Validation in Communicative Behavior of Attitude-Scale Measures of Dogmatism," The Journal of Social Psychology, Vol. LXIV, (1964), pp. 287-297.

[2]Ibid.

[3]Ibid.

In another investigation of the validity of the DS, Martin designed a study to examine the behavior of open and closed-minded individuals in groups. He specifically questioned whether or not dogmatism represents a relatively stable personality characteristic independent of group composition. The 161 Ss for this study were divided into small groups within their educational psychology or group dynamics classes. Participants in the study completed the DS and the National Profile Study as a measure of political extremism. A significant relationship was not found between dogmatism and political extremism, so the behaviors of those scoring in the upper and lower quintiles on these measures were evaluated separately. At the end of the course (five months of interaction), students rated other group members on the extent to which they were resistant to change, attempted to control or influence others, showed conflict, had been intolerant of opposing views, and so forth. The results showed that group influences were present with respect to interpreting certain behaviors. Martin suggested that group interactions may have produced a perceptual dichotomy in which both extreme groups were viewed as performing the

same behaviors.[1]

Martin reported no significant difference between the mean scores on the pre- and post-course administration of the DS. This finding was interpreted as supporting the stability and validity of the DS, and represents the latest study which could be located.[2]

In a study by Zagona and Zurcher, the authors hypothesized that closed-minded students would be group leader oriented, that they would prefer lectures to discussion, that they would prefer structured topics and a structured institutional situation, that they would be routine and conventional and demonstrate a lack of creativity, and that they would be disturbed by instructor behavior which did not conform to their role expectations of an authority figure.[3]

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[1]R. B. Martin, "Individual Behavior in Small, Informal Groups as a Function of Dogmatism and Political Extremism," Unpublished doctoral dissertation, Department of Education, Temple University, Philadelphia, Pennsylvania, 1968.

[2]Ibid.

[3]S. V. Zagona and L. A. Zurcher, in "Participation, Interaction and Role Behavior in Groups Selected From the Extremes of the Open-Closed Cognitive Continuum," The Journal of Psychology, Vol. LVIII (1964), pp. 255-264.

The authors also hypothesized that closed-minded Ss dealing with controversial material in group interaction would exhibit a more active concern with the problem of leader selection, their need for structure would overshadow their need for spontaneity, and that challenges by authority figures after group consensus would produce insecurity, a lessening of conviction, and less group cohesion among closed-minded Ss.[1]

Under challenges by authority figures after group consensus, open-minded Ss were expected to defend the consensus and become more cohesive. Zagona and Zurcher also hypothesized that the open-minded group would reach a consensus after more difficulty; and that when open- and closed-minded groups were brought together to reach a consensus, the consensus of the open-minded groups would prevail.

The Ss for the total study were selected from 517 students in an elementary psychology course at the University of Arizona. The 30 highest and lowest scores on the DS participated in the study. These two groups were assigned to two conference sections which met once each week as part of the psychology course.

In order to test the specific hypotheses of their

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[1]S. V. Zagona and L. A. Zurcher, "Notes on the Reliability and Validity of the Dogmatism Scale," Psychological Reports, Vol. XVI (1965), pp. 1234-1236.

study, the authors drew Ss from the two conference sections for observation in small groups. The authors assigned six Ss from the closed-minded groups and six Ss from the open-minded group to separate seminar rooms in which they could be observed and evaluated by the authors and 10 graduate and undergraduate psychology students.

In the first condition, the Ss were given a controversial question and told to discuss it for 20 minutes and reach an agreement. They were instructed to report their consensus to one of the experimenters who immediately took issue with the consensus, ridiculed the group, and argued with them to change. Under the second condition, six open-minded and six closed-minded Ss, after separately reaching a consensus, were told to meet with each other and reach a consensus. After consensus their decisions were again challenged by one of the experimenters.

Every hypothesis tested was confirmed. Occasionally an individual deviated from expected behaviors (i.e., a closed-minded S suggested further discussion), but generally there was conformity to expected behavior patterns. Although a long observation revealed consistent behavior patterns, at times Ss' role behaviors were not in line with their dogmatism level. This was true especially in the face of group or authority figure pressures. Zagona and Zurcher concluded that at the behavioral level, momentary

expectations of social role may override personality constellations measured by attitude questionnaires. With the above stated exception, the validity of the construct of dogmatism as measured by the DS was supported by these findings.[1]

One can conclude that these studies amplify the assumption that open-minded and closed-minded individuals exhibit discriminative behaviors, thus providing good validity for the DS using observable behaviors as a criterion.

General Authoritarianism

Because the primary use of the DS in this study is a measure of general authoritarianism, special attention is devoted here to cite studies which have validated the DS for this purpose. Because dogmatic people are characterized by relatively high degrees of anxiety and defense mechanisms, the DS to some degree has been used in conjunction with these and other personality traits cited further in this section. The major use of the DS here is concerned with the extent to which an individual tends to

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[1]Zagona, The Journal of Psychology, 1964.

rely on an outside authority source to tell him what to or what not to believe in his perceptual world.

The first major attempt to define and measure the authoritarian personality was done by Adorno and his associates in the 1940's.[1] In his approach to authoritarianism, Adorno defined the authoritarian personality as one having nine traits which were thought to be characteristic of the fascist personality. The following traits are an example of the traits which were isolated from those individuals who were known to be fascist: dominance, submissiveness, stereotypy, anti-intraception (vilification of all minority groups), exaggerated concern with sexual fantasies, and superstition.[2] Adorno and his associates then developed a scale (F Scale) composed of items which reflected the above traits.

The F Scale, as will be pointed out later in this section, does not measure general authoritarianism but instead is geared toward a politically conservative type of authoritarianism.

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[1]Adorno, The Authoritarian Personality, 1950.

[2]Ibid.

The F Scale measures a politically conservative type authoritarian content whereas the DS is structurally oriented as a measure of general authoritarianism. The extent to which this requirement of the DS Scale was met has significance for the validity of the DS. Correlational and factor analytic studies pertinent to this issue have been included here.

An article by Barker included a report of two studies completed on the relationship between authoritarianism and political positions and more specifically, the DS as a measure of general authoritarianism. The New York study was based on the hypothesis that the F Scale is biased toward politically right authoritarianism and that authoritarians of the politically right, center and left are similar on measures of general authoritarianism. A third hypothesis stated that authoritarians of the political right and left differ in the way they express the direction or content of their authoritarianism. These hypotheses were tested on 160 graduate students which were classified into groups according to their scores on the F, DS and California Politico-Economic Conservatism Scale. The Ohio study was conducted in a similar manner to the New York study except students who professed a liberal or conservative ideology were used in this study instead of Politico-Economic Conservatism Scale. Both studies supported Rokeach's

theory of the structure of the belief-disbelief systems and to the DS as a measure of general authoritarianism. Although the results were not significant, the Ohio study indicated that politically right Ss tended to score slightly higher on the DS than those who were politically left.[1]

Plant studied the DS as a measure of general authoritarianism by comparing it with the F Scale and the Ethnocentrism Scale which measures the extent of ethnic prejudice. He administered these three scales to 1,007 males and 1,343 females who were freshmen at San Jose State College. In the results of the study Plant could find no significant differences between the male and female scores on all three items. He also concluded that the DS is less loaded with prejudice-type items and is a better measure of general authoritarianism than the F Scale.[2]

Although the above studies advance the possibility that the DS may tend toward right authoritarianism within certain groups, they generally support the DS as a measure of general authoritarianism. One may draw a similar conclusion, but with additional exceptions, from the factor analysis of the DS discussed below.

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[1]E. N. Barker, "Authoritarianism of the Political Right, Center and Left," Journal of Social Issues, Vol. XIX (1963), pp. 63-74.

[2]W. T. Plant, "Rokeach's Dogmatism Scale as a Measure of General Authoritarianism," Psychological Reports, Vol. VI (1960), pp. 164-175.

The purpose of a study by Kerlinger and Rokeach was to determine the factorial nature of the F Scale and the DS. These scales were administered together to a total sample of 1,239 students including 371 Louisiana State University undergraduates, 537 Michigan State University undergraduates and 331 adult students from the division of general education at New York State University.[1]

Kerlinger and Rokeach concluded that fascistic authoritarianism and dogmatism are part of the underlying unity of authoritarianism but are also distinguishable with respect to structure and content. They concluded that the DS is a good measure of general authoritarianism.[2]

Warr, et al., conducted a study to provide additional information on the factorial nature of the F Scale and the DS. They reanalyzed the data used by Kerlinger and Rokeach through a different factor analytic procedure. This procedure essentially replicated the findings of Kerlinger and Rokeach, although the new technique was considered to be superior to the factor analytic technique used by Kerlinger and Rokeach. The additional information provided by the new technique was that the F and DS Scales clearly emerged as separate factors. Warr, et. al., concluded that

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[1] F. Kerlinger and M. Rokeach, "The Factorial Nature of the F and D Scales," Journal of Personality and Social Psychology, Vol. IV, No. 4 (1966), pp. 391-399.

[2] Ibid.

dogmatism and F authoritarianism may be validly separated.[1]

The purpose of a study by Vacchiano, et al., was to determine the factor structure of the DS for male, female, and combined groups. The Ss for this study were 87 male and 88 female university psychology students. The researchers concluded that there was no significant difference between the mean scores of males and females. The authors also concluded that the total group factors formed around Rokeach's theoretical definitions of the items, but also suggested the possibility that dogmatism may be multidimensional as interpreted from certain factor loadings of the DS between sexes.[2]

The studies discussed in this section generally support the DS as a measure of general authoritarianism. However, until the resolution of several issues raised in the above research efforts is resolved, researchers should make special efforts to qualify generalization by definitive statements about the population sample studied.

## Reliability of the DS

In discussing the reliability coefficients achieved for the various forms of the DS, Rokeach considered the

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[1]P. B. Warr, R. E. Lee and K. G. Joreskog, "A Note on the Factorial Nature of the F and D Scales," The British Journal of Psychology, Vol. LX (1969), pp. 119-123.

[2]R. B. Vacchiano, D. S. Schiffman and P. S. Strauss, "Factor Structure of the Dogmatism Scale," Psychological Reports, Vol. XX (1967), pp. 847-852.

findings "quite satisfactory" in view of the fact "that the DS contains quite a strange collection of items that cover a lot of territory and appear on the surface to be unrelated to each other."[1] The reliability coefficients for the DS reported by Rokeach ranged from .68 to .93 (split-half, Spearman-Brown correction). The two test-retest reliability coefficients he reported were .71 (five to six month lapse) and .84 (at least a month time lapse).[2]

Rokeach noted consistent response patterns of Ss whose item scores were analyzed. He commented specifically on the consistent differences in the item scores of Ss whose scores fell within the upper and lower quartiles of the scores.[3]

Split-half reliability indicates the degree to which the items in the test are measuring the same construct, and test-retest reliability indicates the stability of the test from one administration to the next. In examining some recent research regarding the split-half and retest reliability and recording only those with large sample sizes of adults (adolescents tend to have lower reliabilities), the following results were obtained:

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[1] Rokeach, The Open and Closed Mind, 1960, p. 90.

[2] Ibid.

[3] M. Rokeach, "Political and Religious Dogmatism: An Alternative to the Authoritarian Personality," Psychological Monographs, Vol. LXX (1956)(18, Whole No. 425).

1. Brunbaugh studied 80 school teachers in 1967 and reported a split-half reliability of .75.[1]

2. The Kerlinger and Rokeach study of 1966 examined 1,239 college students and reported a split-half reliability of .79.[2]

3. Brown studied 50 school administrators in 1967 and reported a test-retest reliability after 1 year of .84.[3]

The above list is meant to be representative but not exhaustive of the research work performed regarding the reliability of the DS. The remaining 19 studies examined using adults as Ss revealed that the lowest reliability was .69 and the highest was .90, with most of the reliabilities in the low .80's.

## Additional Findings

This section is concerned with the additional findings of dogmatism which relate to this study. The significance

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[1]R. B. Brunbaugh, R. C. Hoedt, and W. H. Beisel, Jr., "Teacher Dogmatism and Perceptual Accuracy," The Journal of Teacher Education, Vol. XVII, No. 3 (1966), pp. 332-335.

[2]Kerlinger, Journal of Personality and Social Psychology, 1966.

[3]As cited in D. W. Moore "The Influence of the Structure of the Belief-Disbelief System on Individual Behavior," unpublished Ph.D. Dissertation, Department of Education, North Carolina State University, Raleigh, North Carolina, 1970.

of these findings for this research will be presented in the remaining chapters. Only a brief description of the studies will be presented here.

1. Katz and Katz,[1] Plant,[2] and Plant and Telford,[3] have examined the DS scores of college students. They all concluded that significantly lower dogmatism scores were recorded by potential and enrolled college students over varying periods of time. The interpretations of these findings seriously questioned whether actual changes in dogmatism have taken place and strongly suggest that the lower DS scores are a result of college students tending to be more skeptical of a given statement. This skepticism might be a form of response set (discussed in the section below) which results from their academic experiences and may not be the result of a permanent change in their belief structure. Ehrlich conducted a test-retest study on 65 college students over a five year

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[1]N. Katz and F. M. Katz, "Panel Studies and Response Set," Psychological Reports, Vol. XX (1967), pp. 803-806.

[2]W. T. Plant, "Personality Changes Associated With College Attendance," Human Development, Vol. VIII (1965), pp. 142-151.

[3]W. T. Plant and C. W. Telford, "Changes in Personality for Groups Completing Different Amounts of College over Two Years," Genetic Psychology Monographs, Vol. LXXIV (1966), pp. 3-36.

period extending from early in their freshman year until one year after graduation. Although there was a decrease in dogmatism in the after college group, the results were not significant.[1] Vacchiano, et al., point out that very little research has been performed in studying changes in dogmatism.[2] Thus, it is uncertain if the changes in dogmatism from education are real or merely induced. The rather high test-retest reliability for those not going through a college situation was reported by Brown[3] after studying 50 school administrators. He observed a .84 reliability coefficient at the end of one year. This indicates that dogmatism is a relatively enduring characteristic, but it is still uncertain as to just how enduring it is, or what factors can change an individual's dogmatism.

2. Rokeach concluded that there is no significant difference in dogmatism existing with respect to age, sex, or intelligence.[4] A review of the literature

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[1]H. J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, Vol. LXII (1961), pp. 148-149.

[2]Vacchiano, Psychological Bulletin, 1969.

[3]Brown, Unpublished Doctoral Dissertation, 1967.

[4]Rokeach, The Open and Closed Mind, 1960.

by Vacchiano, et al., confirms the above findings of Rokeach.[1]

## Special Considerations of the DS

In this section attention is given to two problems which have been encountered with the DS. These considerations are response bias and item grouping. Response bias is the tendency for an individual to respond to the scale items in a certain manner without regard to their actual content. Item grouping resulted from a conclusion of a major research study which indicated that the individual items do not tap a particular dimension of the construct and thus must be considered in their totality. Many items, according to this study, simultaneously tap more than one dimension. According to the results of this study, the DS can only be interpreted on a total score basis.

### Response Bias

Response bias or response set, as defined by Guilford, means that an individual's response to a scale item tends to be altered in such a way that it indicates something other than what was intended to be measured.[2]

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[1]Vacchiano, Psychological Bulletin, 1969.

[2]J. P. Guilford, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill Book Company, Inc.), 1965.

In studies of the DS, two types of response sets -- social desirability and acquiescence -- have been examined most frequently. Social desirability responding is practiced by an individual in his attempt to make a "good" score and to cover up defects and deficiencies.[1] Acquiescence response set means that an individual tends to agree with an item rather than disagreeing with it. In the following discussion, each of these two types of response biases on the scores of the DS is discussed.

Several investigators have directed their attention toward studying response set bias to DS items. Wolfer attempted to measure the effects of social desirability on DS performance by informing the subjects of the purpose of the test.[2] The failure to find a reduction in the subject's DS scores on the second administration of the test was attributed to a failure to activate a social desirability response set. The DS was not thought to be a test of the effects of social desirability. Becker and Delio[3] and

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[1]Guilford, Fundamental Statistics in Psychology, 1965.

[2]John A. Wolfer, "Changes in Dogmatism Scores of High and Low Dogmatics as a Function of Instructions," Psychological Reports, Vol. XX (1967), pp. 947-950.

[3]G. Becker and D. T. Dileo, "Scores on Rokeach's Dogmatism Scale and the Response Set to Present a Positive Social and Personal Image," Journal of Social Psychology Vol. LXXI (1967), pp. 287-293.

Bernhardson[1] failed to find a significant relationship between DS scores and performance on the Marlow-Crowne Social Desirability Scale.

Since items on the DS are positively scored statements with high agreement yielding high scores, the question of agreement response set, where subjects tend to agree rather than disagree when uncertain, has been raised. Couch and Keniston, employing a specially constructed scale designed to measure a subject's tendency to agree with items regardless of content, found a significant relationship between their scale and DS scores.[2] Lichtenstein, et al., also found a significant relationship between DS scores and acquiescence response.[3]

Katz and Katz[4] attributed changes in college students' dogmatism scores over 18 months to the development of a "disagreement" response set in which students tended to become more "disagreeable" with exposure to college

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[1]C. S. Bernhardson, "Dogmatism, Defense Mechanisms, and Social Desirability Responding," Psychological Reports, Vol. XX (1967), pp. 511-513.

[2]H. Couch and K. Keniston, "Yea Sayers and Nay Sayers: Agreeing Response Set as a Personality Variable," Journal of Abnormal and Social Psychology, Vol. LX (1960), pp. 151-174.

[3]E. Lichtenstein, R. Quinn, and G. Hover, "Dogmatism and Acquiescent Response Set," Journal of Abnormal and Social Psychology, Vol. LXIII (1961), pp. 636-638.

[4]Katz, Psychological Reports, 1967.

education. Peabody found that both attitude content and agreement set are operative in DS performance such that high scores on the DS were due to agreement set rather than to the subjects' being pro content.[1] In contrast, Roberts found a "disagreement" set resulting in low scores on the DS when utilizing intra-test variability as a measure of generalized response set.[2]

Rokeach[3] offered two alternative hypotheses to explain the double agreement phenomenon (agreement to a statement as well as its opposite) noted by Peabody.[4] In one hypothesis, the subject may be telling the truth when responding to the item and lying when presented with the reversal of the item; in the other hypothesis, the subject may believe both statements but be unaware of the contradiction because of compartmentalization or because of a weak need for logical consistency. Stanley and Martin[5]

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[1] D. Peabody, "Attitude Content and Agreement Set in Scales of Authoritarianism, Dogmatism, Anti-Semitism and Economic Conservatism," Journal of Abnormal and Social Psychology, Vol. LXIII (1961), pp. 1-11.

[2] A. H. Roberts, "Intra-Test Variability as a Measure of Generalized Response Set," Psychological Reports, Vol. XI (1962), pp. 793-799.

[3] M. Rokeach, "The Double Agreement Phenomenon: Three Hypotheses," Psychological Review, Vol. LXX (1963) pp. 304-309.

[4] Peabody, Journal of Abnormal and Social Psychology, 1961.

[5] G. Stanley and J. Martin, "How Sincere is the Dogmatist?," Psychological Review, Vol. LXXI (1964), pp. 331-334.

tested Rokeach's first hypothesis of double agreement (i.e., telling the truth in one instance and lying in the second) by assuming that agreement with a reversed DS would correlate positively with scores on social desirability and lie scales. The Martin Social Desirability Scale and the Lie Scale of the Maudsley Personality Inventory were employed. Rokeach's first hypothesis was rejected when no significant relationship was found for social desirability and agreement to reversed items. Although the relationship between agreement to reversed items and scores on the lie scale was in the hypothesized direction, it was not significant.

Peabody again raised the issue of response bias and the double-agreement phenomenon by attributing the problem to the ambiguity of DS items.[1] In his comment on Peabody's work, Rokeach pointed to the lack of evidence other than Peabody's confirming the ambiguity of the scale items and reiterates the findings linking DS scores to generalized authoritarianism.[2]

Attempts have been made to construct a DS which includes negatively phrased items. Haiman reported a

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[1]D. Peabody, "Authoritarianism Scales and Response Bias," Psychological Bulletin, Vol. LXV (1966), pp. 11-23.

