ABSTRACT

A BEHAVIORAL CASE STUDY OF
A MINI-CONGLOMERATE

By

Richard W. Brunson, Sr.

This research is, to the best of the writer's knowledge, the first intensive comprehensive case study of a mini-conglomerate. The basic objective was to examine and, if possible to discover, the relations and interactions among selected sociological, psychological, and economic variables in the mini-conglomerate. Five molar areas of the organization were examined: (1) "membership," (2) "organizational" (structure), (3) "dynamic" (process), (4) external environment, and (5) organizational effectiveness. The study was built to incorporate all possible behavioral measures and instruments which a literature search revealed as holding promise. A detailed questionnaire including these measures was responded to by 113 members of management ranging from foremen to the president.

The investigation was prompted by an interest in the peculiar organizational and management problems associated with conglomerates. These problems tend to become acute for many smaller conglomerates as the organization expands beyond the early entrepreneurial phase. Top

management is no longer able to make daily personal contact with the majority of the people in the organization as growth occurs.

A general hypothesis was that organizational effectiveness (criterion) is significantly related to each of the four other major areas (predictors): "membership," "organizational" (structural), "dynamic" (process), and external environment. The results of the study appear to support this hypothesis. All four areas of predictor variables were found to be significantly related to organizational effectiveness.

The personal values of the "membership," Family Security and Sense of Accomplishment, were found to be positively related and Obedience-Politeness to be negatively related with organizational effectiveness. The "dynamic" measures found to be significantly related were the management style measure, the amount of direction and demand received from the superior, and the amount of position power.

All five molar areas expand to seven behavioral dimensions which describe the conglomerate used in the case study. These seven dimensions are: (1) the character of the management styles prevailing within the organization, (2) the need for achievement consisting of five personal values, Comfortable Life, Exciting Life-Imaginative, Sense of Accomplishment, Capable, and Intellectual, (3) the tendency for position power and knowledge about the external environment to be correlated, (4) a hierarchy of a perceived

rate of change in technology (lower level managers tend to consider the technological conditions to be stable while the higher level of managers tend to consider the rate of change of technology to be less stable), (5) the rationalization of idealism (two fundamentally idealistic values were universally ranked together at the lower end of the manager's scale: World at Peace and Equality-Loving-Helpful-Forgiving), (6) the existence of an inverse hierarchy of Freedom (higher level managers consider Freedom to be a lower value than do those managers in the lower levels), and (7) a rationalization of the status quo (managers with less education tended to rank Wisdom-Logical low).

With respect to personal values, there seems to be a strong communality of values among the managers of every division. There does not seem to be a stronger value consensus (communality) among the managers of the more effective division than among managers in the less effective divisions.

With respect to the "dynamic" (process) variables and "organization" (structure) variables, the contingency theory of Lorsch, Lawrence, and Morse appears to be supported by this study, while the Likert participative theory does not appear to be fully but only partially supported. The management styles exercised in Divisions A and B (manufacturing goal orientation and short-term time orientation) appear to be less participative and their leadership styles appear to be more "task oriented." The management style

exhibited by Division D (scientific goal orientation and longer-term time orientation) tends to be more participative and its leadership styles tend to be more "people oriented."

The leadership style of the Main Office of the mini-conglomerate tends to be "task oriented" and yet, at the same time, the management style of the Main Office is relatively participative. This result might be an indicator of an innovative combination for top management of a conglomerate: while being "task oriented," top management at the same time believes in participation of the managers in decision making at all levels.

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By

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PREFACE

This research, to the best of the writer's knowledge, is the first intensive, comprehensive study of a mini-conglomerate. Hopefully, this study will be of interest and significance not only to the mini-conglomerate itself but also to management scholars and practitioners.

The mini-conglomerate, used as the case study, consists of four different "companies" under a single "roof" homogeneous neither as to markets nor technology. Seemingly, the criteria used for combining these companies into a single was a pooling of mind and money resources for profit and growth.