[2]M. Rokeach, "Authoritarianism Scale and Response Bias: Comment on Peabody's Paper," Psychological Bulletin, Vol. LXVII (1967), pp. 349-355.

significant correlation between behavioral ratings and a scale composed of 30 items equally divided as to positive and negative responses, taken from the F and D Scales.[1] These researchers reported significant correlations between this scale, the DS, and dogmatism judged (by speech instructors) from the subjects' communicative behavior. However, Rokeach takes the position that it is inadvisable to use reversible items in authoritarian scales. He points out that both authoritarians and anti-authoritarians theoretically can be expected to agree with item reversals that are worded in a democratic direction.[2]

In a literature review regarding response set in the California F Scale and similar scales, Herzon concluded that response set did not account for a significant variance in the scores. He went on to conclude that attempts to use short forms and balancing the scales for acquiescence response may in fact actually reduce the validity of the instrument.[3]

Item Grouping

Lovel, et al., investigated the extent to which the

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[1]Haiman, The Journal of Social Psychology, 1964.

[2]Rokeach, Psychological Bulletin, 1967.

[3]Frederick Herzon, "A Review of Acquiescence Response Set in the California F. Scale," Social Science Quarterly, Vol. LIII, No. 1 (1972), pp. 66-78.

inter-item correlations within the DS support the structure of the construct. They hypothesized that each item in the DS is highly saturated with a general factor such that a given item may simultaneously tap two or more dimensions of dogmatism.

The authors administered the DS to 2,459 freshman students. The items on the DS scale were then examined by cluster analysis. The cluster analysis revealed the existence of a general factor, but this factor accounted for only five percent of the variance of a typical item. The specific factors designed by Rokeach accounted for only three to four percent of the variance of a typical item.[1]

Lovell, et al., concluded that there is minimal justification for Rokeach's item groupings. The items representing the time perspective dimension and the interrelationships among the primitive, intermediate, and peripheral regions were noted as being partial exceptions to the Lovell, et al., conclusion.[2]

Lovell, et al., stated further that the DS "is psychometrically chaotic." While the total scale score may be free from ideological bias, the authors proposed

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[1]V. R. Lovell, N. W. Giddan, and H. A. Korn, "Internal Structure of the Rokeach Dogmatism Scale," Multivariate Behavioral Research, Vol. II (1967), pp. 315-324.

[2]Ibid.

that this is not necessarily true for the items.[1] While the lack of clustering among items allows one to question the presence of several homogenous areas of measurement within the DS, these findings are consistent with the suggestion by Kerlinger and Rokeach that the items in the DS do not group themselves into Rokeach's original categories.[2]

In keeping with the above admonitions regarding the uses of the DS, only total score comparisons will be made, and no attempts will be made in this study to individually examine single items or groups of items within the DS.

## Summary

The Rokeach DS has been shown to have good validity not only from an observable behavior standpoint but also as a measure of general authoritarianism, which is the main use of the instrument in this study. It is also concluded that reliability of the DS is sufficient for this study, especially with adult respondents.

Although response bias may have been an issue at one time with the DS and other scales such as the California F Scale, the conclusion reached here is that it is no longer considered a significant factor of variance in the response.

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[1] Lovell, Multivariate Behavioral Research, 1967.

[2] Kerlinger, Journal of Personality and Social Psychology, 1966.

No attempts were made here to balance the items for acquiescence response or provide a Lie Scale. The E form of the DS, as used in the majority of the studies conducted, is the one used in this study.

## Managerial Congruence

The concept of managerial congruence is derived from simultaneously viewing a manager from the standpoint of his job performance (satisfactory or unsatisfactory) and his satisfaction (satisfied or dissatisfied) with his current position. A congruent manager is one who is satisfied with his job and at the same time has performed satisfactorily. A non-congruent manager is one who does not meet any one or both of the above requirements.

This section will discuss the theoretical and statistical reasons for dividing the managers of this study into congruent and noncongruent categories. Following this, the criteria used to determine managerial congruence will be discussed.

### Theoretical Basis of Congruence

A review of the literature has not uncovered any attempts to divide a sample or population of either operative employees or managers into congruent or noncongruent classifications as the term is used here. Most studies either do not make a satisfaction or performance

distinction or else use either a performance distinction or a satisfaction distinction. The closest theoretical approach to congruence offered in the literature is a model of contingent relationships presented by Morse and Lorsch. In their model they make the global personality assumption that all people have a "sense of competence motivation," but that this sense of competence motivation will be realized under a set of conditions called the "organization-task fit."[1]

This organization-task fit varies with each individual such that a given organization-task might bring about a sense of competence motivation for one person, but not for another.

When the organization task fit is found for a particular individual, then he will achieve effective task performance. A model of these relationships is shown in Figure 7 below.

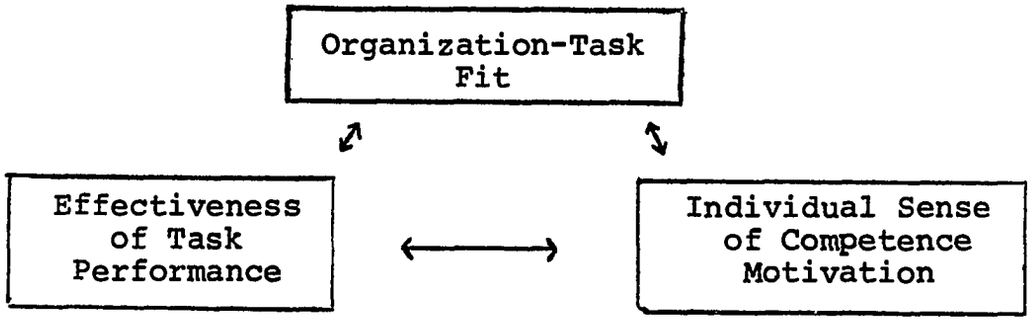


Figure 7. Basic Contingent Relationships. Source: Morse, Harvard Business Review, 1970.

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[1]John J. Morse and Jay W. Lorsch, "Beyond Theory Y," Harvard Business Review, Vol. XXXXII, No. 2, 1970, pp. 61-68.

The concept of managerial congruence in this study is not contingent upon a particular need category such as a sense of competence motivation, but is anchored in the individual's overall sense of job satisfaction coupled with his performance evaluation. In this conception an individual may be satisfied with his job, be performing satisfactorily, but still not feel a sense of competence with his job. Conversely, he may have a sense of competence but not be satisfied and/or not performing satisfactorily.

Only empirical investigation could actually determine whether sense of competence and congruence are similar terms. In a theoretical sense, however, they are not.

The theoretical basis for managerial congruence in this study is the need to match the two concepts of authority. Dogmatism is a theory of general authoritarianism and the DS has been shown to be relatively free from specific authority content. Knowing that an individual is dogmatic signifies only the direction of his authoritarianism, but not the specific content of his intermediate region. Organization structure and the resulting empirical taxonomy of Pugh is based on the formal authority of the organization and is thus concerned with a specific authority content.

## Statistical Basis for Congruence

Although it is hypothesized that congruent managers in bureaucratic organizations will be more dogmatic than those in nonbureaucratic organizations, the possibility exists that bureaucratic and nonbureaucratic organizations may contain a substantial number of nondogmatic and dogmatic managers, respectively. For example, a nondogmatic manager may continue to work for a bureaucratic organization, even though he is dissatisfied because other independent variables such as family or location may play a stronger force in keeping him in the organization than the organization structure does in keeping him out. Also, implicit and explicit tenure regulations may contribute toward significant numbers of noncongruent managers.

In statistical terms, the categorization of managers into congruent and noncongruent classifications serves to reduce a possible significant source of unexplained error in the experimental design. As to whether this will actually result in a reduction in the unexplained error will be investigated in the statistical analysis.

## Criteria for Managerial Congruence

The term "managerial congruence" is a term which has been contrived for the purpose of this study. It is a

construct designed to determine whether there is generally a fit between the authority exerted by the organization and the authority which is accepted by the individual. There are three criteria for managerial congruence: minimum time on the job, performance evaluation, and overall level of satisfaction. Each of these is discussed in the sections below.

## Minimum Time on the Job

In order for the organization to effectively evaluate a manager's performance and for the manager to evaluate his overall level of satisfaction under the context of his present job, a minimum amount of time must have passed before such evaluations can be considered meaningful.

The actual time period tends to vary among organizations. Research from personnel texts and journal articles only confirm the assumption that the minimum time requirement will vary from organization to organization.

For purposes of this study, it was assumed that six months on his present job would be established as the minimum time for determining the manager's performance evaluation and job satisfaction. Over 90 percent of the managers in all organizations had been in their present position for over six months. Unless a manager has occupied his present position for at least six months, he was not included in the study.

Performance Evaluation

A review of the literature indicates that no one particular type or method of performance evaluation has gained universal acceptance. Such sources as French[1] and Flippo[2] were reviewed.

These were considered as major sources and the assumption here is that if a particular method of performance appraisal for managers was empirically proven to be superior to other methods, it would have been indicated in these sources. This was not the case as performance evaluation methods vary widely from forced-choice type questionnaires to long laundry-list type questionnaires, to an informal appraisal by the manager's supervisor. In this study the performance appraisal methods varied widely with the bureaucratic organization employing a somewhat complex formal appraisal form and the one nonbureaucratic organization having an ad hoc informal program.

Because it is important that the performance appraisal reflects what the organization considers as satisfactory, it is important that it minimize the effect of the personal

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[1]Wendell French, The Personnel Management Process: Human Resources Administration, (Boston: Houghton-Mifflin Company, 1970).

[2]Edwin B. Flippo, Principles of Personnel Management, (New York: McGraw-Hill Book Company, 1971).

biases of one individual. In order to reduce the probability of this type of bias occurring and also to control for the various methods of performance appraisals, it was necessary to standardize as much as possible the performance appraisal between the managers of the organizations.

This standardization was accomplished by using a consensus of the personnel manager and the third level line official to evaluate the first and second level line managers who had satisfactory or unsatisfactory performances. This method was most satisfactory because in all the organizations studied, there was no disagreement as to the categorization on a satisfactory-nonsatisfactory basis. In fact, in each case there was unanimous agreement between these two officials as to who was performing satisfactorily or unsatisfactorily.

Job Satisfaction

Managerial job satisfaction will be defined here as overall satisfaction with the organization, job, pay, co-workers, supervision, and promotion opportunities.

Several theories of satisfaction which might apply to this study were reviewed (for example Smith,[1] Kahn and Morse,[2] and Lawler and Porter[3]) and their corresponding

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[1]Patricia C. Smith, L. M. Kendall and C. L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago: Rand McNally, 1969).

[2]R. L. Kahn and N. C. Morse, "The Relationship of Productivity to Morale," Journal of Social Issues, Vol. VII (1951), pp. 8-17.

[3]Edward E. Lawler and Lyman W. Porter, "The Effect of Performance on Job Satisfaction," Industrial Relations, Vol. VII (1968), pp. 20-28.

satisfaction measures were examined. The recent literature indicates that job satisfaction is multi-dimensional; the most valid and reliable measures of job satisfaction consist of adding the scores of each dimension to arrive at a total score which is either an average or sum of these dimensions. The literature reviewed which supported this conclusion included Gemmill and Heisler,[1] Ivancevich,[2] Ewen,[3] Hinrichs,[4] Hunt,[5] and Taylor and Bowers.[6]

The measure of job satisfaction selected for this study is that used by the ISR group at Michigan. The initial research on this instrument was performed by Kahn and

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[1]Gary R. Gemmill and W. J. Heisler, "Machiavellianism as a Factor in Managerial Job Strain, Job Satisfaction and Upward Mobility," Academy of Management Journal, Vol. XV (1972), pp. 51-62.

[2]John M. Ivancevich, "An Analysis of Control, Basis of Control, and Satisfaction in an Organizational Setting," Academy of Management Journal, Vol. XIII (1970), pp. 427-436.

[3]Robert B. Ewen, "Weighting Components of Job Satisfaction," Journal of Applied Psychology, Vol. LI (1967), pp. 68-73.

[4]John R. Hinrichs, "A Replicated Study of Job Satisfaction Dimensions," Personnel Psychology, Vol. XXI (1968), pp. 479-503.

[5]J. G. Hunt, "Leadership-Style Effects at Two Managerial-Style Levels in a Simulated Organization," Administrative Science Quarterly, Vol. XVI, No. 4 (1971), pp. 476-482.

[6]James C. Taylor and David G. Bowers, Survey of Organizations, Center for Research on Utilization of Scientific Knowledge (Ann Arbor: University of Michigan, 1972).

Morse in 1951. They isolated 5 independent dimensions of job satisfaction by factor analysis. Refinement to this job satisfaction included changes in the wording of the statements and the addition of two statements pertaining to advancement within the organization. A satisfied manager, for the purpose of this study, is defined as one whose total score indicates that he is generally satisfied with his job. The job satisfaction questionnaire (job survey) is presented in Appendix C.

# CHAPTER III

## THEORETICAL DEVELOPMENT AND STATEMENT OF RESEARCH HYPOTHESES

The major purpose of this study is to determine whether there is a relationship between organizational structure and the dogmatism of managers. More specifically, this study seeks to test the major hypotheses stating that congruent line managers, at a given level in a bureaucratic organization, will be more dogmatic than congruent line managers at the same level within a nonbureaucratic organization. The major hypotheses also predict that congruent first level line managers within a given organization will be more dogmatic than the congruent second level line managers within the same organization. These hypotheses are based on the assumption that the higher degree of structure (structuring of work activities and concentration of authority) in the bureaucratic organization is a major source of external authority for the managers. Because dogmatic individuals tend to rely on external authority as a basis for their beliefs, the bureaucratic organization should be a more compatible environment for a dogmatic manager.

In the nonbureaucratic organization, the formal structure of the organization is less prevalent as an external authority. Thus, the nonbureaucratic organization should be a more compatible environment for a nondogmatic manager provided that another source of external authority does not fill the void left by the lack of organizational structure. The nonbureaucratic organization should be characterized by more latitude for the individual to determine the sources of authority necessary to make decisions regarding the carrying out of his managerial duties.

The concept of managerial congruence is used in the theoretical development of the major hypotheses to align the individual's perception of the authority to that of the formal organization structure. The emphasis on congruent managers attempts to compensate for those conditions where 1) a given dogmatic manager in a bureaucratic organization does <u>not</u> generally perceive the structure of the organization as an authority, 2) a given nondogmatic manager's internal authority structure is not compatible with a given nonbureaucratic organization, and 3) dogmatic and nondogmatic managers remain in bureaucratic and nonbureaucratic organizations for reasons other than those pertaining to the structure of the organization. Noncongruent managers, however, will also be examined in the minor hypotheses in an attempt to clarify and add perspective to the testing of the major hypotheses.

This chapter will first discuss the theoretical bases of this study. Following this will be a brief description of how this theoretical development incorporates the strong points, while avoiding as many weaknesses as possible, of the previous attempts to unify personality and organization theory. Finally, a model of the major hypotheses will be presented.

## Theoretical Development

This study attempts to expand not only the theoretical underpinnings of the individual's orientation to the formal organization, but also seeks to avoid the methodological shortcomings resulting from the lack of an objective organizational classification scheme and the failure to separate managers into congruent and noncongruent categories.

In this study it is hypothesized that congruent managers in bureaucratic organizations are more likely to be dogmatic than congruent managers in nonbureaucratic organizations. The bureaucratic organization, with its higher degree of structuring of activities and concentration of authority, should result in a higher degree of external authority impinged upon the manager in the performing of his job.

This external authority comes in the form of formalized work procedures and rules, staff authority resulting from specialization, and decisions made for him further up in the hierarchy. The nonbureaucratic organization with its lower degree of structuring of activities and concentration of authority should be characterized by an organizational structure which exerts less external authority upon the managers. In the nonbureaucratic organization it is assumed that the manager must rely more on other sources of authority in order to compensate for the lower degree of organizational authority. Other sources of external authority include the informal groups (peers and work groups), the supervisor when he is not acting directly in accordance to the organization structure, and sources external to the organization. In the nonbureaucratic organization the void left by the organizational structure must be filled by these and other authority sources. Moreover, it is assumed that in order for the manager in the nonbureaucratic organization effectively to perform his job, he must possess the ability to use discretion as to what authority source he will utilize to validate information pertaining to a given aspect of his job functioning. In one instance he may accept the

authority of the group as being most expedient in a given situation, but in a similar, but perhaps slightly different circumstance, he may lean more heavily toward the authority exerted by the supervisor.

The many external authority sources in the nonbureaucratic organization may not be as demanding as that characterized by the organizational structure, especially the structure characterized by bureaucratic organizations. These less demanding authority sources in the nonbureaucratic organization would make it all the more important that the belief structure of the manager be relatively open. An open belief structure is characterized by a communication among the various sources of authority and also among the specific beliefs in the peripheral region. This type of belief structure would seem to be more compatible for managerial functioning in the nonbureaucratic organization. It would also appear that the nondogmatic manager would feel more "at home" in the nonbureaucratic organization because there would be more opportunity for him to use a variety of authority sources. Likewise, the dogmatic manager would feel more "at home" in a bureaucratic organization because of his inclination to rely solely on a few external authority sources which may need not have a high degree of communication among each other. Effective functioning of a manager in a bureaucratic organization

might be facilitated if the manager relied primarily on one external authority source -- the organizational structure. A diagram depicting the possible relative weights given to external authority in bureaucratic and nonbureaucratic organizations is given in Figure 8.

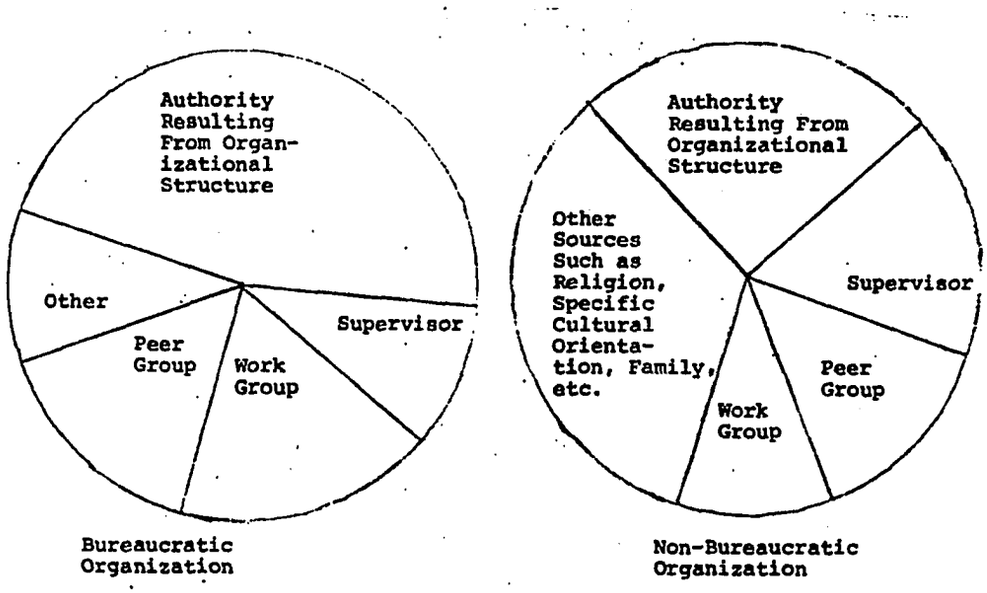


Figure 8. Relative Weights of External Authority in Bureaucratic and Nonbureaucratic Organizations

Figure 8 only shows what might be <u>expected</u> to happen with respect to authority sources between bureaucratic and nonbureaucratic organizations. Another alternative which might be the case in nonbureaucratic is illustrated in Figure 9 on the following page.

The external authority configuration presented in Figure 9 indicates that a dogmatic individual may be congruent in a nonbureaucratic organization, especially if he tends to rely on the authority exerted by his supervisor. If the supervisor corresponded with McGregor's Theory X

and insisted that his subordinate perceive only him as a major external authority, then it is likely that dogmatic individuals would fill these subordinate positions and the nondogmatic subordinates would either leave or would be noncongruent.

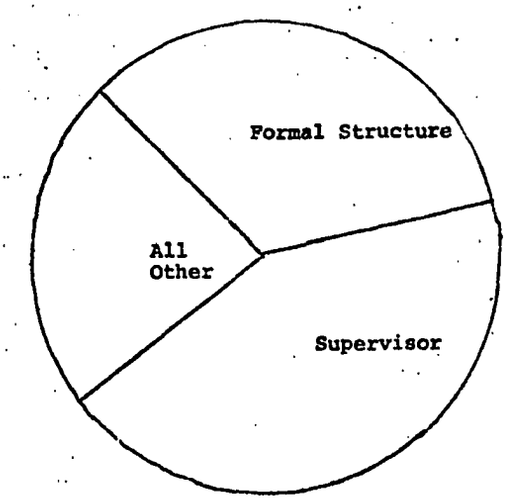


Figure 9. Possible Weight of External Authority in a Nonbureaucratic Organization

Partial support for the condition described above is given in a study conducted by Blau and Scott in which they studied members of a large and small county welfare agency. In this study they noted that the welfare workers in the smaller agency consulted their supervisors more often regarding decisions pertaining to their work than did those of the larger agency. Blau and Scott suggest that this higher degree of supervisory consulting in the smaller agency was a result of the organizational structure. In the larger agency more decisions were covered by the manual of

procedures, formal rules, job descriptions, and so forth, such that it was not necessary for the welfare workers to consult with their supervisors as often as those in the smaller agency.[1] What is not known in the Blau-Scott study is the extent to which the consulting members depended upon the consultations of their supervisors. Perhaps this study might afford an insight as to whether this higher degree of consulting is done in accordance with the nondogmatic individual seeking many sources, or whether these consultations are accepted as authoritative by the subordinate. If nondogmatic individuals are found in the nonbureaucratic organization, then there is a good possibility the consultations of supervisors and other sources are less accepted as an absolute authority. If there are no differences in dogmatism between the managers in the two types of organizations, then the possibility exists that another external authority fills the void left by the structure of the organization such that the manager either must and/or chooses to place reliance in this authority.

Ideally, this study should incorporate some measures to determine whether nonbureaucratic organizations are characterized by a situation where the manager does in fact have more opportunity to use a variety of external authority sources. Those nonbureaucratic organizations characterized

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[1]P. M. Blau and W. R. Scott, Formal Organizations, (San Francisco: Chandler, 1962).

by an authority configuration such as that presented in Figure 9 could then be isolated and separately analyzed for systematic differences in dogmatism.

This would be a major undertaking and the author decided to limit this study to the determination of whether differences in the formal structure alone is sufficient to account for variations in dogmatism among the congruent line managers at each level. The results of this study can then be used as a guideline for further research in the area of the identification of specific authority sources. A discussion of areas for future research is given in Chapter V.

The reasoning behind differences in dogmatism between first and second level congruent line managers within a given organization is essentially the same as that pertaining to differences in dogmatism between managers in the bureaucratic and nonbureaucratic organizations. Because the second level management positions are characterized by less structure than the first level positions, dogmatism should vary inversely with the level of management.

This study will examine only the relationship of organization structure on dogmatism. No attempt will be made to account for the identification of, and relative weights assigned to external authority sources other than the formal organization. The basic assumption being made is that a nondogmatic individual has more opportunity to use several

external authority sources and that the intercommunication of these external authority sources in the mind of the manager will better facilitate his job performance than if he placed heavy reliance on any one or all of them.

Because the Rokeach Dogmatism Theory is relatively free from specific belief content, two or more individuals could be equally dogmatic, but for different reasons. This study seeks to determine whether the organizational structure is perceived as more of a major source of authority in the bureaucratic organization than it would be in the nonbureaucratic organization. The study also seeks to determine this relationship between managerial levels. Thus, it is necessary to align the manager's perception as to what constitutes an authority with that of the formal organization structure. This alignment is done through the concept of managerial congruence.

The assumption made here is that a congruent manager, because he is satisfied with the organization and at the same time has a good performance rating, generally accepts the structure of the organization as part of his authority source. If the manager did not accept the authority of the organization, it is further assumed that this would be manifested in general job dissatisfaction and/or unsatifactory job performance. The selection of congruent managers to test the major hypotheses serves to align

individual and organizational authority concepts such that managerial dogmatism is tied to the organization structure.

In order to be more certain that the structure of the organization accounts for variations in external authority of the managers in the two types of organizations, only line managers were selected to test the major hypotheses of this study. The studies of Pheysey, et al.,[1] and Gouldner[2] indicate that line managers are more sensitive to the formal structure of the organization than are staff managers.

By way of summary of this section, this study seeks to determine whether the orientation of a manager toward a bureaucratic or nonbureaucratic organization and between levels within the same organization can be traced to differences in the manager's belief structures. The assumption made here is that the structure of the organization accounts for a major source of external authority in the bureaucratic organization. In the nonbureaucratic organization it is assumed that the organizational structure accounts for a minor source of authority and that the managers in these organizations have more opportunity

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[1]Diana C. Pheysey, Roy L. Payne and Derek S. Pugh, Influence of Structure at Organization and Group Levels," Administrative Science Quarterly, Vol. XVI, No. 1, 1971.

[2]A. W. Gouldner, "Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles -- I, II," Administrative Science Quarterly, Vol. II, 1957-1958, pp. 281-320, 444-480.

to use a variety of external authority sources according to the requirements of the situation. In this conceptual framework, dogmatic managers will be attracted to bureaucratic organizations, whereas nondogmatic managers will be attracted to nonbureaucratic organizations. Also, nondogmatic managers will be more compatible to higher level management positions within a given organization than will dogmatic managers. The concept of managerial congruence is used to align the individual manager's perception of authority to that exerted by the structure of the formal organization.

## Relation to Previous Unification Efforts

The theoretical framework for this study has attempted to use the major strong points, as well as avoiding the weak points of the previous attempts to unify personality theory and organization theory.

This study is in keeping with the classical approach in studying the relationship between organizational structure and individual personality. What is not expressed is that effects may not necessarily flow from the organization structure to the individual such that a cause and effect relationship exists.

It should be noted that only a relationship may exist between the structure of the organization and the dogmatism of the manager. Furthermore, other effects may also intervene or may also play a significant part in the relationship between dogmatism and the organization. The scope of this study was limited to studying the relationship between managerial dogmatism and organizational

structure. The important departure from the classical theory is that no assertion is made as to effect flowing exclusively from the organization to the individual.

Global personality assumptions are avoided in this study. Dogmatism is not viewed as a global theory of individual personality, but instead is considered to be one of many possible dimensions pertaining to the cognitive functioning of the individual. Also, the open or closed view of the individual as posited by the personalistic and classical approaches, respectively, are avoided. As was pointed out in Chapter I, the classical approach views man as being closed with his environment such that external events exclusively affect the personality of the individual. This approach to man closely parallels the classical psychologists, such as B. F. Skinner, and their S-R models of man. The personalistic approach posited total openness of man with his environment in which the individual reacted solely according to his perception of the environment, and this perception, in turn, depended upon his needs, attitudes, and values. The personalistic approach views man as solely an open system. This approach closely parallels the Gestalt psychologists and Kurt Lewin.

In dogmatism theory, Rokeach states that individuals vary according to the extent to which they are open or closed with respect to their environment.

> "Open and closed systems are but ideal types, convenient for purposes of analysis. However, the real people we all know have systems that are neither completely open nor completely closed. Furthermore, like the diaphragm on a camera, a system can expand and contract within limits, as conditions vary. Gestalt theory has contributed to psychological understanding to the extent that man has open belief systems; psychoanalysis and behaviorism have likewise contributed, to the extent that man's belief systems are closed. But we will not behave as Gestalt psychology says we should, the more we are closed, or as psychoanalysis and behaviorism say we should, the more we are open. Like the blind man exploring different parts of the same elephant, not one of the three theories considered had adequately coped with man as he really and fully is. But considered all together, they each help -- in differing degrees perhaps -- to fill in the gaps left unexplored by the others."[1]

Dogmatism theory avoids the rigid categorizations of man as either an open or closed system. A relatively closed belief system is hypothesized as being more compatible in a "closed" environment, which attracts individuals who respond well to external authority. A relatively open-belief system is hypothesized as being more compatible with an open environment in which the individual must choose from among many sources in order to be compatible to that environment.

This study has borrowed from the role and social systems approach. The dogmatism theory and organizational

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[1]M. Rokeach, The Open and Closed Mind (New York: Basic Books, 1960).

classification scheme were selected because of their orientation to a common construct -- authority. In this conception the individual's concept of authority and the authority exerted by the formal organization are unified by managerial congruence. The weakness of the systems approach is the inability to operationalize many of the key variables. The key variables in this study (dogmatism, organization structure, and managerial congruence) have been operationalized.

Finally, the contingency approach has contributed toward the theoretical development of the study in that the overall approach used is that there are many dimensions of individual personality and organization structure, plus many other dimensions relating to the above but pertaining to the environment, group, and so forth. Rather than make global personality or organizational assumptions the contingency approach attempts to identify and evaluate a few possible significant dimensions at a time. In this way a more valid theory of individual and organizational functioning can be established by the linking together of many empirically established relationships. The present contingency approaches have concentrated their multi-dimensional efforts toward organizational variables, and have tended to use rather global personality assumptions. This approach does not use a global personality model of the individual.

## Development of Research Hypothesis

Kerlinger defines a hypothesis as a "conjectural statement of the relation between two or more variables."[1] He goes on to state that there are two criteria for good hypotheses and hypotheses statements: 1) hypotheses are statements about the relations between variables, and 2) hypotheses carry clear implications for testing stated relations. These criteria mean that hypotheses statements contain two or more variables that are measurable or are potentially measurable and that they specify how the variables are related. Although the above represent a minimum requirement for hypothesis, Kerlinger goes on to state that, ideally, a hypothesis should be based upon a body of theory or a synthesis of two or more bodies of theory.[2]

In this study the bodies of theory are those of dogmatism, organization structure, and managerial congruence. The hypotheses are a result of the synthesis of these theories.

The first four hypotheses presented below are considered as major hypotheses. These hypotheses pertain to comparisons of congruent line managers at a given level between bureaucratic and nonbureaucratic organizations. Comparisons in dogmatism will also be made between levels

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[1]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1964).

[2]Ibid.

within a given organization. The major hypotheses are those that deal directly with statements pertaining to organizational structure and managerial dogmatism. The minor hypotheses are those that stem from the logic behind the major hypotheses, but do not directly test the relationship between dogmatism and organizational structure. The first four hypotheses below are the major hypotheses. A model illustrating the major hypotheses is presented in Figure 10 on page 185.

H.1 First level congruent line managers in the bureaucratic organization will be more dogmatic than the first level congruent line managers in the nonbureaucratic organizations.

H.2 Second level congruent line managers in the bureaucratic organization will be more dogmatic than the second level congruent line managers in the nonbureaucratic organization.

H.3 First level congruent line managers in the bureaucratic organization will be more dogmatic than the second level congruent line managers in the bureaucratic organization.

H.4 First level congruent line managers in the

nonbureaucratic organization will be more dogmatic than the second level congruent line managers in the nonbureaucratic organization.

The staff managers with much of their external authority residing in sources outside the organization should not differ in dogmatism between the two types of organizations. Their dogmatism should more closely parallel the extent to which the particular profession serves as an external authority. For example, a manager in the Research and Development department may be less dogmatic than a manager in the Accounting department, who must conform rather closely to NAA and government regulations. Because the extent of the external authority influences for different staff departments is beyond the scope of this study, comparisons were made only between similar staff positions. The accounting function was considered to be the most universal staff function. An accounting manager is defined as anyone in the organization who works in the accounting department and has a CPA. The CPA's in all the organizations studied, to some degree, exercised direct supervisory authority.

The staff managers, with their cosmopolitan professional orientation, are not expected to vary according to the organizational structure. This is stated in hypothesis form below.

H.5 There will be no difference in dogmatism between the congruent accountants in the bureaucratic and nonbureaucratic organizations.

Because it is hypothesized that congruent line managers differ significantly in dogmatism in bureaucratic and nonbureaucratic organizations, then the noncongruent managers in these two types of organizations should be noncongruent because they are not sufficiently dogmatic or are too dogmatic, respectively. Although a dogmatic manager may be noncongruent because his external authority source does not line up with that of the organizational structure, it is anticipated that a majority of the noncongruent managers in the bureaucratic organization will be nondogmatic. Thus, the noncongruent managers in the bureaucratic organization, who are high in dogmatism as a result of the rejection of one specific authority, should not be as prevalent as nondogmatic managers who reject all sources of authority which demand absolute reliance upon their authority.

A nondogmatic manager may be noncongruent in a nonbureaucratic organization because he does not perceive any one or more of the sources of authority as acceptable to him. It is anticipated that the noncongruence will stem more from too high dogmatism which prevents the manager

from utilizing the many sources of authority necessary to perform his job. The reasons which make the dogmatic manager congruent in the bureaucratic organization are essentially the same as those which would tend to make him noncongruent in the nonbureaucratic organization. The same reasoning also applied to nondogmatic managers in non-bureaucratic organizations. The hypotheses covering this aspect are as follows:

H.6 A significantly larger number of noncongruent first level line managers in the bureaucratic organization will fall <u>below</u> the mean dogmatism score established by their congruent counterparts.

H.7 A significantly larger number of noncongruent second level line managers in the bureaucratic organization will fall <u>below</u> the mean dogmatism score established by their congruent counterparts.

H.8 A significantly larger number of noncongruent first level line managers in the nonbureaucratic organization will fall <u>above</u> the mean dogmatism score established by their congruent counterparts.

H.9 A significantly larger number of noncongruent second level line managers in the nonbureaucratic organizations will fall above the mean dogmatism score established by their congruent counterparts.

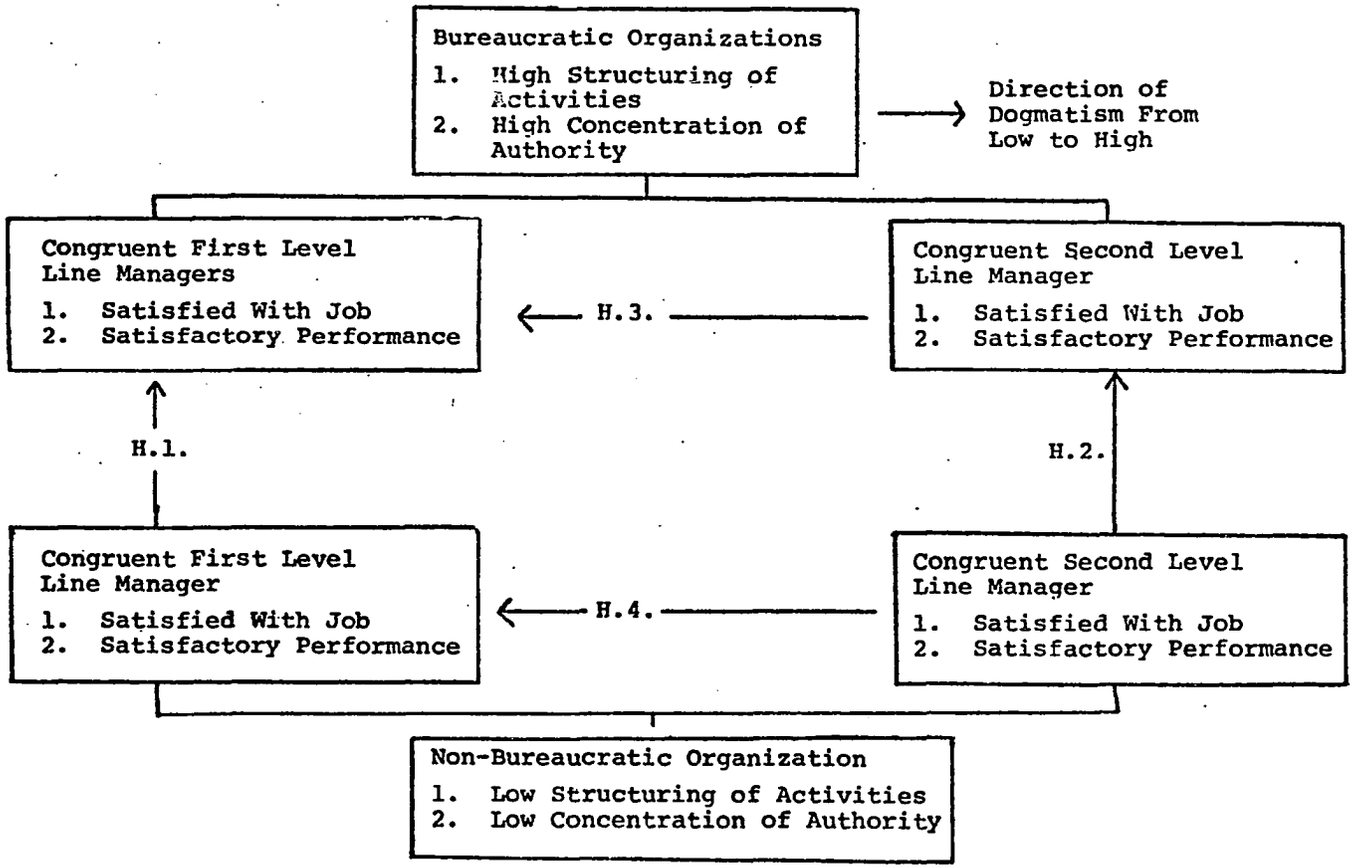


Figure 10. Model illustrating the major hypotheses.

# CHAPTER IV

## RESEARCH AND STATISTICAL METHODOLOGY

The purpose of this charter is to describe the research and statistical methodology. The research methodology consisted of first identifying the organization as bureaucratic or nonbureaucratic, administering the DS and job satisfaction questionnaire to the managers, and classifying the managers according to level and performance evaluation. Coded ballot boxes were used and the classification into congruent and noncongruent categories was accomplished after examining the manager's job satisfaction scores. A flow diagram in Figure 11 on the following page illustrates this methodology.

Data were collected from one bureaucratic and two nonbureaucratic organizations. Since the number of congruent first and second level line managers in each nonbureaucratic organization was quite small, the data from the two nonbureaucratic organizations were combined. In the bureaucratic organization there were 32 first level and 12 second level congruent line managers. The combined data of the nonbureaucratic organizations totaled 7 first level and 5 second level congruent line managers.

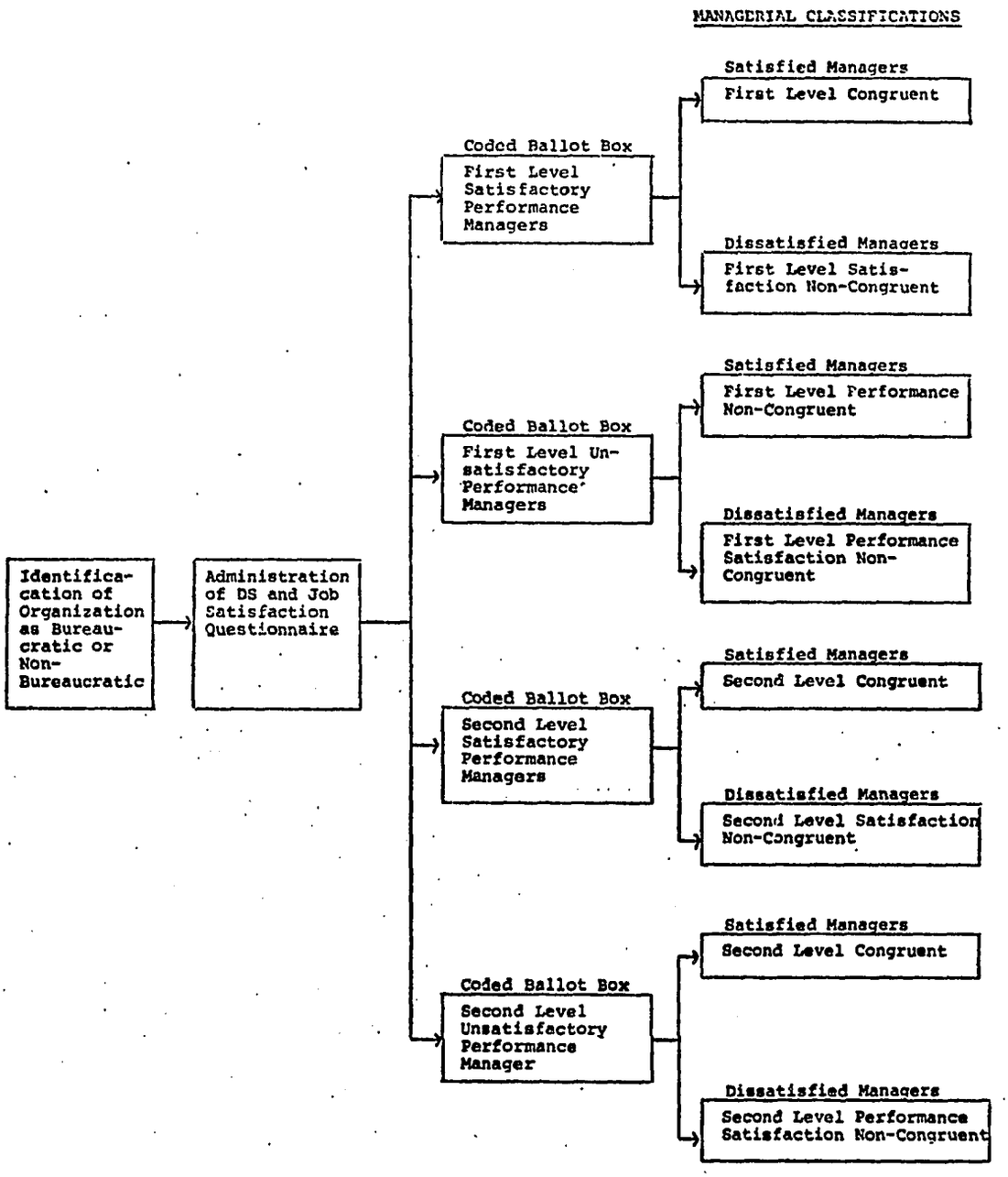


Figure 11. Flow diagram of research methodology

The statistical methodology used included nonparametric and descriptive statistics. Although parametric statistics are most frequently applied to dogmatism scores, the small numbers of congruent managers necessitated the use of nonparametric and descriptive statistics.