This case study constitutes in microcosm an increasing pattern in this country. This study is a pioneering effort designed to increase insight into the structure and dynamics of the conglomerate. The timeliness is attested to by a recent statement in the Wall Street Journal referring to this pervasive nationwide trend as one of "conglomeration."

The philosophical background of this study is that we live today in a society in which scientific-mechanistic

values and attitudes seem dominant. This commenced with the classical physics discoveries of Isaac Newton and was nurtured by the rational-economic writings of Adam Smith. The universe came to be viewed as a machine governed by immutable laws. Man has mastered these physical laws and has exploited them to develop an industrial-technological culture.

Many scholars believe that as a consequence of this mechanistic view which provides little that is humanistic man finds himself groping for meaning and direction. He knows the mechanics but he does not know the goal, the ultimate why. Empiricism demands proof for acceptance and hence there seems to be no logical place for ultimate values or truths.

Widespread unrest prevails throughout this mechanistic society today. Dramatists and novelists have been giving us early warnings in their speculative works: the mechanistic-scientific-technological man has inherited a world that he cannot endure. The central character is no longer a hero, but a victim. Arthur Miller's Death of a Salesman tells us the pathetic tragedy of what happens to a business man who unknowingly pursues the obsolete values of yesterday's society. Abraham Maslow substantiates this change in values: "We are in an interregnum between old value systems that have not worked and new ones not yet

born, an empty period which could be borne more patiently were it not for the great and unique dangers that beset mankind."

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Innumerable people have provided me with insights and guidance during the course of this study. So many that it would be impossible for me to acknowledge all of them. I would like to single out a few who have been particularly influencial--but at the same time, to relieve them of responsibility for any errors or omissions.

I wish to express special gratitude to my thesis committee: Dr. Frederic R. Wickert, Chairman, Dr. Dalton E. McFarland, and Dr. William J. E. Crissy, all of whom were most generous in the giving of their time--and most valuable in their guidance in keeping me off the shoals of fatal errors. Each provided me with assistance in distinctive areas: the chairmanship of Dr. Wickert whose precise and skillful craftsmanship played a key role particularly in the development of the research design and the questionnaire, from Dr. McFarland four years of wise counsel and patient support, and Dr. Crissy whose enthusiastic encouragement and assistance was a great inspiration to me throughout this past year.

I am indebted to Leighton A. Price for the use of his cluster analysis computer program without which it

would have been impossible to conduct the extensiveness of this study. James Petersen also provided me with invaluable computer programming assistance.

I would especially like to thank Dr. Milton B. Dickerson, now Vice President for Student Affairs, and Dr. Stanley E. Bryan, Associate Dean for Graduate Studies, both of whom have been most helpful to me as their graduate assistant.

I wish to acknowledge three members of the Institute for Social Research, University of Michigan, for an introduction to their current research approaches and for the use of some of these measures in this study: Mark Frohman, James C. Taylor, and David Bowers.

To the top management of the target corporation whose identity cannot be revealed at this time and to the 113 managers, I am indebted. They contributed many hours of their valuable time and energy. I hope that their trust and confidence in me has not been fruitless.

To my families I owe special thanks and particularly, to Erie Ross Turner, the late Cornelia Tatum, the late William Dwain Leever and my parents for their unswerving belief in me.

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CHAPTER I

INTRODUCTION

Management theorists and practitioners share a common interest in the nature of business organization and in ways of increasing organizational effectiveness. One way of implementing this common interest is to conduct empirical studies. Such studies for the most part, however, have focused on a substantial sample of organizations but have accounted for a limited number of descriptive variables or factors. Relatively few empirical studies have concentrated on one or a few organizations with a view to investigating them from virtually all angles. The present study falls into this latter group. One firm is studied intensively in terms of the following groups of variables: membership factors, "organizational" factors, "dynamic" factors, external environmental factors, and organizational effectiveness (the criterion variable). Descriptions and definitions of these variables are presented toward the end of this chapter in connection with relating the present research to previous research and again in more detail in Chapter III.

General Purpose of the Study

This empirical field study is an *ex post facto* inquiry designed to discover the relations and interactions among selected sociological, psychological, and economic variables in a particular business organization. The three aspects of this general purpose are:

1. To identify those variables in the highly complex field situation of a business organization which have some chance of influencing its organizational effectiveness.
2. To determine where significant relationships exist among all the variables including organizational effectiveness.
3. To lay the ground work for later, more systematic and vigorous testing of hypotheses.

In general, it was hypothesized that organizational effectiveness (the dependent variable) is significantly related to each of the four other major variables (membership factors, "organizational" factors, "dynamic" factors, and "external environmental" factors).

Data are derived from a field study of one business organization, a "mini-conglomerate" consisting of four divisions, each employing a range of differing technologies and each interacting in a somewhat different business environment. Questionnaire responses from individuals ranging from the foreman to the president comprise the primary data.

Specific Purposes of Study

The specific purposes of this study were:

1. From the point of view of more traditional management and human relations theory:
   a. As a necessary first, descriptive step, a systematic analysis of the particular organization under study, to determine by observation and inquiry the internal interrelationships among: (1) executive values, (2) organizational characteristics (including leadership style and organizational structure) for each of the four major components (divisions) and the whole organization, and (3) organizational effectiveness. The focus here was to determine what instruments and measures would give insight into the workings of the organization and its subsidiaries, assuming that those selected measures could do the job they were designed to do. A special attempt was made to study the interfaces and compatibility of various management styles, and prevailing values within each component and among the components.
   b. To consider the effects of such external environmental factors as technology,

markets, public policy, stockholders, and labor-management relations surrounding the whole organization and each component on the operations of the firm including organizational effectiveness.

c. To focus on the measuring instruments to be used in the study to see what they could be expected to measure in this type of practical business situation. A wide range of the most promising instruments used in recent studies of organization was eclectically drawn upon; a sub-purpose of this study was to work out the measured interrelationships of these instruments to determine which ones emerge as particularly useful and distinctive for this type of organization research.

2. From the viewpoint of current developing organizational theory:

   a. To uncover environmental influences on organizational structure, and

   b. the effects of both on organizational effectiveness, and

   c. further, to compare (a) and (b) above for two different suborganizations within the same general technology but at different

stages in development and with different sets of products.

3. To provide for the officers of Acme Industries Corporation:[1]

   a. A profile of the characteristics of Acme Industries as an organization including leadership styles of each component of the Corporation. This profile was intended to provide top management with a valuable human resources assessment of its Corporation. The interfaces and compatibility of management styles can be compared within each component and among the components (see 1. a. and b. above).

   b. An awareness of the relative measured values possessed by the various components of their organization and by themselves collectively. By understanding their own and other groups' values, management presumably can gain an important advantage in developing more workable, better supported, and more rational policies.

   c. The establishment of a data base in terms of a long term human resources assessment

[1]Acme Industries Corporation is a disguised name since the identity of the real corporation cannot be revealed. See Chapter II for a further description.

program in logical association with the second purpose stated above. A data base would then exist upon which follow-up studies could be built in the future.

Review of the Literature

It will be recalled from page one that this study focuses its attention on five broad classes of organization variables: membership factors, "organizational" factors, "dynamic" factors, external environmental factors, and organizational effectiveness. These classes of variables have been chosen because they seemed to emerge as those which have been studied most often and which have most frequently yielded results that illuminated the mysteries of organization theory. Relevant literature on each of these five classes of variables is summarized in turn, in the five subsections that follow.

Membership Factors

Key membership factors include the consensus in basic values stemming from personal background and personal values, as well as the adequacy of distribution of relevant abilities and skills.[1] While managers may strive for consensus, they and other workers bring their differing personal values in from the "outside" environment. This

[1]Edgar H. Schein, Organizational Psychology (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1965), pp. 71-74.

results in a degree of variance with respect to values within the organization.

Personal Values

Parsons has suggested that a major function of a value system is to provide an operating code for decision making, and that values form a structure for administration and staff decisions.[1] Therefore, an investigation of values, and an attempt to position them within a theoretical model, is of fundamental importance.