## Research Methodology

The research methodology will be presented in chronological order. The organizations were first selected and classified as bureaucratic and nonbureaucratic. Data were then collected regarding certain biographical characteristics of the managers. Finally, managers were classified into the congruent and noncongruent categories based on their job satisfaction scores and performance evaluations. A congruent manager is satisfied with his job and has a satisfactory performance evaluation. A noncongruent manager is deficient in one or both of the criteria for congruency.

### Selection of Organizations

The contextual variables of size and dependency were used to classify organizations into bureaucratic and nonbureaucratic categories. Conjecture is that bureaucratic organizations would most likely be those that were large

and were a subsidiary of a larger parent organization. Nonbureaucratic organizations would be smaller and independently owned and operated.

The initial effort to identify the organizations began by purusing the Oklahoma Directory of Manufacturers and Products, 1974,[1] and consulting with professors at the University of Oklahoma who were familiar with manufacturing firms in Oklahoma.

Prospects for the bureaucratic organizations consisted of the largest manufacturing organizations in the Oklahoma City area and were subsidiaries of larger organizations. These firms were contacted in descending order according to size.

Initially, personnel managers in four prospective bureaucratic organizations were contacted and the purpose of the study was explained to them. If they indicated an interest in the study, inquiry was made to determine more accurately whether they would actually fall into the bureaucratic category. This initial determination was made by asking them selected questions from the Inkson organizational classification instrument. Of the four organizations contacted, one agreed to participate in the study.

Prospects for the nonbureaucratic organizations consisted of those manufacturing organizations that had 1,000 or

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[1]Oklahoma Directory of Manufacturers and Products, (Oklahoma: Oklahoma Industrial Development Department, 1974 edition).

fewer employees and were independent of a larger organization. These firms were also contacted in descending order according to size.

The organizations containing from 500 to 1,000 employees either did not meet the requirements for a nonbureaucratic organization, or declined to participate in the study.

Organizations with 250 to 500 employees were then contacted. Three nonbureaucratic organizations in this size category agreed to participate in the study. Because the data from one of these organizations were incomplete due to an error in the data collection process, that organization was not included in this study. A description of the remaining two organizations is presented in the section following the discussion of the bureaucratic organization.

## Bureaucratic Organization

The bureaucratic organization is assigned a code name of H.[1] This organization is a branch of a large (approximately 96,000 employees) international manufacturing firm headquartered in the U.S. The parent organization manufactures computer equipment and software packages. The Oklahoma branch produces peripheral computer

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[1]Code name is done at the request of the organization.

equipment such as disc pack drives, tape drives, and punched card equipment. The parent organization was founded in 1888. The Oklahoma branch was started in 1970 and currently employs a total of 2,500 personnel; 1,600 of these are operative employees. Organization H is not unionized.

The manufacturing process of organization H is characterized by a rather high level of technology with the bulk of the equipment being single-cycle automatics. The most automated equipment is a computer-controlled device used to test the quality of their products.

The administrative, production and warehouse facilities are housed in five different locations in Oklahoma City. Although the total assets and sales of organization H were not available for this study, the assets of the total corporation were over $2.25 billion (1972) and the total revenue in 1970 was $859 million. The rate of growth of the total corporation and organization H since 1970 has been 12% per annum.

Organization H has a rather extensive performance appraisal program for their managers. The personnel manager made a special effort to point out that the company was pleased with this appraisal program. Every manager receives a yearly performance appraisal. The responses of organization H to the Inkson organizational classification instrument are presented in Appendix B on pages 245 to 252.

The score for structuring of activities was 31 and the score for concentration of authority was 10. The location of organization H on the Inkson organizational classification grid is illustrated in Figure 12 below.

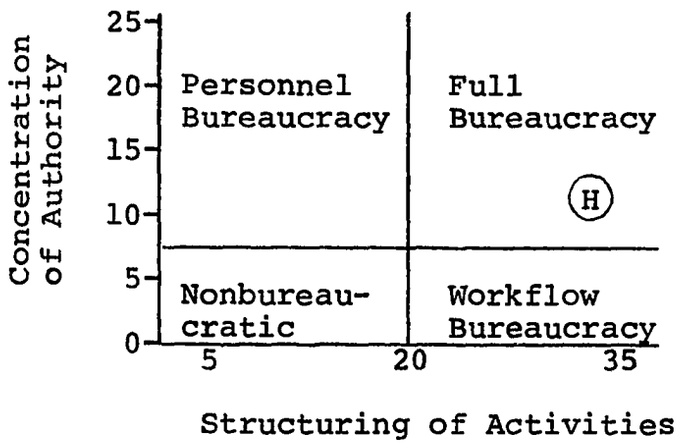


Figure 12. Inkson Organizational Classification Grid

Nonbureaucratic Organizations

The first of the two nonbureaucratic organizations is code named A and is located in Oklahoma City. This organization is a principal unit of an Oklahoma based corporation. The total corporation employs over 8,000 personnel. Organization A was founded in 1920 and currently employs a total of 412 personnel; 312 of these are operative employees. Although organization A is owned by another corporation, this tie is primarily financial, allowing almost independent operations. The production workers are represented by the United Auto Workers Union.

Organization A manufactures trailers such as dry freight vans, cattle trailers, meat rail vans, refrigerated vans, and grain trailers. These vans are then sold to various wholesale distributors.

The technology of organization A is characterized primarily by power machines and tools. These also comprised their most automatic equipment.

The total assets of organization A are $4 million with a 1973 sales volume of $15 million. The company has approximately doubled in size every ten years since 1940.

The performance appraisal process is rather informal. The personnel manager, operations vice president, and president jointly discuss each manager. Promotions and pay raises result from a consensus of these discussions.

At the time that this study was conducted (February, 1974), organization A was in the process of developing a more formal appraisal program for their managers and instituting a set of specific policies and procedures. They planned to put these changes into effect sometime in the summer of 1974. The addition of the formal appraisal program and policies would result in an increase in structure such that organization A would be classified as a workflow bureaucracy.

The responses of organization A to the Inkson organizational classification instrument are presented in Appendix B on pages 245 to 252. The score for structuring

of activities was 19 and the score for concentration of authority was 2. The location of organization A on the Inkson organizational classification grid is presented below.

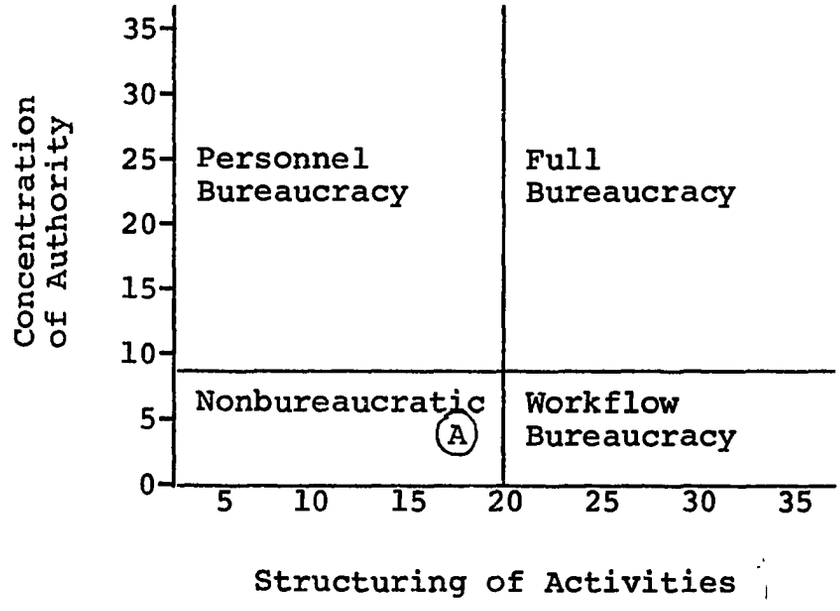


Figure 13. Inkson Organizational Classification Grid

The second nonbureaucratic organization (coded N) employs 280 personnel, 230 of which are operative employees. The production workers are represented by the International Printers and Graphic Arts Unions. The organization was founded in 1910 by the father of the current president.

Organization N prints forms for office use such as sales contracts, purchase agreements, and memo pads. These office forms are used primarily in the auto industry and are usually made according to customer specification.

The manufacturing process of organization N is

characterized primarily by repeating cycle automatics such as lithograph printing machines. The most automatic of the machines are those which are self-measuring and are adjusted by their own feedback.

The total assets of organization N are $3.5 million and the total sales volume was $6.5 million in 1973. The rate of growth has been between 8-10% per annum since 1968.

The performance appraisal method used in organization N is similar to that of organization A. In organization N, the president and personnel manager discuss the performance of the managers as the need arises for promotion or pay purposes.

The responses of organization N to the Inkson organizational classification scheme are presented in Appendix B on pages 245 to 252. The score for structuring of activities is 15 and the score for concentration of authority is 0.

The location of organization N on the Inkson organizational classification grid is presented in Figure 14 on the following page.

## Administration of DS and Job Satisfaction Questionnaires and Collection of Biographical Data

This section discusses the methodology used in administering the questionnaires and the collection of the biographical data.

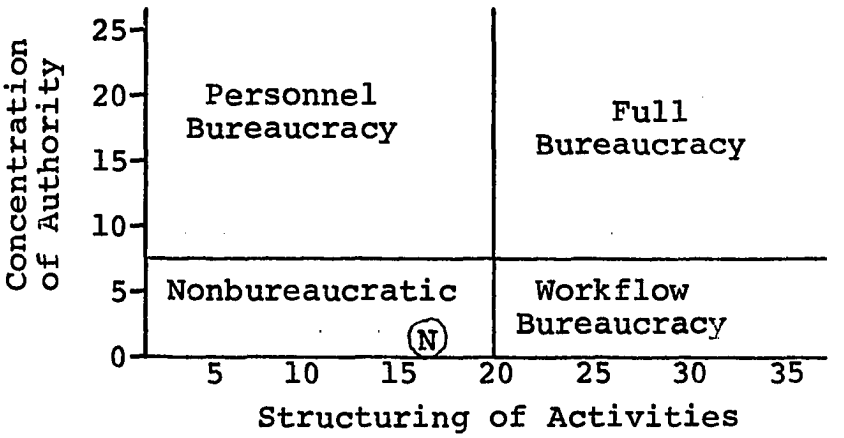


Figure 14. Inkson Organizational Classification Grid

Before the DS and job satisfaction questionnaires were administered to the managers, the Inkson organizational classification instrument was administered to the personnel manager in order to pinpoint the location of the organization on the grid. This usually required approximately 1-1/2 to 2 hours because much of the information had to be obtained from files or through consultation with a line officer. Descriptive data regarding the organization such as sales, assets, type of products, and technology were also collected.

Biographical data pertaining to the manager's age, number of years in the organization, number of years in the current position, and number of years of education were then collected. These data were compiled on six lists of managers which fell into the following categories.

1. First level satisfactory performance
2. First level unsatisfactory performance

3. Second level satisfactory performance
4. Second level unsatisfactory performance
5. CPA satisfactory performance
6. CPA unsatisfactory performance

These categorizations were made in an effort to obtain biographical data which would correspond as close as possible to the congruent and noncongruent managers. As will be pointed out later in this section, the biographical data had to be more macro in scope than the DS and job satisfaction data because the congruent categories were obtained after the managers were administered the DS and job satisfaction questionnaires. Because the managers were instructed not to put their names on the questionnaire, there was no way to obtain biographical data for just the congruent managers in a given category. Even so, however, the division of the biographical data into the above six categories was superior to collecting these data of the first or second level managers in one lump sum. Thus, the biographical data pertaining to the first level satisfactory performance managers are composed of congruent managers and first level satisfaction noncongruent managers. Because the satisfaction noncongruent managers comprised less than 20% of the congruent managers in any given category, the above classifications of the biographical data at least represent fair approximations of the managers into congruent and noncongruent categories.

The DS and job satisfaction questionnaires were administered to the first and second level line managers in a conference room. The instructions were brief and were consistently stated to all managers in all organizations. The managers were told:

> This is a questionnaire and not a test . . . there are no right or wrong answers. Choose any questionnaire from the stack in front of you and please do not put your name on the questionnaire or in any other way attempt to identify yourself. Please do not discuss this questionnaire while you are taking it. Bring your questionnaire outside when you are finished. Thank you.

Outside the room were four ballot boxes. These boxes were coded according to the first four of the above classifications used to obtain the biographical data. The personnel manager instructed the manager to place his questionnaire in the appropriate ballot box. The managers were not informed of the basis for the classifications.

After the administration of the questionnaires, the ballot boxes containing the managers with unsatisfactory performance ratings were entered first and their job satisfaction questionnaires examined. The job satisfaction questionnaires were scored by summing the seven items pertaining to the various dimensions of job satisfaction. The lowest score possible was 7 and the highest score possible was 35. Those managers whose total job satisfaction scores

were 21 or less were classified as performance-satisfaction noncongruent. This score indicated general job dissatisfaction because on the average, the manager indicated that he fell below the "neither satisfied or dissatisfied responses." Those managers whose total scores were higher than 21 were classified as performance noncongruent.

The ballot boxes containing the managers with satisfactory performance ratings were then entered. Those managers whose total job satisfaction scores were 21 or less were classified as satisfaction noncongruent, and those whose job satisfaction score was higher than 21 were classified as congruent. Data representing the numbers and types of congruent managers in each organization are presented in Table 6 on the following page. The criteria for the congruent and noncongruent categories are summarized in Table 7 on page 201. The DS was scored by adding 4 to each item and then summing the items.

The coded raw data representing the dogmatism, job satisfaction, and biographical data are presented in Appendix D. Because the biographical data are more macro in classification than are the DS and job satisfaction data, these are presented separately in the appendix.

The raw data were punched on Hollirith cards which served as input for statistical analysis through the Educational Statistical package at Merrick Computer Center.

TABLE 6

Numbers of Congruent and Noncongruent Managers
In the Bureaucratic and
Nonbureaucratic Organizations

| Group | Congruent | Noncongruent | | |
|---|---|---|---|---|
| | | P | S | P-S |
| Bureaucratic | | | | |
| First Level Line | 32 | 4 | 6 | 1 |
| Second Level Line | 12 | 1 | 1 | 0 |
| CPA Accountant | 5 | 0 | 0 | 2 |
| Nonbureaucratic A | | | | |
| First Level Line | 2 | 3 | 2 | 2 |
| Second Level Line | 3 | 3 | 1 | 0 |
| CPA Accountant | 1 | 0 | 0 | 0 |
| Nonbureaucratic N | | | | |
| First Level Line | 5 | 0 | 0 | 1 |
| Second Level Line | 2 | 0 | 0 | 0 |
| CPA Accountant | 1 | 0 | 0 | 0 |

Note: P = Performance noncongruent
S = Satisfaction noncongruent
P-S = performance-satisfaction noncongruent

TABLE 7

BASIS FOR CONGRUENCY AND NONCONGRUENCY

| Congruent | Performance Noncongruent | Satisfaction Noncongruent | Performance Satisfaction Noncongruent |
|---|---|---|---|
| Satisfactory Performance | Unsatisfactory Performance | Satisfactory Performance | Unsatisfactory Performance |
| Satisfied With Job | Satisfied With Job | Dissatisfied With Job | Dissatisfied With Job |

## Statistical Methodology

The statistical methodology utilized nonparametric and descriptive statistics. The nonparametric test used is the Mann-Whitney U-test. The descriptive statistics included the number of observations, mean and standard deviations.

The most frequently used type of statistics to test differences in dogmatism mean is parametric, notably the F and t-test. According to Kerlinger, parametric statistics are used most frequently in the fields of psychology and education.[1] Kerlinger's advice is to "use parametric statistics as well as the analysis of variance, routinely, but keep a sharp eye on data for gross departures from normality, homogeniety of variance, and equality of intervals."[2] Anderson, in a review of the literature regarding parametric and nonparametric statistics says, "it was concluded that parametric procedures are the standard tools of psychological statistics, although nonparametric procedures are useful minor techniques."[3]

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[1]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1964).

[2]Ibid., p. 260.

[3]N. Anderson, "Scales and Statistics: Parametric and Nonparametric," Psychological Bulletin, Vol. LVIII (1961), p. 305.

Nonparametric statistics are often appropriate when the sample sizes are small (fewer than 30).[1] Because small sample sizes were often encountered in testing the hypotheses, nonparametric statistics will be used. The descriptive statistics are reported to clarify and add perspective to the analysis of the data.

In testing the hypothesis, inferences will not be drawn beyond the organizations studied because these organizations are not considered to be a random sample drawn in sufficient quantity from a larger population. Inferences can be made, however, regarding the managers pertaining to the groupings used in testing the major and minor hypotheses because over 90% of the managers falling into each of these categories in the respective organizations were administered the questionnaires.

In the sections below, a brief description will be presented regarding the specific statistical tool used to test a given hypothesis. In some cases, the number of observations is so small that any statistical test would be rather meaningless. In such cases, only the descriptive statistics will be used. In all cases in which a statistical test is used, the level of significance will be two-tailed at the .05 level. This level was chosen

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[1]William L. Hays, Statistics for the Social Science (New York: Holt, Rinehart and Winston, Inc., 1973), Second Edition, p. 318.

because the criticalness of the outcome of this study was not considered such that the 0.01 level should be applied. Where possible, the level at which significance would occur will be reported. This will be referred to as the P value.

## Hypotheses H1 to H4

These are the major hypotheses that pertain to inter-organizational structure variation and managerial dogmatism at each level (H1 and H2) and intraorganizational structure variation between the two levels within an organization.

The small number of observations resulted in the use of the nonparametric Mann-Whitney U-test to test the hypotheses.

According to Siegel, the Mann-Whitney U-test is one of the most powerful of the nonparametric tests and is a useful alternative to parametric tests (such as the t-test and F test) when the researcher wishes to avoid the parametric tests' assumptions and/or small sample sizes are encountered.[1] The U-test essentially compares the ranking of dogmatism scores in each category to determine whether one group has a significantly higher ranking of scores than the other group.

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[1]Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, 1956.

## Hypothesis H5

Only five congruent accountants were in the bureaucratic organization and only two congruent accountants were in the nonbureaucratic organizations. The U-test was used to test this hypothesis because the number of observations were small.