Many business theorists and practitioners today hold that those values which are the most important to a management have a profound influence upon the strategic decisions they make, and, in turn, on organizational effectiveness.[2]

McMurry has written that the common denominator of many "people problems" is in the area of values and differences in values.[3] Despite the above assertions, very few

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[1]Talcott Parsons, "Suggestions for a Sociological Approach to the Theory of Organizations I," Administrative Science Quarterly (June, 1956), 63-68.

[2]Edmond P. Learned and Robert L. Katz, "Personal Values and Business Decisions," Harvard Business Review (March-April, 1959) 111-120; Wilmer F. Bernthal, "Value Perspectives in Management Decisions," Journal of Academy of Management (December, 1962), 190-196; W. D. Guth and R. Taguiri, "Personal Values and Corporate Strategies," Harvard Business Review (September-October, 1965), 123-132.

[3]R. N. McMurry, "Conflicts in Human Values," Harvard Business Review (May-June, 1963), 130-145.

empirical studies of values have been made in business. In 1967, England showed empirical evidence about the nature of personal value systems of American managers and presented a theoretical rationale for considering the impact of values on their behavior.[1]

The best-known instrument used for measuring values until recently was the Allport-Vernon-Lindzey Study of Values.[2] Another instrument with a somewhat different rationale has been developed by Rokeach.[3] Another test of values has been developed by Leonard V. Gordon to determine what is most important to the individual.[4] It measures six values: support, conformity, recognition, independence, benevolence, and leadership.[5] These three tests have provided a psychometric approach to research on value systems. The Rokeach instrument is employed in the present

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[1]George W. England, "Personal Value Systems of American Managers," Journal of Academy of Management (March, 1967), 53-68.

[2]G. W. Allport, P. Vernon and G. Lindzey, Study of Values rev. ed., Boston: Houghton Mifflin, 1951.

[3]Milton Rokeach, "A Theory of Organization and Change Within Value-Attitude Systems," Journal of Social Issues, XXIV (1968), 13-33.

[4]Leonard V. Gordon, Manual for Survey of Interpersonal Values, Chicago: Science Research Associates, Inc., 1960.

[5]Ibid.

study primarily because it is more comprehensive than the other instruments.[1]

As of today, the only known published research of personal values of business executives which utilized the Rokeach Scale has been that of Beech. He conducted a comparative study of the personal values of scientists and business executives in India. He found that business executives placed greater importance on having A Comfortable Life than do scientists. Beech also found that businessmen tend to place greater emphasis on Family Security but this difference was not statistically significant. This comparison conducted by Beech of the rank orders given to the terminal values by scientists and business executives is presented in Appendix A. The values are arranged in the relative order of importance for each of the two groups. An outstanding feature is the degree of agreement between the composite rank order of the terminal values given by the scientist and business executives. Beech concluded that the differences between the terminal values of these two groups are restricted to what might be called the style of life desired rather than differences in the areas of religious, political, or social values.[2]

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[1]Rokeach, Organization and Change.

[2]Robert P. Beech, "Scientists and Business Executives in Bengal" (unpublished paper based on an article in NORM, Calcutta University, 1968).

It is believed by some that there is an optimal communality of executive values among the more effective organizations. Jon Bentz found an appearance of a general pattern of shared values among executives regardless of geographic location or job level.[1] But the extent of the influence of and the degree of communality of values remains a mystery. It was one of the intentions in this study to shed some additional light upon this.

Discernable shifts in American values have been detected by Kluckhohn.[2] He found that the former value of future success has receded in favor of stable security seen in shorter time range; that the strictly personal values have given way to more publicly standardized group values; and that there has been a rise in self-cultivation but for the purpose of achieving similarity rather than uniqueness.

Organizational Factors

These are most conveniently discussed in conjunction with the external environmental factors. A later section deals with both of these classes.