## Hypotheses H6 to H9

These hypotheses pertain to the number of observations in two categories. The appropriate statistic to use here is chi square with the Yates Correction for two degrees of freedom. The chi square will not be used in those cases where the expected frequency is less than five. In such cases, the descriptive statistics will be relied upon to provide conclusions regarding the testing of these hypotheses.

# CHAPTER V

## ANALYSIS OF RESULTS AND DIRECTIONS FOR FUTURE RESEARCH

This chapter is divided into three sections. The first section presents the analysis of the results of this study. The second section is devoted to a summary of the findings and provides some tentative conclusions which are based upon these findings. The third section briefly describes some directions for future research efforts which focus around some of the major limitations of this study.

### Analysis of Results

This section presents the analysis of the results and the conclusions. The organization of this section is based upon the grouping of hypotheses according to their similarities. Descriptive statistics pertaining to dogmatism, job satisfaction, and biographical data are presented in three tables in Appendix E. Descriptive statistics which specifically pertain to a given set of hypotheses will be presented in each section of this part.

Hypotheses H1 - H4

These are the major hypotheses and are divided into two parts. Hypotheses H1 and H2 pertain to the relationships between managerial dogmatism and interorganizational structure variation. Hypothesis H1 predicts that first level congruent line managers in the bureaucratic organization will be more dogmatic than the first level congruent line managers in the nonbureaucratic organizations. Hypothesis H2 makes the same prediction but is based upon the second level congruent line managers in the bureaucratic and nonbureaucratic organization.

Major hypotheses H1 and H2 are based upon the theoretical constructs of this study stating that dogmatic individuals tend to place greater reliance upon external authority sources than do nondogmatic individuals. Because bureaucratic organizations are usually characterized by stronger authority sources in the form of procedures and formal rules than are nonbureaucratic organizations, the bureaucratic organization should provide a more compatible environment to a dogmatic manager.

Hypotheses H3 and H4 pertain to the relationship between managerial dogmatism and intraorganizational structure variation. Research hypothesis H3 predicts that first level congruent line managers in the bureaucratic organization will be more dogmatic than the second level congruent line managers. Research hypothesis H4 makes a similar

prediction but is based upon the first and second level congruent line managers in the nonbureaucratic organizations.

Research hypotheses H3 and H4 are also based upon the theoretical constructs of this study stating that the degree of structure within a given organization tends to decrease at the higher management levels. This lowering of structure is a result of fewer procedures and formal rules at the higher levels. The reduction of external authority sources should result in the higher management levels being more compatible to a less dogmatic manager.

The descriptive statistics which specifically pertain to these hypotheses are presented in Table 8 below.

TABLE 8

DESCRIPTIVE STATISTICS PERTAINING TO DOGMATISM OF FIRST AND SECOND LEVEL CONGRUENT LINE MANAGERS

| Group | N | Dogmatism Mean | Std. Dev. |
|---|---|---|---|
| First Level Congruent Bureaucratic | 32 | 145.7 | 25.8 |
| Second Level Congruent Bureaucratic | 12 | 131.3 | 18.8 |
| First Level Congruent Nonbureaucratic | 7 | 172.9 | 20.8 |
| Second Level Congruent Nonbureaucratic | 5 | 148.2 | 28.3 |

The nonparametric Mann-Whitney U-test was the statistic used to test these hypotheses because the number of observations were small. The results of the testing of the major hypotheses are presented on the following page.

The U-test indicates significance at the 5% level for hypothesis H1, but the differences in the dogmatism means are not in the predicted direction. Although significant differences at the 5% level were not detected for hypothesis H2, the differences in dogmatism means also are not in the predicted direction. Hypotheses H3 and H4 are not significant at the 5% level, but the differences in dogmatism means are in the predicted direction.

Some possible explanations for the lack of verification of hypotheses H1 and H2 might be as follows:

1. In the nonbureaucratic organization, perhaps the lower degree of external authority resulting from the formal structure of the organization is offset by another authority source(s) such that the nonbureaucratic organization becomes a compatible environment for a dogmatic manager.

2. Significant differences in dogmatism may

TABLE 9

TESTS OF SIGNIFICANCE OF THE MAJOR HYPOTHESES

| Hypothesis | Group | Differences[a] in Dogmatism Means | U-test P Value |
|---|---|---|---|
| H1 | First Level Bureaucratic vs. First Level Nonbureaucratic | -27.2 | .023 |
| H2 | Second Level Bureaucratic vs. Second Level Nonbureaucratic | -16.9 | >.10[b] |
| H3 | First Level vs. Second Level Bureaucratic | 14.4 | .103 |
| H4 | First Level vs. Second Level Nonbureaucratic | 24.7 | .054 |

[a]Negative figure indicates that the differences are not in the predicted direction

[b]Tabled value did not yield actual P value

actually exist between other bureaucratic and nonbureaucratic organizations as predicted by hypotheses H1 and H2, but did not for the organizations of this study. This would indicate a lack of verification of these hypotheses due to a chance occurrence.

3. Significant differences in dogmatism may exist as predicted by hypotheses H1 and H2, but do not follow the organizational classification boundaries. For example, it may be that these hypotheses would be upheld between bureaucratic organizations scoring higher along any one or two of the dimensions, and/or nonbureaucratic organizations scoring lower along these two dimensions.

4. Significant differences may exist as predicted by hypotheses H1 and H2, but may only exist in certain types of organizations. For example, no significant differences in

dogmatism may exist between manufacturing organizations, but may exist between service organizations in these categories or between a nonbureaucratic service organization and a bureaucratic manufacturing organization.

5. Significant differences in dogmatism may exist as predicted by hypotheses H1 and H2, but the effect of an intervening variable is such that the results are not significant or are significant in the unintended direction. A possible intervening variable is the level of education of the managers because the level of education appeared to coincide closely with the dogmatism scores among the groups of managers.

Some possible explanations for the lack of verification of hypotheses H3 and H4 might be as follows:

1. At the second management level, perhaps the lower degree of external authority resulting from the formal structure of the organization is offset by other authority sources such that the second

management level becomes a compatible environment for a dogmatic manager.

2. Significant differences in dogmatism may exist between management levels in other organizations, but did not for the organizations of this study.

3. Significant differences in dogmatism may exist between management levels, but are significant only between certain types of organizations.

4. Significant differences in dogmatism may exist between management levels, but the effect of an intervening variable is such that the results are not significant.

5. Significant differences in dogmatism may exist between management levels, but did not in this study due to the small numbers of observations. Perhaps significance would be obtained if a reasonable number of observations were possible.

6. Significant differences in dogmatism may exist between management levels, but may not between the first and second levels. Perhaps significance would be obtained between the first and third or between the second and third management levels.

It should be noted however, that the dogmatism scores of the managers in the nonbureaucratic organizations consisted of combining the score from Organizations A and N. An examination of the dogmatism means between management levels in the two nonbureaucratic organizations showed these differences to be in the intended direction in each of these organizations. The difference in dogmatism means between the managers in the first and second levels in organization A is 15.7 and in organization N the dogmatism difference between levels is 39.8. The difference in dogmatism means between management levels in the bureaucratic organization was 24.7.

This consistency of the dogmatism means in the predicted direction between levels in all the organizations studied indicates that perhaps this pattern also prevails in other organizations.

In making comparisons between the bureaucratic organization and <u>each</u> of the two nonbureaucratic organizations, one difference in the intended direction was observed. This difference was noted between the dogmatism levels of the second levels of the bureaucratic and nonbureaucratic organization N. In this case, the difference in dogmatism was 4.3 and was in the intended direction.

In summary, all four of the major hypotheses are rejected. Because the results are in the intended direction for the hypotheses dealing with differences in dogmatism means between management levels (H3 and H4) and are present in all organizations studied, it appears that these hypotheses may be verified in future research studies under a more rigorous research design. Any future research design should concentrate on obtaining a larger number of observations, especially with respect to congruent second level line managers.

## Hypotheses H5

Hypothesis H5 states that there will be no difference in dogmatism between congruent CPA accountants in the bureaucratic and nonbureaucratic organizations. The descriptive statistics and the U-test results are presented in Table 10 on the following page.

Although observations of five and two are quite small, they do encompass all the congruent CPA accountants in the organizations studied. The rather high P value does tend to support the research hypothesis and supports the contention that the staff managers' dogmatism scores would tend to be less responsive to differences in organizational structure than the line managers. This finding

TABLE 10

DOGMATISM BETWEEN CONGRUENT CPA ACCOUNTANTS IN BUREAUCRATIC AND NON-BUREAUCRATIC ORGANIZATIONS

| Group | N | Mean | Std. Dev. | U-test P Value |
|---|---|---|---|---|
| Bureaucratic CPA Accountants | 5 | 126 | 20.3 | .43 |
| Nonbureaucratic CPA Accountants | 2 | 132 | 11.3 | |

indicates that line managers appear to be more responsive with respect to dogmatism and interorganizational structure. Further studies need to be conducted to determine whether this lack of significance is also present when comparing congruent CPA accountants between levels in the same organization. Although this hypothesis is tentatively confirmed larger numbers of observations are necessary in order to establish a more meaningful interpretation. Future support or refutation of this hypothesis may add further perspective regarding differences in dogmatism between line and staff managers.

## Hypotheses H6 - H9

These research hypotheses pertain to the numbers of noncongruent managers expected to fall above and below the congruent dogmatism mean established by their congruent

counterparts. These hypotheses are restated below.

H6 The number of noncongruent first level line managers in the bureaucratic organization who fall below the dogmatism mean set by their congruent counterparts will be greater than the number of noncongruent managers who fall above that mean.

H7 The number of noncongruent first level line managers in the nonbureaucratic organization who fall below the dogmatism mean set by their congruent counterparts will be less than the number of noncongruent managers who fall above that mean.

H8 The number of noncongruent second level line managers in the bureaucratic organization who fall below the dogmatism mean set by their congruent counterparts will be greater than the number of noncongruent managers who fall above that mean.

H9 The number of noncongruent second level line managers in the nonbureaucratic organization who fall below the dogmatism mean set by their congruent counterparts will be less

than the number of noncongruent managers who fall above that mean.

These minor hypotheses were intended to support major hypotheses H1 and H2, predicting that congruent dogmatic managers tend to be located in bureaucratic organizations and that nondogmatic managers tend to be located in non-bureaucratic organizations.

The categorization of the noncongruent managers with respect to dogmatism means established by their congruent counterparts is presented in Table 11 on the following page. Although the chi square statistic was intended to be used to test these hypotheses, the cell sizes were considered too small to allow any statistical testing. Inspection of the categorizations, however, indicates that these hypotheses are rejected. The numbers of noncongruent managers on the low or high side of any congruent mean appear to be about equal. The exception to this equality is hypothesis H7, but this result is not in the intended direction.

The rejection of these hypotheses tends to support the previous statements regarding the testing of major hypotheses H1 and H2. It appears that dogmatism is not related to interorganizational structure variation in the manner predicted by the theoretical underpinnings of this study or is perhaps affected by intervening variables.

In examining the data in Table 11 with respect to

TABLE 11

CATEGORIZATION OF NONCONGRUENT LINE MANAGERS WITH RESPECT TO CONGRUENT DOGMATISM MEAN

| | | Total | Noncongruent Managers Above Congruent Mean | | | | | Noncongruent Managers Below Congruent Mean | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hypothesis | Group | N | n | % | P | S | P-S | n | % | P | S | P-S |
| H6 | First Level Bureuacratic | 11 | 6 | 55 | 4 | 1 | 1 | 5 | 45 | 0 | 5 | 0 |
| H7 | First Level Nonbureaucratic | 8 | 2 | 25 | 1 | 0 | 1 | 6 | 75 | 2 | 2 | 2 |
| H8 | Second Level Bureaucratic | 2 | 1 | 50 | 1 | 0 | 0 | 1 | 50 | 0 | 1 | 0 |
| H9 | Second Level Nonbureaucratic | 4 | 2 | 50 | 2 | 0 | 0 | 2 | 50 | 1 | 1 | 0 |
| | Total | 25 | 11 | -- | 8 | 1 | 2 | 14 | -- | 3 | 9 | 2 |

Note: P = Performance Noncongruent
S = Satisfaction Noncongruent
P-S = Performance-Satisfaction Noncongruent

the type of noncongruent manager falling above or below the congruent dogmatism mean, a distinctive pattern emerges.

The dogmatism scores of those managers who were performance noncongruent tended to fall to the high side of the congruent dogmatism means. The dogmatism scores of those managers who were satisfaction noncongruent tended to fall to the low side of the congruent dogmatism means. This pattern prevailed across all the organizations studied in that 73% of those noncongruent managers who fell above their respective congruent dogmatism means were performance noncongruent, and 64% of those managers who fell below their respective congruent dogmatism means were satisfaction noncongruent. Those managers who were both performance and satisfaction noncongruent (identified as P-S in Table 11) did not follow any noticeable pattern. Equal numbers of this type of noncongruent manager were located above and below the congruent dogmatism means. These percentages are presented in Table 12 on the following page.

The above findings pertaining to the type of noncongruent managers above or below the congruent dogmatism mean may provide some insights as to why a manager may be noncongruent. Because nondogmatic individuals tend to place a rather low reliance on external authority sources, the high percentage of satisfaction noncongruent managers might be traced to the formal structure of the organization at

TABLE 12

NUMBER AND PERCENTAGES OF NONCONGRUENT MANAGERS ABOVE AND BELOW THE CONGRUENT MEAN

| | Noncongruent Managers Above The Congruent Mean | | Noncongruent Managers Below The Congruent Mean | |
|---|---|---|---|---|
| | n | % | n | % |
| P | 8 | 73 | 3 | 22 |
| S | 1 | 9 | 9 | 64 |
| P-S | 2 | 18 | 2 | 14 |
| TOTAL | 11 | 100 | 14 | 100 |

that management level. The formal structure of the organization exerts its authority on the manager in the form of procedures, formal rules and other directives. The non-dogmatic manager is inclined to seek many sources of authority according to the demands of the situation, and becomes frustrated with the pervasiveness of the organizational authority. This frustration might be one factor accounting for his low overall job satisfaction. The explanation offered here does not suggest that a manager with a relatively low dogmatic score is likely to be noncongruent. It does suggest an explanation as to a possible cause of noncongruency for those managers falling below the congruent dogmatism mean.

Because dogmatic individuals tend to place a rather high reliance on an external authority, the high percentage of performance noncongruent managers might also be traced to the formal structure of the organization. In this case the manager may place such a high reliance on the external authority exerted by the formal organization that it adversely affects his performance. This is indicated by the large percentage of noncongruent managers who are relatively more dogmatic than their congruent counterparts.

Although the formal structure of the organization is suggested as being a primary source of external authority, it should be recognized that other external authority sources also exist within an organization. Such sources include the immediate supervisor and work group. These

sources may work in concert with the formal organization structure to provide a map of external authority sources for the manager. What is suggested here is that performance noncongruency may result when a manager places too much reliance on these sources. Satisfaction noncongruency may result from frustrations encountered when these authority sources are impinged upon these managers who are not inclined to recognize these sources as an absolute authority.

These interpretations of the findings are tentative and are based solely upon the theoretical underpinnings of this study. Further research needs to be performed in order to more clearly establish whether these relationships follow across a wide range of organizations and are stable characteristics. The further research in this area may make a contribution toward understanding why a manager at a given level in a given organization is noncongruent. This explanation offers a new approach to job satisfaction and performance by viewing incongruency according to the cognitive framework of the manager.

## Association of Biographical Data With Dogmatism

This part discusses the association of the biographical data of the line managers with dogmatism. This association is done in an attempt to partially determine whether these biographical variables may have influenced the results pertaining to the major hypotheses.

Table 13 on the following page presents the descriptive statistics associated with dogmatism and the biographical data. It should be noted that the groupings in Table 13 are different from those of Table 8 and 9 in that a given group in Table 13 contains congruent managers plus those who are satisfaction noncongruent. For example, the first level satisfactory performance managers in the bureaucratic organization includes those first level managers who are satisfaction noncongruent. As pointed out on page 197 in Chapter IV, this macro grouping of the biographical data was unavoidable and was a result of the research methodology to preserve the anonymity of the managers who were administered the dogmatism and job satisfaction questionnaires. Because the satisfaction noncongruent managers in any given classification comprise less than 20% of the total managers, the classifications presented in Table 13 should provide at least a rough approximation of the classifications of managers used to test the major hypotheses.

In the sections below, each biographical variable mean will be plotted against the corresponding dogmatism mean on a graph. If this association tends to follow a linear relationship, then it will be tentatively concluded that the biographical variable may have acted as an intervening variable with respect to the direction of the findings of the major hypotheses.

TABLE 13

DESCRIPTIVE STATISTICS OF LINE MANAGERS
PERTAINING TO BIOGRAPHICAL DATA

| Group [1] | | Dogmatism | | Years Education | | Age | | Years in Organization | | Years On Job | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. |
| First Level Satisfactory Performance Bureaucratic | 38 | 142.6 | 26.5 | 13.2 | 2.0 | 34.4 | 8.7 | 6.2 | 5.3 | 2.6 | 2.3 |
| First Level Satisfactory Performance Nonbureaucratic | 9 | 164.4 | 24.9 | 11.8 | .7 | 40.7 | 9.8 | 15.0 | 6.4 | 4.6 | 2.9 |
| Second Level Satisfactory Performance Bureaucratic | 12[2] | 131.3 | 18.8 | 14.3 | 1.5 | 37.8 | 5.6 | 8.2 | 2.4 | 2.4 | 1.7 |
| Second Level Satisfactory Performance Nonbureaucratic | 6 | 145.7 | 26.1 | 13.0 | 1.7 | 40.3 | 11.1 | 16.0 | 13.1 | 2.3 | 2.1 |

[1] These data do not include the performance noncongruent managers.
[2] Biographical data are missing from one manager in this category.

Dogmatism and Level of Education

The graph in Figure 15 shows the relationship between the dogmatism and level of education means pertaining to the four groupings presented in Table 13. The graph indicates that a rather straight line relationship exists between these two variables such that an increase in dogmatism is associated with a decrease in the level of education. Although the graph is based on averaged figures, the close fit of the data indicates that this relationship may need to be more rigorously studied in future research efforts.

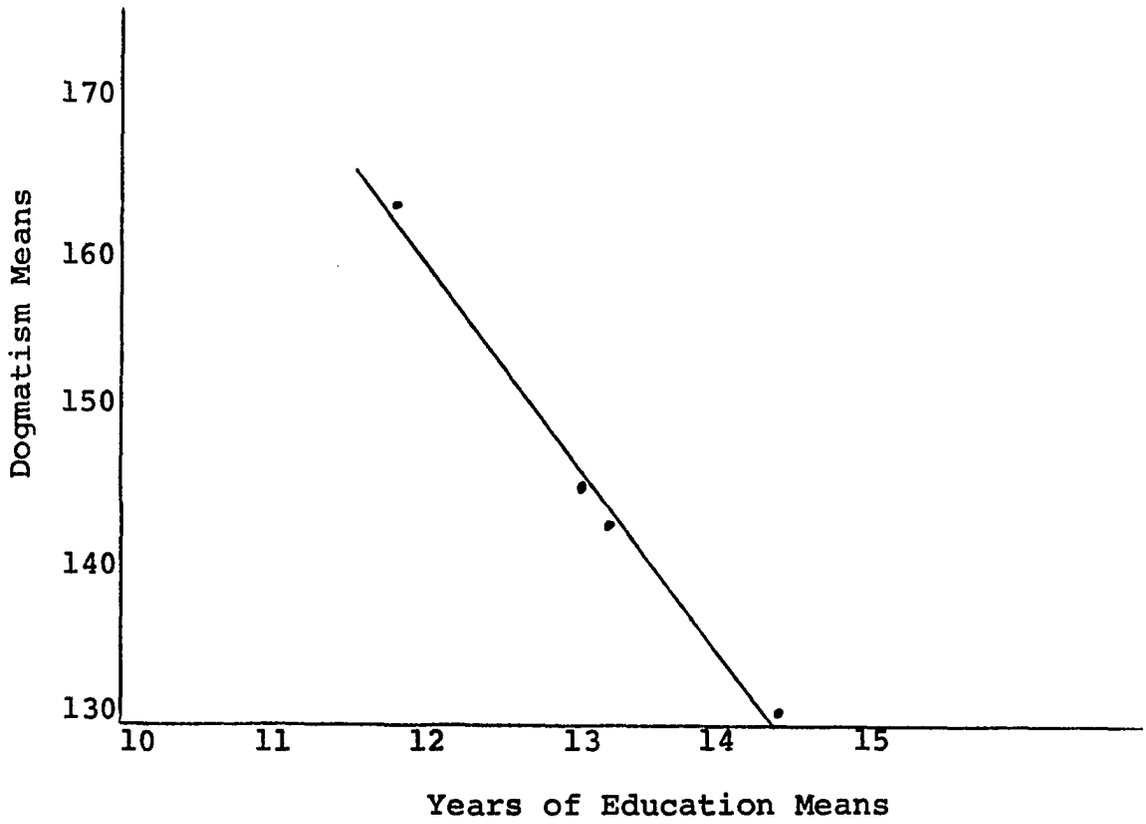


Figure 15. Graph of Dogmatism and Years of Education Means

It should be pointed out that this negative relationship between dogmatism and level of education was not present in the two groups of congruent CPA accountants. The difference in dogmatism between the congruent CPA accountants in the bureaucratic and nonbureaucratic organization was 6.2, but the difference in the level of education between these two groups was 1.2. In this case, an increase in the level of dogmatism was accompanied by an increase in the level of education.