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[1]Jon Bentz, "The Sears Experience," ed. by Frederic R. Wickert and Dalton E. McFarland, Measuring Executive Effectiveness (New York: Appleton-Century-Crofts, 1967), pp. 147-204.

[2]Clyde Kluckhohn, "Have There Been Discernible Shifts in American Values during the Past Generation?" in The American Style, ed. by Elting E. Morison (New York: Harper and Bros., 1958), pp. 145-217.

Dynamic Factors

Dynamic factors are those processes and events which occur during the life of the organization. These might include the informal groups which emerge from the imposed structure, the media used for communication, and the particular amount of success that the organization has in reference both to the fulfillment of its formal tasks and in meeting the needs of its members.[1] The degree and type of demands and direction imposed upon the subordinates by their superiors might be considered to be another variable in this same category.

Leadership Styles

There is, perhaps, no other facet of management which has been researched so much and yet on which we know so little as that of leadership.

There are, generally speaking, three theories or viewpoints of leadership discernible in the management literature: trait theory, behavioral theory, and situational theory.

Trait theory.--Trait theory is focused upon the identification and comparison of traits, or characteristics, of leaders. Its aim is to discover what universal traits, if any, characterize the most effective leaders and differentiate them from those who are less effective.

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[1]Schein, Organizational Psychology.

In the present investigation it was postulated that values as traits might hold some promise. This is why the Rokeach instrument is included in the study.[1]

Behavioral theory.--Behavioral theory is based upon the behavior patterns of the leaders rather than their traits. Recent empirical evidence has shown the development of a striking correspondence of leadership concepts by several different behavioral scientists. The evidence seems to point out four basic dimensions of leadership which Bowers and Seashore refer to as:[2]

1. Support: Behavior that enhances someone else's feeling of personal worth and importance. This corresponds with Likert's principle of supportive relationships.[3]
2. Interaction facilitation: Behavior that encourages members of the group to develop close, mutually satisfying relationships. This corresponds with Likert's group methods of supervision.[4]

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[1]Rokeach, Organization and Change, pp. 13-33.

[2]David G. Bowers and Stanley E. Seashore, "Predicting Organizational Effectiveness with a Four Factor Theory of Leadership," Administrative Science Quarterly, (1966), 238-263.

[3]Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Co., 1961), p. 103.

[4]Ibid., p. 104.

3. Goal emphasis: Behavior that stimulates enthusiasm for meeting the group's goal or achieving excellent performance. This corresponds with Likert's high performance goals.[1]

4. Work facilitation: Behavior that helps achieve goal attainment by such activities as scheduling, coordinating, planning, and by providing resources such as tools, materials, and technical knowledge. This corresponds with Likert's technical knowledge, planning, and scheduling.[2]

The correspondence of these four behavioral dimensions with those developed by other scientists is reproduced in Table 1.1.[3]

Situational (contingency) theory.--Situational (contingency) theory holds that the most effective leadership style depends upon the situation. It can be explained only in terms of the interaction between the leader and the many variables in the work situations. One of the most promising investigations from this perspective was performed by Fiedler.[4] He and his associates have pinpointed

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[1]Ibid., p. 8.

[2]Ibid., p. 171.

[3]Bowers and Seashore, Organizational Effectiveness, p. 248.

[4]Fred E. Fiedler, A Theory of Leadership Effectiveness (New York: McGraw-Hill Book Co., 1967), pp. 40-41.

TABLE 1.1--Correspondence of leadership concepts of different investigators.

Bowers and Seashore (1964)	Hemphill and Coons (1957)	Halpin and Winer (1957)	Katz et al. (1950)	Katz and Kahn (1951)	Kahn (1958)	Mann (1962)	Likert (1961)	Cartwright and Zander (1960)
Support	Maintenance of membership character	Consideration	Employee orientation	Employee orientation Closeness of supervision	Providing direct need satisfaction	Human relations skills	Principle of supportive relationships	Group maintenance functions
Interaction facilitation	Group interaction facilitation behavior	Sensitivity		Group relationships			Group methods of supervision	
Goal emphasis	Objective attainment behavior	Production emphasis	Production orientation		Structuring path to goal attainment	Administrative skills	High-performance goals	Goal achievement functions
					Modifying employee goals			
Work facilitation		Initiating structure		Differentiation of supervisory role	Enabling goal achievement	Technical skills	Technical knowledge, planning, scheduling	
				Closeness of supervision				