Although the literature regarding dogmatism and level of education is nonconclusive, there have been findings where a negative relationship between these two variables has been established. If this relationship existed in the case of the major hypothesis of this study, it may have been a major intervening variable accounting not only for the unintended direction of the results pertaining to major hypotheses H1 and H2, but also accounting for the results being in the intended direction for major hypotheses H3 and H4. Future research studies controlling for the possible interaction between dogmatism and education may be necessary. As pointed out on page 145 in Chapter II, the relationship between these two variables may be a result of negative response bias in which those individuals with higher levels of education may be more inclined to respond in a negative manner to the items of the questionnaire. Some possible modifications in the research design are briefly described

in the section pertaining to directions for future research.

Dogmatism and Age

The graph illustrating the relationship between dogmatism and age is presented in Figure 16 below. Inspection of this graph indicates that the points do not fall along a straight line. It is doubtful whether these points follow any meaningful pattern. The lack of a relationship between age and dogmatism has been substantiated in the literature as discussed in Chapter II.

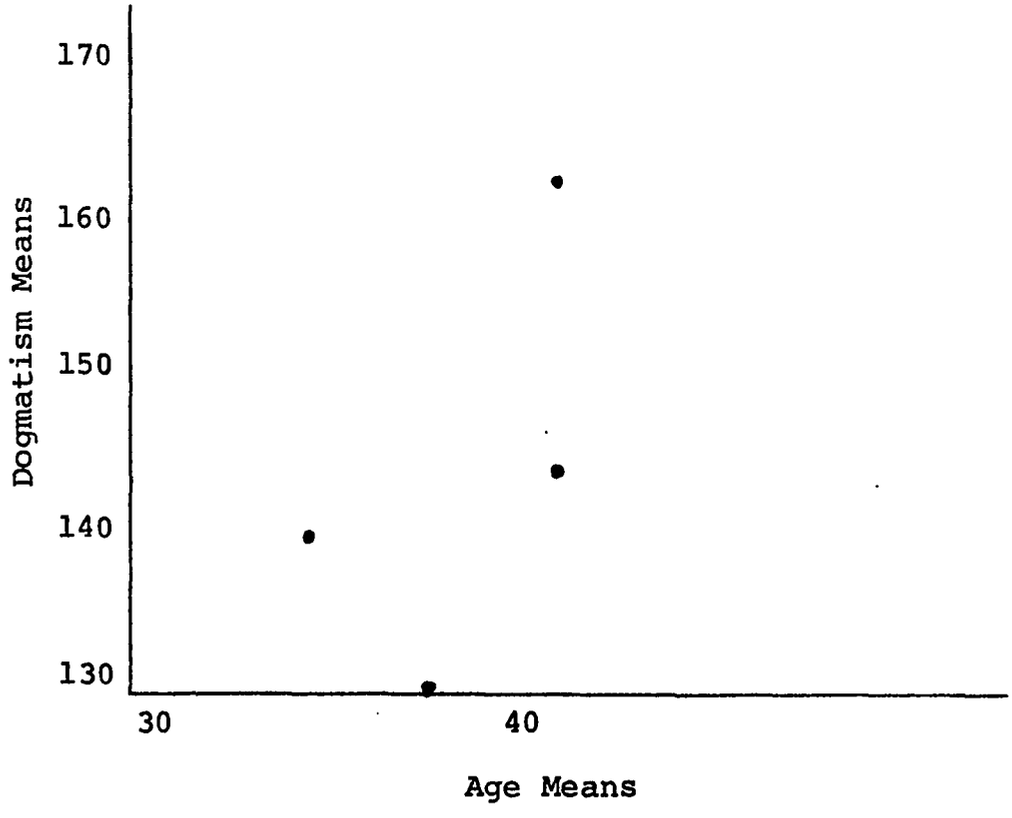


Figure 16. Graph of Dogmatism and Age Means

Dogmatism and Years in the Organization

The graph illustrating dogmatism and years in the organization is presented in Figure 17 below. Inspection of this graph indicates that the points do not fall along a straight line or follow any meaningful pattern.

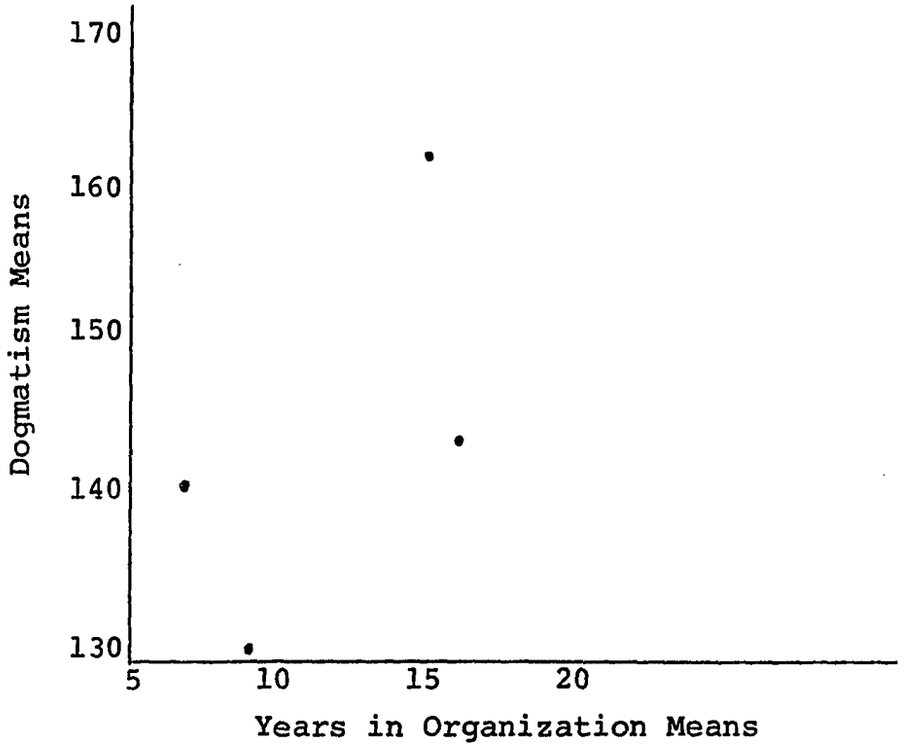


Figure 17. Graph of Dogmatism and Years in Organization Means

Dogmatism and Years on Job

The graph illustrating dogmatism and years in the organization is presented in Figure 18 on page 230. Inspection of this graph indicates that a positive linear relationship may exist, but the relationship appears to be rather weak. Perhaps future studies may further clarify

whether such a relationship exists between these two variables. It appears that this relationship is not strong enough to have influenced the direction of the results pertaining to the major hypotheses.

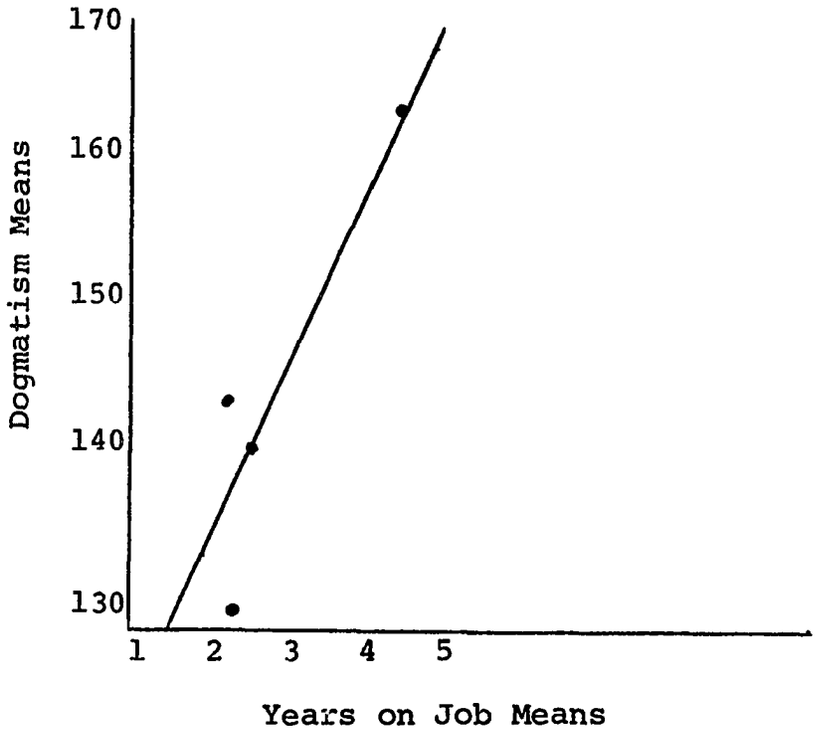


Figure 18. Graph of Dogmatism and Years on Job Means

## Conclusions

The conclusions of this study are tentative and can be confirmed only upon several replications using a larger number of organizations and observations. This study included only three organizations in which the dogmatism of selected groups of managers were measured at a particular point in time under a specific set of circumstances. The

small numbers of observations make any type of statistical analysis unreliable, and therefore only the descriptive statistics will be used in drawing any tentative conclusions.

The major hypotheses pertaining to differences in dogmatism between the bureaucratic and nonbureaucratic organizations were not confirmed. The dogmatism differences were not in the predicted direction. Although some possible explanations for the results not being in the intended direction were mentioned earlier, the conclusion here is that dogmatism either is not related to interorganizational structure variation in the manner predicted, or else is affected by intervening variables.

The major hypotheses concerned with differences in dogmatism between levels in a given type of organization were also not confirmed. However, the results were in the intended direction for all organizations studied. The conclusion made with respect to these hypotheses is that there is a possibility that a relationship may exist for these hypotheses under a more rigorous research design encompassing a larger number of observations.

The minor hypothesis predicting no differences in dogmatism between congruent CPA accountants in the bureaucratic and nonbureaucratic organization was verified. This confirmation, however, is based on a very small number of observations. The confirmation of this hypothesis supports

the theory that the staff managers' dogmatism scores will not vary according to interorganizational structure variation.

The minor hypotheses pertaining to the number of noncongruent dogmatism scores which fall to the high or low side of their respective congruent means were not supported. It is concluded from observations of the descriptive statistics that equal numbers of noncongruent managers tend to fall above and below these congruent means.

The biographical data pertaining to level of education of the congruent managers tended to show a negative linear relationship with dogmatism. Although the exact nature of this relationship could not be established, it is concluded that a relationship between dogmatism and level of education is highly possible and needs a more rigorous examination in future research in order to determine its effect on the major hypotheses.

The justification for this study centered around 1) providing a construct which unified a theory of the individual and organization, 2) an indirect testing of the validity of the modern classical approach and, 3) identifying two dimensions potentially applicable to contingency theory.

Although a theory was developed regarding the belief structure of the individual and organizational structure, the results of descriptive statistics do not support the theory in its present form. The results pertaining to

intraorganizational structure variation were in the predicted direction in all three organizations studied. Although these results were not significant, the P values were close to the 0.10 level for hypotheses H3 and H4. Therefore, it appears that the major hypotheses pertaining to intraorganizational structure variation are more likely to be verified by future research than are those dealing with interorganizational structure variation. If the major hypotheses pertaining to intraorganizational structure variation are later verified, then the theory might be modified to cover only dogmatism and intraorganizational structure variation. This theory might then be useful in predicting the success of a manager in a given management position within an organization.

Because the negative direction of the results of this study indicate that congruent bureaucratic managers at a given level may actually be less dogmatic than those in nonbureaucratic organizations, it appears as though other factors may play a more important role in managerial dogmatism than the overall structure of the organization. The writings of such modern classical theorists as Argyris and Bennis suggest that a bureaucratic structure is associated with organizational members who are authority centered. This study, however, tends to refute these assertions and suggests that the modern classical writers may have overgeneralized the effects of the bureaucratic structure on the personality characteristics of its members. Perhaps the modern classical writers have devoted too much emphasis on the impersonal

control mechanisms of the bureaucratic organization and have neglected to consider that perhaps much freedom and autonomy may reside within these impersonal boundaries. The opportunity to utilize many external authority sources may explain why managers with lower levels of dogmatism were located in the bureaucratic organization. Conversely, the nonbureaucratic organizations studied may have provided less autonomy and freedom to their managers because a dominant authority source other than the organization structure (for example the supervisor or custom) such that the nonbureaucratic organizations were compatible for managers relatively high in dogmatism.

Contingency theory has not benefited from the results of this study, but may later benefit from a segment of the research design. This segment of the research design was the isolation of the managers into congruent and noncongruent categories. Current research efforts in contingency theory have centered around finding a fit between selected organizational, task, and personality variables. The ultimate goal of these research efforts is to achieve application in the field of management. A major goal of many organizations, however, is to have managers who are both satisfied and productive, i.e., congruent. Present efforts in contingency theory have not attempted to apply the concept of congruence.

Perhaps greater meaning could be obtained from future research efforts if researchers not only determined the fit among the organization, task, and personality variables, but were also able to make conclusions about satisfaction and performance congruence. In this manner the concept of congruence would allow for more meaningful interpretations of the fit among contingency variables.

## Directions for Future Research

The directions for future research focus on the limitations of this study. These limitations are identified under the headings of refining the concept of managerial congruency, increasing the number of organizations and observations within an organization and modifications of the research design to control for possible negative response bias.

### Refining Managerial Congruence

The concept of managerial congruence was developed specifically for this study. The void in the literature in this area necessitated the integration of aspects of satisfaction and performance measures.

The ISR job satisfaction instrument has frequently been used in management research to measure seven dimensions of job satisfaction, but no literature was uncovered regarding its use to dichotomize managers into satisfied and dissatisfied categories. The cut-off point of 21 was used because this score indicates that on the average, the manager was just above the "neither satisfied or dissatisfied" categories. No attempt was made to use a cut-off point(s) pertaining to a given item, such as the one regarding the manager's satisfaction with his supervisor. Because no solid basis could be established for providing these additional cut-off points, the categorizations of satisfied and dissatisfied were based only on a total

score basis.

Problems may have been encountered with the performance appraisal method, which was based upon dichotomized classifications of satisfactory and unsatisfactory according to the evaluations of the personnel manager and a third level line officer in each of the three organizations. This indicates that the performance evaluations of the managers in each of the organizations may have been based on widely different criteria.

The use of congruent managers may have been instrumental in reducing some of the unexplained variance, and the recommendation here is that congruency should continue to be applied in future research. The rather sharp dilineations with respect to the performance noncongruent managers falling above, and the satisfaction noncongruent managers falling below their congruent dogmatism mean also lends support to the use of managerial congruence in future research studies to further determine why certain types of managers are likely to be noncongruent.

The concept of managerial congruence may play a vital role in determining whether significant differences in future research studies are meaningful. Simply obtaining significance in a study is meaningless unless the significance has some potential meaning for those who might later apply the results. Congruency may assist in determining the differences in dogmatism necessary to detect differences

in managerial behavior appropriate for a given level within a given organization. For example, the differences in dogmatism between all first and all second level managers may be significant at the .01 level. If differences in the behavior of these managers cannot be detected by observable behavior, then the significance noted by the test statistic has no application. On the other hand, if congruent first level managers differ significantly in dogmatism from congruent second level managers and these differences can be identified by differences in their behavior, then dogmatism can become a predictive tool for managerial success at a given level. The same concept applies in determining dogmatism differences between congruent and noncongruent managers. What must be established in future studies is the magnitude of dogmatism differences which can actually be associated with a given behavior pattern.

The concept of managerial congruence may also have application in other management research. The identification of congruent managers may clarify the interpretations of a given study. In illustrating this potential application with an example, suppose an attitude survey was conducted among the managers of an organization and the results of this survey indicated that these managers did not prefer any one style of leadership. If it is further assumed that 50% of these managers were noncongruent, the results of the

study may indicate that those managers who were performance noncongruent preferred one style of leadership, those who were satisfaction noncongruent preferred a different style, and those who were congruent preferred a style of leadership different from the noncongruent managers.

The categorization of the managers into the congruent and noncongruent categories could then add meaning to a study which originally gave mixed results. It would seem that management research could benefit from a research approach which specifically attempted to analyze the characteristics of congruent managers and compare these characteristics to the noncongruent managers in an effort to better explain and predict the success of a given manager in a given organization. Such studies may help to determine a manager's success before he is placed in the position.

## Increasing the Number of Observations and Organizations

The small number of organizations of this study and number of observations within these organizations have resulted in definite limitations regarding the statistical analyses and subsequent conclusions. The guidelines for future research in this area stem from the results of this study.

Because dogmatism and interorganizational structure variation do not follow in the intended direction, the

recommendation made here is that less attention should be devoted to selecting the type of organization. More attention should be devoted to selecting larger organizations, with the focus of the research being placed on studying the intraorganizational structure variations. Because future research may yet uncover a relationship between dogmatism and interorganizational structure, a recommendation should be made to continue to classify organizations of future studies according to the Pugh organizational classification system. For example, it may be that nonbureaucratic organizations tend to show greater significant differences with respect to intraorganizational structure than do other types. In this manner, future research may be provided with more meaningful interpretations if the type of organizations studied were known. According to the results of this study, however, efforts should not be specifically devoted to obtaining only bureaucratic and nonbureaucratic organizations. Instead, efforts should be devoted toward obtaining large organizations, determining their classification and then emphasizing the intraorganizational structure variation in the research design. Perhaps intervening variables exist between dogmatism and interorganizational structure. These intervening variables may be somewhat neutralized when studying the managers within a given organization.

## Modifying the Research Design

The tendency of the education level of the managers to follow the level of dogmatism may necessitate modifications in the research design in order to determine whether these two variables are independent. If they are not independent such that one variable is in a cause and effect relationship with the other variable, then dogmatism and education level must be discussed together in future research. If the lower levels in dogmatism are caused by a negative response bias, perhaps resulting from higher levels of education, then the conclusion may be that there are no differences in interorganization or intraorganizational structure variation. Higher levels of education however may cause those people who go into the management profession to be nondogmatic. In this case, the differences in dogmatism would be genuine and results of significant differences in dogmatism could be reported as such. Another possibility is that those individuals who tend to seek higher levels of education also tend to be those who are nondogmatic. A final possibility is that some other variables affect both dogmatism and level of education such that a relationship exists, but the two variables are actually independent from each other.

The future research designs discussed below only attempt to partially determine whether a relationship does exist between dogmatism and inter and intraorganizational

structure. If a relationship is established, the exact nature of it could only be determined by more rigorous and replicative studies.

One alternative in establishing whether a relationship exists between dogmatism and education level is to use a modified version of the DS. This modified version would be balanced for possible positive and negative response bias. The balancing is performed by randomly reversing half of the items. For example, the item stating "The U.S. and Russia have nothing in common," might be reworded to read "The U.S. and Russia have much in common." In this manner, the positive or negative response biases would be cancelled.

An instrument of this nature was developed by Haiman and Duns and was discussed on page 132 in Chapter II.[1] It should be noted, however, that the balanced version of the DS may reduce the validity of the instrument. The Haiman and Duns version is suggested here because it was validated in at least one instance by the observable behavior method.

If significant differences in dogmatism exist and are followed in the opposite direction by level of education, then it may tentatively be concluded that response bias is not causing the differences in dogmatism.

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[1]Franklyn S. Haiman and Donald F. Duns, "Validations in Communicative Behavior of Attitude - Scale Measures of Dogmatism," The Journal of Social Psychology, Vol. LXIV, 1964.

Another alternative would be to select first and second level congruent line managers who have the same level of education. Differences or lack of differences could then be established independently from the level of education. Although this modification in the research design may be superior to using a balanced version of the DS, it may not be feasible because it may drastically reduce the number of observations. It appears as though the exigency of the research condition will determine whether the balanced version of the DS or the control of the research design method should be used in future research.

# APPENDICES

# APPENDIX A

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**Dr John Child**
**Professor of Organizational Behaviour**
**Head of Organizational Sociology and Psychology Group**

Mr R Nibler,
Doctoral Candidate in Management,
123 Page Street,
Norman,
Oklahoma, 73069,
U.S.A.

MC/JC/ED

29 Oct 73

Dear Mr Nibler,

I was very interested to hear of your research from your letter of October 1st. I will try and answer your questions to the best of my ability:

1) The line control of work flow factor disappeared when just the manufacturing organisations in the original Aston study were analysed, the validity of the factor is therefore suspect. The scoring of organisations on the scale constructed to represent the factor was achieved by aggregating the standardised scores for those scales which were most highly loaded on the factor ie. subordinate ratio, formalisation of role performance, and standardisation of procedures controlling selection, advancement, etc. The supportive component factor was omitted in the Inkson et. al. study because it had previously accounted for a low percentage of the total variance. In general I would strongly recommend that you collect data for the individual items within the various areas of organisation structure and that you then perform your own statistical analysis which can be compared with those of studies in the Aston programme. There is still room for argument as to the generaliseability and the interpretation of the factors which have been produced in the various Aston studies.

2) Other research has been concentrated in the U.S. by, a) David Hickson and Charlie McMillan, both working now at the University of Bradford, Emm Lane, Bradford, England. b) Joe Schwitter, Kent State University, Ohio.

3) None of the Aston structural measures is in its present form applicable to a comparative study of sub-units within organisations, since the number and to some extent the type of items applied to different sub-units varies. We have carried out comparative studies between sub-units (departments and groups) using different instruments, particularly an executive questionnaire and an organisational climate questionnaire. I have found in my own research that the executive questionnaire does bring out inter-function differences and I am enclosing a Xerox which reports on part of this work (originally foolscap size).

I would very much like to hear of your progress and your research results, indeed had you thought about the possibility of spending a while in England?

Best wishes.

Yours sincerely,

John Child

Telex 336997

# APPENDIX B

Code:

N = Organization N
A = Organization A
H = Organization H

# INKSON ORGANIZATIONAL CLASSIFICATION INSTRUMENT

## Structuring of Activities

### Functional Specialization

A function is specialized when at least one person performs that function and no other function, and when that person is not in the direct line command. No account is taken of either (a) the specialist's status, or (b) whether an organization has many specialists or only one. The information is contained in the scores to Scale Nos. 51.02-51.17 inclusive. For each activity for which there is a specialist (i.e., a score greater than "0" on the relevant scale) score "1", otherwise score "0."

Circle the appropriate score and enter total on line provided.

| Scale No. | Item No. | ACTIVITIES TO: | Score | | N | A | H |
|---|---|---|---|---|---|---|---|
| 51.02 | 1 | develop, legitimatize and symbolize the organization's charter (public relations, advertising, etc.) | 1 | 0 | 1 | 0 | 0 |
| 51.03 | 2 | dispose of, distribute and service the output (sales and service, customer complaints, etc.) | 1 | 0 | 1 | 1 | 0 |
| 51.04 | 3 | carry outputs and resources from place to place (transport) | 1 | 0 | 1 | 1 | 1 |
| 51.05 | 4 | acquire and allocate human resources (employment, etc.) | 1 | 0 | 0 | 0 | 1 |
| 51.06 | 5 | develop and transfer human resources (education and training) | 1 | 0 | 0 | 0 | 1 |
| 51.07 | 6 | maintain human resources and promote their identification with the organization (welfare, medical, safety, magazine, sports and social, etc.) | 1 | 0 | 0 | 1 | 1 |

| Scale No. | Item No. | ACTIVITIES TO: | Score | | N | A | H |
|---|---|---|---|---|---|---|---|
| 51.08 | 7 | obtain and control materials and equipment (buying, material control, stores, stock control, etc.) | 1 | 0 | 0 | 1 | 1 |
| 51.09 | 8 | maintain and erect buildings and equipment (maintenance, works engineer, etc.) | 1 | 0 | 0 | 0 | 1 |
| 51.10 | 9 | record and control financial resources (accounts, costs, wages, etc.) | 1 | 0 | 0 | 1 | 1 |
| 51.11 | 10 | control the workflow (planning, progressing, etc.) | 1 | 0 | 1 | 0 | 1 |
| 51.12 | 11 | control the quality of materials, equipment, and outputs (inspection, testing, etc.) | 1 | 0 | 1 | 1 | 1 |
| 51.13 | 12 | assess and devise ways of producing the output (work study, O.R., rate-fixing, methods study, etc.) | 1 | 0 | 0 | 0 | 1 |
| 51.14 | 13 | devise new outputs, equipment, and processes | 1 | 0 | 1 | 0 | 1 |
| 51.15 | 14 | develop and operate administrative procedures (registry, filing, statistics, O and M) | 1 | 0 | 0 | 0 | 0 |
| 51.16 | 15 | deal with the legal and insurance requirements (legal, registrar, insurance, licensing, etc.) | 1 | 0 | 0 | 0 | 1 |
| 51.17 | 16 | acquire information on the operational field (market research) | 1 | 0 | 0 | 0 | 0 |

## Formalization

### Role-Definition

For each of the items, circle the number representing the appropriate score and enter this number against the item in the score column.

| No. | Item | Score | N | A | H |
|---|---|---|---|---|---|
| 1, 2 | Written contract of employment: | | 1 | 0 | 0 |
| | Information booklets given to:<br>none = 0<br>few employees = 1<br>many = 2<br>all = 3 | | 3 | 3 | 3 |
| | Number of information booklets:<br>none = 0<br>one = 1<br>two = 2<br>three = 3<br>four or more = 4 | | 2 | 2 | 4 |
| | Organization chart given to:<br>none = 0<br>Chief Executive only = 1<br>C. E. plus one other executive = 2<br>C. E. plus most/all department heads = 3 | | 0 | 3 | 3 |
| 15 | Written operating instructions:<br>not available to direct worker = 0<br>available to direct worker = 1 | | 1 | 0 | 1 |
| 16 | Written terms of reference of job descriptions for direct workers:<br>not provided = 0<br>provided = 1 | | 0 | 0 | 1 |
| 17 | for line (workflow) superordinates:<br>not provided = 0<br>provided = 1 | | 1 | 1 | 1 |

| No. | Item | Score | N | A | H |
|---|---|---|---|---|---|
| 18 | for staff (other than line superordinates):<br>not provided = 0<br>provided = 1 | 0 | 1 | 1 | |
| 19 | for chief executive:<br>not provided = 0<br>provided = 1 | 0 | 0 | 1 | |
| 20 | Manual of Procedures:<br>none = 0<br>manual = 1 | 0 | 1 | 1 | |
| 21 | Written policies:<br>none = 0<br>written policies = 1 | 0 | 1 | 1 | |
| 23 | Workflow ('production') schedule of program:<br>none = 0<br>schedule = 1 | 1 | 1 | 1 | |
| 24 | Written research programme or reports:<br>none = 0<br>programme or reports = 1 | 0 | 0 | 1 | |

Total score for structuring of activities 15, 19, 31

## Concentration of Authority

### Autonomy of the Organization to Take Decisions

The score for each organization is the number of decisions which are made OUTSIDE it.

Scoring: Decisions made INSIDE the organization = 0
Decisions made OUTSIDE the organization = 1

| No. | Decisions | Score 0 or 1 | N | A | H |
|---|---|---|---|---|---|
| 5 | Supervisory establishment | | 0 | 0 | 0 |
| 6 | Appointment of supervisory staff from outside the organization | | 0 | 0 | 0 |
| 7 | Promotion of supervisory staff | | 0 | 0 | 0 |
| 8 | Salaries of supervisory staff | | 0 | 0 | 0 |
| 9 | To spend unbudgeted or unallocated money on capital items | | 0 | 1 | 1 |
| 10 | To spend unbudgeted or unallocated money on revenue items | | 0 | 0 | 0 |
| 13 | What type, or what brand, new equipment is to be | | 0 | 0 | 0 |
| 16 | To determine a new product or service | | 0 | 0 | 1 |
| 17 | To determine marketing territories covered | | 0 | 0 | 1 |
| 18 | The extent and type of market to be aimed for | | 0 | 0 | 1 |

| No. | Decisions | Score 0 or 1 | N | A | H |
|---|---|---|---|---|---|
| | | | | | |
| 25 | What shall be costed | | 0 | 1 | 1 |
| 26 | What shall be inspected | | 0 | 0 | 0 |
| 27 | What operations shall be work studied | | 0 | 0 | 0 |
| 31 | Dismiss a supervisor | | 0 | 0 | 0 |
| 33 | Training Methods to be Used | | 0 | 0 | 0 |
| 34 | Buying Procedures | | 0 | 0 | 1 |
| 35 | Which suppliers of materials are to be | | 0 | 0 | 1 |
| 40 | What and how many welfare facilities are to be provided | | 0 | 0 | 1 |
| 43 | The price of the output | | 0 | 0 | 1 |
| 44 | To alter responsibilities/areas or work of specialist departments | | 0 | 0 | 0 |
| 45 | To alter responsibilities/areas of work of line departments | | 0 | 0 | 0 |
| 46 | To create a new department | | 0 | 0 | 1 |
| 47 | To create a new job | | 0 | 0 | 0 |
| | Total Score for Concentration of Authority | _____ | 0,2,10 | | |

# APPENDIX C

This questionnaire is part of a study designed in conjunction with your organization to learn more about how people work together. The aim is to use the information to make your work situation more satisfying and productive.

If this study is to be helpful, it is important that you answer each question as thoughtfully and frankly as possible. This is not a test and there are no right or wrong answers.

The completed questionnaires are processed by automated equipment which summarizes the answers in statistical form so that individuals cannot be identified. To ensure COMPLETE CONFIDENTIALITY, please do not write your name anywhere on the questionnaire.

# PERSONAL OPINION SURVEY

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one.

Write +1, +2, +3, or -1, -2, -3, depending how you feel for each.

| | | | |
|---|---|---|---|
| +1: | I agree a little | -1: | I disagree a little |
| +2: | I agree on the whole | -2: | I disagree on the whole |
| +3: | I agree very much | -3: | I disagree very much |

_____ 1. The U. S. and Russia have just about nothing in common.

_____ 2. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

_____ 3. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

_____ 4. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.

_____ 5. Man on his own is a helpless and miserable creature.

_____ 6. Fundamentally, the world we live in is a pretty lonesome place.

GO ON TO PAGE 2

_____ 7. Most people just don't give a "damn" for others.

_____ 8. I'd like it if I could find someone who would tell me how to solve my personal problems.

_____ 9. It is only natural for a person to be rather fearful of the future.

_____10. There is so much to be done and so little time to do it in.

_____11. Once I get wound up in a heated discussion I just can't stop.

_____12. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

_____13. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.

_____14. It is better to be a dead hero than to be a live coward.

_____15. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

_____16. The main thing in life is for a person to want to do something important.

_____17. If given the chance, I would do something of great benefit to the world.

_____18. In the history of mankind there have probably been just a handful of really great thinkers.

_____19. There are a number of people I have come to hate because of the things they stand for.

_____20. A man who does not believe in some great cause has not really lived.

_____21. It is only when a person devoted himself to an ideal or cause that life becomes meaningful.

_____22. Of all the different philosophies which exist in this world there is probably only one which is correct.

GO ON TO PAGE 3

_____23. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.

_____24. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

_____25. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.

_____26. In times like these, a person must be pretty selfish if he considers primarily his own happiness.

_____27. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.

_____28. In times like these is is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

_____29. A group which tolerates too much differences of opinion among its own members cannot exist for long.

_____30. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

_____31. My blood boils whenever a person stubbornly refuses to admit he's wrong.

_____32. A person who thinks primarily of his own happiness is beneath contempt.

_____33. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

_____34. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

_____35. It is often desirable to reserve judgement about what's going on until one has had a chance to hear the opinions of those one respects.

GO ON TO PAGE 4

_____36. In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

_____37. The present is all too often full of unhappiness. It is only the future that counts.

_____38. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."

_____39. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.

_____40. Most people just don't know what's good for them.

# JOB SURVEY

NOTE: Read these answer categories over carefully. Then answer each of the following questions by blackening in the numbered circle under the answer you want to give.

| | Very dissatisfied | Somewhat dissatisfied | Neither satisfied or dissatisfied | Fairly satisfied | Very satisfied |
|---|---|---|---|---|---|
| 1. All in all, how satisfied are you with the persons in your work group? | (1) | (2) | (3) | (4) | (5) |
| 2. All in all, how satisfied are you with your supervisor? | (1) | (2) | (3) | (4) | (5) |
| 3. All in all, how satisfied are you with your job? | (1) | (2) | (3) | (4) | (5) |
| 4. All in all, how satisfied are you with this organization, compared to most others? | (1) | (2) | (3) | (4) | (5) |
| 5. Considering your skills and the effort you put into the work, how satisfied are you with your pay? | (1) | (2) | (3) | (4) | (5) |
| 6. How satisfied do you feel with the progress you have made in this organization up to now? | (1) | (2) | (3) | (4) | (5) |
| 7. How satisfied do you feel with your chances for getting ahead in this organization in the future? | (1) | (2) | (3) | (4) | (5) |

# APPENDIX D

RAW DATA PERTAINING TO
DOGMATISM AND JOB SATISFACTION QUESTIONNAIRES

| Column | Code |
|---|---|
| 1-3 | Questionnaire ID Number |
| 4 | 1 = Organization A<br>2 = Organization A<br>3 = Organization N |
| 5 | 1 = First Level Supervisor<br>2 = Second Level Supervisor<br>3 = CPA Accountant |
| 6 | 1 = Congruent,<br>2 = Performance Non-Congruent<br>3 = Satisfaction Non-Congruent<br>4 = Performance-Satisfaction Non-Congruent |
| 7 | Item Number 1 on Job Satisfaction Questionnaire |
| 8 | Item Number 2 on Job Satisfaction Questionnaire |
| 9 | Item Number 3 on Job Satisfaction Questionnaire |
| 10 | Item Number 4 on Job Satisfaction Questionnaire |
| 11 | Item Number 5 on Job Satisfaction Questionnaire |
| 12 | Item Number 6 on Job Satisfaction Questionnaire |
| 13 | Item Number 7 on Job Satisfaction Questionnaire |
| 14-16 | Dogmatism Score |

DATA

1. 0261115555242116
2. 0271112434423175
3. 0281114444434204
4. 0291113242344105
5. 0301114555455139
6. 0311115443334121
7. 0321112444244190
8. 0331114543224098
9. 0341114455444151
10. 0351114555243171
11. 0361114552555173
12. 0371115441454123
13. 0381115544444147
14. 0391115555445153
15. 0401114555555127

DATA Continued

16. 0411114545354128
17. 0421115555545102
18. 0431114554444146
19. 0441115554443167
20. 0451114444224145
21. 0461114444344147
22. 0471114444422148
23. 0481114555245174
24. 0491114455225142
25. 0501114444421134
26. 0511114444424123
27. 0521115444544174
28. 0531114445444148
29. 0541114552255124
30. 0551114544224154
31. 0561114545455136
32. 0571114455243178
33. 0151124535454197
34. 0161121344253164
35. 0171122424444147
36. 0181124432454180
37. 0201134542213116
38. 0211132221142120
39. 0221132442224119
40. 0231132233222094
41. 0241134222212171
42. 0251135343221139
43. 0191144332211147
44. 0031214543244126
45. 0041214444442140
46. 0051214342442088
47. 0061214455255147
48. 0071215454255134
49. 0081214554454121
50. 0091212545545159
51. 0101214453334132
52. 0111214544242151
53. 0121212345422134
54. 0131215455244112
55. 0141215454223132
56. 0021232434221115
57. 0011224434343148
58. 0581315545542099
59. 0611315545443153
60. 0631315555555134
61. 0621314243424115
62. 0641312444444128
63. 0591344142121140
64. 0601344424111111
65. 0802112454344202
66. 0782114444223174
67. 0722124555455132
68. 0712124555244155
69. 0742125544454245
70. 0792132442144143
71. 0812134434111127
72. 0732144543131171
73. 0702143324141174
74. 0652214554444142
75. 0662214554445194
76. 0682214244443151
77. 0772224554244167
78. 0762222444453174
79. 0752224454455145
80. 0672234433222133
81. 0692314454554124
82. 0873115554454145
83. 0883113434242167
84. 0893115554455153
85. 0853114444243173
86. 0843114555444196
87. 0823144345233160
88. 0833314452253140
89. 0903211444455136
90. 0913214555255118

# RAW DATA PERTAINING TO BIOGRAPHICAL STATISTICS

| Column | Code |
|---|---|
| 1-3 | Questionnaire ID Number |
| 4 | 1 = Organization A<br>2 = Organization A<br>3 = Organization N |
| 5 | 1 = First Level Supervisor<br>2 = Second Level Supervisor<br>3 = CPA Accountant |
| 6 | 1 = Satisfactory Performance<br>2 = Unsatisfactory Performance |
| 7-8 | Age of the manager |
| 9-13 | Number of Years With the Company |
| 14-18 | Number of Years on the Job |
| 19-20 | Number of Years of Education |

1. 2011214806.5002.5016
2. 2021213410.5003.7516
3. 2031213510.5001.0014
4. 2041214304.0001.0016
5. 2051213705.7501.0014
6. 2061213810.2505.2514
7. 2071213507.5001.2516
8. 2081214807.5002.5012
9. 2091213806.2501.2514
10. 2101213408.7505.7514
11. 2111213108.5001.0013
12. 2121213312.2502.0012
13. 2141225822.7502.5012
14. 2151122906.5002.0012
15. 2161123703.5002.0010
16. 2171125310.7510.0012
17. 2181123408.7502.5012
18. 2191125127.0014.0010
19. 2201112803.5001.0014
20. 2211113201.2501.2516
21. 2221112602.2502.2516
22. 2231113908.2501.5012
23. 2241113105.7502.0014
24. 2251113308.5001.2512

25. 2261112701.7501.7516
26. 2271112905.5001.0014
27. 2281112802.2502.2512
28. 2291113107.7503.0012
29. 2301112702.0002.0016
30. 2311113004.0001.2513
31. 2321113407.7501.7512
32. 2331114910.0010.0010
33. 2341115207.2505.5014
34. 2351112801.7501.7516
35. 2361113004.5001.7512
36. 2371113701.5001.5012
37. 2381113207.5001.2514
38. 2391112807.7501.2513
39. 2401112807.7501.2512
40. 2411113207.7501.7512
41. 2421115610.7508.0009
42. 2431112601.0001.0014
43. 2441114404.5002.5012
44. 2451114701.2501.2512
45. 2461112801.2501.2514
46. 2471113107.5002.5014
47. 2481112502.5002.0013
48. 2491115126.5004.5008
49. 2501113305.2501.2514
50. 2511114307.5005.7512
51. 2521113408.5002.2514
52. 2531115422.7509.7510
53. 2541113407.5002.7514
54. 2551112702.2502.2516
55. 2561112902.2502.2516
56. 2571113308.5001.7516
57. 2581324210.5000.7516
58. 2591313113.0000.7516
59. 2601314520.5001.5014
60. 2611314522.5001.5016
61. 2621324623.0001.5016
62. 2631313610.7502.0016
63. 2641315105.5002.2512
64. 2653113314.0002.0012
65. 2663116116.0005.0012
66. 2673113517.0002.0012
67. 2683114624.0005.0012
68. 2693114219.0011.0012
69. 2703125627.0018.0012
70. 2713312908.0005.0016
71. 2723213214.0001.0012
72. 2733213921.0005.0012
73. 2742112801.0001.0012
74. 2752113512.0005.0012
75. 2762114719.0005.0010
76. 2772113913.0005.0012
77. 2782123712.0003.0012
78. 2792124118.0007.0014
79. 2802125415.0010.0010
80. 2812126326.0015.0010
81. 2822123105.0001.0012
82. 2832215132.0005.0012
83. 2842214301.0001.0014
84. 2852212401.0001.0016
85. 2862215327.0001.0012
86. 2872224122.0004.0012
87. 2882222904.0002.0015