Source: Compiled by David G. Bowers and Stanley E. Seashore, "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership," Administrative Science Quarterly (Sept., 1966), 248.

a significant factor, "Least Preferred Coworker" (LPC), which measures the degree to which the leader sees a poor coworker in a relatively favorable light or in a relatively lenient manner. To put it differently it is an inverse measure of his degree of discrimination. Fiedler found that the more discriminating leader is associated with high group performance when the situation is either highly favorable or unfavorable.[1] When the situation is between those two extremes, a more lenient (or less discriminating) leader is associated with the high performance group. Fiedler's definition of group situation which is highly favorable to leaders is one where the following three situational components are high:[2]

1. The leader's personal relationships with members of his group.
2. The formal power or authority which his position provides.
3. The degree of structure in the task which the group has been assigned to perform.

Under each of these various situations Fiedler proposes different managerial strategies.[3]

Many studies have been made of leadership styles and various theories have emerged but few empirical studies have been made which provide a comparison among major

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[1] Ibid. [2] Ibid. [3] Ibid.

theories. It was one of the intentions of this study to conduct a comparison among the Fiedler,[1] Likert,[2] and Bowers and Seashore[3] measures.

Likert's thesis is that the best system of management is characterized by the "participative" approach.[4] This approach is summarized by the right hand column of his chart reproduced in Table 1.2. He argues that the authoritarian (classical) system causes a lack of cooperative and integrative effort in the long run. Individual managers at all levels tend to make individually oriented decisions, and information flow upward tends to be tailored to what is deemed to be desired by superiors and not to what they should hear. Likert,[5] Argyris,[6] McGregor,[7] and many other theorists believe that this tight hierarchial control tends to encourage dependence upon the superior

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[1] Ibid.

[2] Rensis Likert, Form S, Modified from Appendix II in The Human Organization: Its Management and Value (New York: McGraw-Hill Book Co., 1967).

[3] David G. Bowers, Blue Questionnaire, Institute of Social Research (University of Michigan, 1968).

[4] Likert, New Patterns of Management, pp. 97-118.

[5] Ibid.

[6] Chris Argyris, Integrating the Individual and the Organization (New York: John Wiley & Son, 1965), pp. 3-19.

[7] Douglas McGregor, The Human Side of Enterprise, 1944, pp. 45-60.

TABLE 1.2.--Likert's Profile of Organizational Characteristics.

Organizational variables	SYSTEM 1	SYSTEM 2	SYSTEM 3	SYSTEM 4
How much confidence and trust is shown in subordinates?	Virtually none	Some	Substantial amount	A great deal
How free do they feel to talk to superiors about job?	Not very free	Somewhat free	Quite free	Very free
How often are subordinate's ideas sought and used constructively?	Seldom	Sometimes	Often	Very frequently
Is predominant use made of 1 fear, 2 threats, 3 punishment, 4 rewards, 5 involvement?	1, 2, 3, occasionally 4	4, some 3	4, some 3 and 5	5, 4, based on group
Where is responsibility felt for achieving organization's goals?	Mostly at top	Top and middle	Fairly general	At all levels
How much cooperative teamwork exists?	Very little	Relatively little	Moderate amount	Great deal
What is the usual direction of information flow?	Downward	Mostly downward	Down and up	Down, up, and sideways
How is downward communication accepted?	With suspicion	Possibly with suspicion	With caution	With a receptive mind
How accurate is upward communication?	Usually inaccurate	Often inaccurate	Often accurate	Almost always accurate
How well do superiors know problems faced by subordinates?	Not very well	Rather well	Quite well	Very well
At what level are decisions made?	Mostly at top	Policy at top, some delegation	Broad policy at top, more delegation	Throughout but well integrated
Are subordinates involved in decisions related to their work?	Almost never	Occasionally consulted	Generally consulted	Fully involved
What does decision-making process contribute to motivation?	Not very much	Relatively little	Some contribution	Substantial contribution
How are organizational goals established?	Orders issued	Orders, some comments invited	After discussion, by orders	By group action (except in crisis)
How much covert resistance to goals is present?	Strong resistance	Moderate resistance	Some resistance at times	Little or none
How concentrated are review and control functions?	Very highly at top	Quite highly at top	Moderate delegation to lower levels	Widely shared
Is there an informal organization resisting the formal one?	Yes	Usually	Sometimes	No----same goals as formal
What are cost, productivity, and other control data used for?	Policing, punishment	Reward and punishment	Reward, some self-guidance	Self-guidance, problem-solving