NOTE: Data is missing from a manager in each of the following three categories:

1. 121
2. 222
3. 231

# APPENDIX E

TABLE A

Dogmatism and Job Satisfaction Descriptive Statistics For Managers in The Bureaucratic and Non-Bruesacratic Organizations

| | DOGMATISM | | | JOB SATISFACTION | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Total | | Item | | | | | | | | | | | | |
| Group | N | Mean | Std. Dev. | Mean | Std. Dev. | 1 | Std. Dev. | 2 | Std. Dev. | 3 | Std. Dev. | 4 | Std Dev | 5 | Std Dev | 6 | Std Dev | 7 | Std Dev |
| Bureaucratic Organization | | | | | | | | | | | | | | | | | | |
| First Level Congruent | 32 | 145.7 | 25.8 | 28.0 | 3.4 | 4.1 | .7 | 4.4 | .7 | 4.4 | .6 | 4.1 | 1.1 | 3.4 | 1.1 | 3.7 | 1.1 | 3.9 | 1.0 |
| First Level Performance Non-Congruent | 4 | 172.0 | 21.3 | 25.5 | 3.4 | 2.8 | 1.5 | 4.0 | .8 | 3.0 | .8 | 3.8 | 1.3 | 3.5 | 1.0 | 4.8 | .5 | 3.8 | .5 |
| First Level Satisfaction Non-Congruent | 6 | 126.5 | 26.1 | 17.7 | 3.0 | 3.2 | 1.3 | 3.0 | 1.3 | 3.2 | 1.0 | 2.2 | .8 | 1.8 | .4 | 2.0 | 1.1 | 2.3 | 1.0 |
| First Level Performance Satisfaction Non-Congruent | 1 | 147.0 | -- | 17 | - | 4 | - | 3 | - | 3 | - | 2 | - | 2 | - | 1 | - | 1 | - |
| All First Level Non-Congruent | 11 | 144.9 | 31.2 | 20.4 | 5.0 | 3.1 | 1.3 | 3.4 | 1.1 | 3.1 | .8 | 2.7 | 1.2 | 2.5 | 1.0 | 2.9 | 1.7 | 2.7 | 1.2 |
| Second Level Congruent | 12 | 131.3 | 18.8 | 26.9 | 3.0 | 3.9 | 1.0 | 4.2 | .7 | 4.5 | .5 | 4.0 | 1.0 | 3.0 | 1.1 | 3.8 | 1.0 | 3.5 | 1.2 |
| Second Level Performance Non-Congruent | 1 | 148.0 | -- | 25 | - | 4 | - | 4 | - | 3 | - | 4 | - | 3 | - | 4 | - | 3 | - |
| Second Level Satisfaction Non-Congruent | 1 | 115.0 | -- | 18 | - | 2 | - | 4 | - | 3 | - | 4 | - | 2 | - | 2 | - | 1 | - |
| All Second Level Non-Congruent | 2 | 131.5 | 23.3 | 21.5 | 5.0 | 3.0 | 1.4 | 4.0 | 0 | 3.0 | 0 | 4.0 | 0 | 2.5 | .7 | 3.0 | 1.4 | 2.0 | 1.4 |
| CPA Congruent | 5 | 125.8 | 20.3 | 28.8 | 4.5 | 4.2 | 1.3 | 4.2 | 1.3 | 4.2 | .4 | 4.4 | .9 | 4.4 | .5 | 3.8 | 1.1 | 3.6 | 1.1 |
| CPA Performance Satisfaction Non-Congruent | 2 | 125.8 | 20.5 | 16.0 | 1.4 | 4.0 | 0 | 2.5 | 2.1 | 3.0 | 1.4 | 3.0 | 1.4 | 1.0 | 0 | 1.5 | .7 | 1.0 | 0 |
| All Congruent Bureaucratic | 49 | 140.2 | 24.5 | 27.8 | 3.4 | 4.0 | .9 | 4.3 | .8 | 4.4 | .5 | 4.1 | 1.0 | 3.4 | 1.1 | 3.7 | 1.1 | 3.8 | 1.1 |
| All Non-Congruent Bureaucratic | 15 | 140.5 | 28.7 | 19.9 | 4.7 | 3.2 | 1.2 | 3.3 | 1.2 | 3.1 | .8 | 2.9 | 1.2 | 2.3 | 1.0 | 2.7 | 1.6 | 2.4 | 1.2 |
| All Bureaucratic | 64 | 140.3 | 25.4 | 26.0 | 5.0 | 3.9 | 1.0 | 4.1 | 1.0 | 4.1 | .8 | 3.8 | 1.2 | 3.1 | 1.2 | 3.4 | 1.3 | 3.5 | 1.2 |
| Non-Bureaucratic Organizations | | | | | | | | | | | | | | | | | | | |
| First Level Congruent | 7 | 172.9 | 20.8 | 27.4 | 4.5 | 3.9 | 1.1 | 4.2 | .5 | 4.4 | .8 | 4.1 | .4 | 3.0 | 1.0 | 4.0 | 1.0 | 3.6 | 1.0 |
| First Level Performance Non-Congruent | 3 | 177.3 | 59.7 | 31.0 | 2.0 | 4.3 | .6 | 5.0 | 0 | 4.7 | .6 | 4.7 | .6 | 3.3 | 1.2 | 4.7 | .6 | 4.3 | .6 |
| First Level Satisfaction Non-Congruent | 2 | 135.0 | 11.3 | 19.5 | 2.1 | 3.0 | 1.4 | 4.0 | 0 | 3.5 | .7 | 3.0 | 1.4 | 1.0 | 0 | 2.5 | 2.1 | 2.5 | 2.1 |
| First Level Performance Satisfaction Non-Congruent | 3 | 168.3 | 7.4 | 21.0 | 3.0 | 3.7 | .6 | 3.7 | 1.2 | 3.3 | 1.2 | 4.0 | 1.0 | 1.3 | .6 | 3.3 | .6 | 1.7 | 1.2 |
| All First Level Non-Congruent | 8 | 163.4 | 37.1 | 24.4 | 5.9 | 3.8 | .9 | 4.3 | .9 | 3.9 | 1.0 | 4.0 | 1.1 | 2.0 | 1.3 | 3.6 | 1.3 | 2.9 | 1.6 |
| Second Level Congruent | 5 | 148.2 | 28.3 | 28.0 | 2.7 | 3.4 | 1.3 | 4.2 | 1.3 | 4.6 | .5 | 4.2 | .4 | 3.6 | .9 | 4.4 | .5 | 4.4 | .9 |
| Second Level Performance Non-Congruent | 3 | 162.0 | 15.1 | 28.3 | 2.5 | 3.3 | 1.2 | 4.3 | .6 | 4.7 | .6 | 4.0 | 0 | 3.3 | 1.2 | 4.7 | .6 | 4.0 | 1.0 |
| Second Level Satisfaction Non-Congruent | 1 | 133.0 | -- | 20 | - | 4 | - | 4 | - | 3 | - | 3 | - | 2 | - | 2 | - | 2 | - |
| All Second Level Non-Congruent | 4 | 154.8 | 19.1 | 26.3 | 4.6 | 3.5 | 1.0 | 4.3 | .5 | 4.3 | 1.0 | 3.8 | .5 | 3.0 | 1.2 | 4.0 | 1.4 | 3.5 | 1.3 |
| CPA Congruent | 2 | 132.0 | 11.3 | 28.0 | 4.2 | 4.0 | 0 | 4.0 | 0 | 5.0 | 0 | 3.0 | 1.4 | 3.5 | 2.1 | 5.0 | 0 | 3.5 | .7 |
| All Congruent Non-Bureaucratic | 14 | 158.2 | 26.7 | 28.0 | 3.7 | 3.7 | 1.1 | 4.3 | .8 | 4.6 | .6 | 4.0 | .7 | 3.3 | 1.1 | 4.3 | .8 | 3.9 | .9 |
| All Non-Congruent Non-Bureaucratic | 12 | 160.5 | 31.5 | 25.0 | 5.4 | 3.7 | .9 | 4.3 | .8 | 4.0 | 1.0 | 3.9 | .9 | 2.3 | 1.3 | 3.8 | 1.3 | 3.1 | 1.5 |
| All Non-Bureaucratic | 26 | 159.3 | 28.5 | 26.6 | 4.7 | 3.7 | 1.0 | 4.3 | .8 | 4.3 | .8 | 4.0 | .8 | 2.8 | 1.3 | 4.0 | 1.1 | 3.5 | 1.3 |

TABLE B

DOGMATISM AND JOB SATISFACTION DESCRIPTIVE DATA FOR MANAGERS IN NONBUREAUCRATIC ORGANIZATION A AND ORGANIZATION N

| Group | Dogmatism | | | Job Satisfaction | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Total | | Item | | | | | | | | | | | | | |
| | N | Mean | Std. Dev. | Mean | Std. Dev. | 1 | Std. Dev. | 2 | Std. Dev. | 3 | Std. Dev. | 4 | Std. Dev. | 5 | Std. Dev. | 6 | Std. Dev. | 7 | Std. Dev. |
| **Organization A** | | | | | | | | | | | | | | | | | | | |
| First Level Congruent | 2 | 188.0 | 19.8 | 24.5 | 2.1 | 3.0 | 1.4 | 4.0 | 0 | 4.5 | .7 | 4.0 | 0 | 2.5 | .7 | 3.0 | 1.4 | 3.5 | .7 |
| First Level Performance Noncongruent | 3 | 177.3 | 59.7 | 31.0 | 2.0 | 4.3 | .6 | 5.0 | 0 | 4.7 | .6 | 4.7 | .6 | 3.3 | 1.2 | 4.7 | .6 | 4.3 | .6 |
| First Level Satisfaction Noncongruent | 2 | 135.0 | 11.3 | 19.5 | 2.1 | 3.0 | 1.4 | 4.0 | 0 | 3.5 | .7 | 3.0 | 1.4 | 1.0 | 0 | 2.5 | 2.1 | 2.5 | 2.1 |
| First Level Performance-Satisfaction Noncongruent | 2 | 172.5 | 2.1 | 19.5 | 2.1 | 3.5 | .7 | 4.0 | 1.4 | 3.0 | 1.4 | 3.5 | .7 | 1.0 | 0 | 3.5 | .7 | 1.0 | 0 |
| All First Level Noncongruent | 7 | 163.9 | 40.1 | 24.4 | 6.4 | 3.7 | 1.0 | 4.4 | .8 | 3.8 | 1.1 | 3.9 | 1.1 | 2.0 | 1.4 | 3.7 | 1.4 | 2.7 | 1.8 |
| Second Level Congruent | 3 | 162.3 | 27.8 | 28.7 | 3.2 | 4.0 | 0 | 4.0 | 1.7 | 4.6 | .6 | 4.0 | 0 | 4.0 | 0 | 4.0 | 0 | 4.0 | 0 |
| Second Level Performance Noncongruent | 3 | 162.0 | 15.1 | 28.3 | 2.5 | 3.3 | 1.2 | 4.3 | .6 | 4.7 | .6 | 4.0 | 0 | 3.3 | 1.2 | 4.7 | .6 | 4.0 | 1.0 |
| Second Level Satisfaction Noncongruent | 1 | 133 | - | 20 | - | 4 | - | 4 | - | 3 | - | 3 | - | 2 | - | 2 | - | 2 | - |
| All Second Level Noncongruent | 4 | 154.8 | 19.1 | 26.3 | 4.6 | 3.5 | 1.0 | 4.3 | .5 | 4.3 | 1.0 | 3.8 | .5 | 3.0 | 1.2 | 4.0 | 1.4 | 3.5 | 1.3 |
| CPA Congruent | 1 | 124 | - | 31 | - | 4 | - | 4 | - | 5 | - | 4 | - | 5 | - | 5 | - | 4 | - |
| All Congruent | 6 | 164.5 | 30.6 | 27.7 | 3.4 | 3.6 | .8 | 4.0 | 1.1 | 4.7 | .5 | 4.0 | - | 3.7 | 1.0 | 3.8 | 1.0 | 3.8 | .8 |
| All Noncongruent | 11 | 160.5 | 33.1 | 25.1 | 5.6 | 3.6 | .9 | 4.4 | .7 | 4.0 | 1.0 | 3.8 | .9 | 2.4 | 1.4 | 3.8 | 1.3 | 3.1 | 1.6 |
| All Managers | 17 | 161.9 | 31.3 | 26.0 | 5.0 | 3.6 | .9 | 4.2 | .8 | 4.2 | .9 | 3.8 | .7 | 2.8 | 1.4 | 3.8 | 1.2 | 3.4 | 1.4 |
| **Organization N** | | | | | | | | | | | | | | | | | | | |
| First Level Congruent | 5 | 166.8 | 19.7 | 28.6 | 4.8 | 4.2 | .8 | 4.6 | .5 | 4.4 | .9 | 4.2 | .4 | 3.2 | 1.1 | 4.4 | .5 | 3.6 | 1.1 |
| First Level Performance-Satisfaction Noncongruent | 1 | 160 | - | 24 | - | 4 | - | 3 | - | 4 | - | 5 | - | 2 | - | 3 | - | 3 | - |
| Second Level Congruent | 2 | 127 | 12.7 | 29.0 | 2.8 | 2.5 | 2.1 | 4.5 | .7 | 4.5 | .7 | 4.5 | .7 | 3.0 | 1.4 | 5.0 | 0 | 5.0 | 0 |
| CPA Congruent | 1 | 140 | - | 29 | - | 4 | - | 4 | - | 5 | - | 2 | - | 2 | - | 5 | - | 3 | - |
| All Congruent | 8 | 153.5 | 24.5 | 28.3 | 4.0 | 3.8 | 1.3 | 4.5 | .5 | 4.5 | .8 | 4.0 | .9 | 3.0 | 1.1 | 4.6 | .5 | 3.9 | 1.1 |
| All Noncongruent | 1 | 160 | - | 24 | - | 4 | - | 3 | - | 4 | - | 5 | - | 2 | - | 3 | - | 3 | - |
| All Managers | 9 | 154.2 | 23.0 | 27.8 | 4.0 | 3.8 | 1.2 | 4.3 | .7 | 4.4 | .7 | 4.1 | .9 | 2.9 | 1.1 | 4.4 | .7 | 3.8 | 1.1 |

TABLE C

Biographical Descriptive Statistics
For Bureaucratic and Non-Bureaucratic Managers

| Group | Total N | Age Mean | Age Std. Dev. | Years of Education Mean | Years of Education Std. Dev. | Years on Job Mean | Years on Job Std. Dev. | Years In Organization Mean | Years In Organization Std. Dev. |
|---|---|---|---|---|---|---|---|---|---|
| Bureaucratic H | | | | | | | | | |
| First Level Satisfactory Performance | 38 | 34.4 | 8.7 | 13.2 | 2.0 | 2.6 | 2.3 | 6.2 | 5.3 |
| First Level Unsatisfactory Performance | 5 | 40.8 | 10.6 | 11.2 | 1.1 | 6.1 | 5.6 | 11.3 | 9.1 |
| Second Level Satisfactory Performance | 12 | 37.8 | 5.6 | 14.3 | 1.5 | 2.4 | 1.7 | 8.2 | 2.4 |
| Second Level Unsatisfactory Performance | 1 | 58 | - | 12 | - | 2.5 | - | 22.75 | - |
| Satisfactory CPA Performance | 5 | 41.6 | 8.0 | 14.8 | 1.8 | 1.6 | .6 | 14.5 | 7.0 |
| CPA Unsatisfactory Performance | 2 | 44.0 | 2.8 | 16 | 0 | 1.1 | .5 | 16.75 | 8.8 |
| All Satisfactory Performance | 55 | 35.8 | 8.3 | 13.6 | 2.0 | 2.5 | 2.1 | 7.4 | 5.5 |
| All Unsatisfactory Performance | 8 | 41.7 | 8.9 | 12.6 | 2.5 | 4.7 | 5.2 | 12.9 | 8.7 |
| All Managers | 63 | 36.8 | 8.8 | 13.4 | 2.0 | 2.7 | 2.6 | 8.2 | 6.3 |
| Non-Bureaucratic A | | | | | | | | | |
| First Level Satisfactory Performance | 4 | 37.3 | 7.9 | 11.5 | 1.0 | 4.0 | 2.0 | 11.3 | 7.5 |
| First Level Unsatisfactory Performance | 5 | 45.2 | 13.0 | 11.6 | 1.7 | 7.2 | 5.6 | 15.2 | 7.7 |
| Second Level Satisfactory Performance | 4 | 42.8 | 13.2 | 13.5 | 1.9 | 2.0 | 2.0 | 15.3 | 16.6 |
| Second Level Unsatisfactory Performance | 2 | 35.0 | 8.5 | 13.5 | 2.1 | 3.0 | 1.4 | 13.0 | 12.7 |
| All Satisfactory Performance | 8 | 40.0 | 10.5 | 12.5 | 1.8 | 3.0 | 2.1 | 13.3 | 12.1 |
| All Unsatisfactory Performance | 7 | 42.3 | 12.3 | 12.1 | 1.9 | 6.0 | 5.0 | 14.6 | 8.2 |
| All Managers | 15 | 41.1 | 11.0 | 12.3 | 1.8 | 4.4 | 3.9 | 13.9 | 10.1 |
| Non-Bureaucratic N | | | | | | | | | |
| First Level Satisfactory Performance | 5 | 43.4 | 11.1 | 12.0 | 0 | 5.0 | 3.7 | 18.0 | 3.8 |
| First Level Unsatisfactory Performance | 1 | 43.4 | -- | 12.0 | - | 18.0 | - | 18.0 | - |
| Second Level Satisfactory Performance | 2 | 35.5 | 4.9 | 12.0 | 0 | 3.0 | 2.8 | 17.5 | 4.9 |
| CPA Satisfactory Performance | 1 | 29.0 | -- | 16.0 | - | 5.0 | - | 8.0 | - |
| All Satisfactory Performance | 8 | 39.6 | 10.3 | 12.5 | 1.4 | 4.5 | 3.1 | 16.6 | 4.9 |
| All Unsatisfactory Performance | 1 | 43.4 | -- | 12.0 | - | 18.0 | - | 18.0 | - |
| All Managers | 9 | 41.4 | 11.1 | 12.4 | 1.3 | 6.0 | 5.4 | 17.8 | 5.7 |
| All Non-Bureaucratic | | | | | | | | | |
| First Level Satisfactory Performance | 9 | 40.7 | 9.8 | 11.8 | .7 | 4.6 | 2.9 | 15.0 | 6.4 |
| First Level Unsatisfactory Performance | 6 | 47.0 | 12.5 | 11.7 | 1.5 | 9.0 | 6.7 | 17.2 | 8.4 |
| Second Level Satisfactory Performance | 6 | 40.3 | 11.1 | 13.0 | 1.7 | 3.3 | 2.1 | 16.0 | 13.1 |
| Second Level Unsatisfactory Performance | 2 | 35.0 | 8.5 | 13.5 | 2.1 | 3.0 | 1.4 | 13.0 | 12.7 |
| CPA Satisfactory Performance | 1 | 29.0 | -- | 16.0 | - | 5.0 | - | 8.0 | - |
| All Satisfactory Performance | 16 | 39.8 | 10.0 | 12.5 | 1.5 | 3.8 | 2.7 | 14.9 | 9.1 |
| All Unsatisfactory Performance | 8 | 44.0 | 12.3 | 12.1 | 1.7 | 7.5 | 6.3 | 16.1 | 8.8 |
| All Managers | 24 | 41.2 | 10.0 | 12.4 | 1.6 | 5.0 | 4.5 | 15.3 | 8.8 |

*NOTE: Data is missing from the following groups of managers:

1) Second level satisfactory performance manager in Organization H
2) Second level unsatisfactory performance manager in Organization A
3) CPA Satisfactory performance manager in Organization A

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