Source: Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Co., 1961).

and limits the capacity and growth of each subordinate member of the organization.

Organizational (Structural) and External Environmental

Recent directions in management thinking suggest that influences from a company environment, including the technologies the company uses and the quality of abilities, attitudes, and morale of the organization members who are drawn out of the company's environment, have as much to do with the company's functioning as does the internal actions by company executives.

Joan Woodward's classic study revealed the finding that where firms were classified according to their technological complexity of production, a strong relation between organizational structure and success appeared within each group.[1] Her classification of the industries studied was according to technological complexity of production: (1) unit and small batch production; (2) large-batch and mass production; and (3) long-run process production of the same product. Woodward found that the pattern of successful management varied according to these technical differences; in other words, that management style is a function of technology.[2]

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[1]Joan Woodward, Industrial Organization: Theory and Practice (New York: Oxford University Press, 1965).

[2]Ibid.

Worthy concluded that the over-complex, over-functionalized organizational structure is a fundamental cause of poor management-employee relations. Accordingly, he recommended a broad span of control.[1] These conclusions agree with those of the later studies of Woodward,[2] and Lawrence and Lorsch.[3]

The Lawrence and Lorsch study provides a framework for integrating several studies.[4] They view the organization as an open system whose internal characteristics must fit the external demands from the environment. Furthermore, the internal factors must be integrated to function harmoniously with the effective organization. The environment of the organization determines both the character and degree of differentiation and the mode of integration. Lawrence and Lorsch consider differentiation to be the expected differences in goal, time, and interpersonal orientation of managers in various functional departments. They define integration as "the quality of the state of collaboration."[5]

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[1]J. C. Worthy, "Organization Structure and Employee Morale," American Sociological Review, XV (1950), 160-179.

[2]Woodward, Industrial Organization.

[3]Paul Lawrence and Jay Lorsch, Organization and Environment (Boston: Harvard University Press, 1967), pp. 1-22.

[4]Ibid.

[5]Ibid., p. 11.

They consider two aspects of the environment as dominant:

1. The certainty of information or knowledge about events, and
2. The dominant competitive issue in the industry.

They predicted that environmental uncertainty and competitive demand would affect the organization in terms of differentiation and integration; for example, greater innovation and environmental uncertainty would be reflected in greater differentiation of goal, time, and interpersonal orientation and of organizational structure.

Harvey[1] improved on Woodward[2] by showing that as technical specificity (extent to which production process is controllable and its results are predictable) increases:

1. The number of specialized sub-units in organization increases.
2. The number of levels of authority in the organization increases.
3. The ratio of managers and supervisors to total personnel increases.
4. The amount of program specification increases.

Pugh found three aspects of context to be salient for organizational structure: (1) structuring of

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[1]Edward Harvey, American Sociological Review (April, 1968), 247-259.

[2]Woodward, Industrial Organization.

activities using size and technology as predictors, (2) concentration of authority using dependence and location as predictors, and (3) line control of work flow using the operating variability scale of charter as a predictor.[1]

A common mistake which has allegedly caused some of the failures of recent mergers in the United States has been attributed to the lack of adequate consideration to the managerial and human problems involved. Four specific areas that have been proposed include: management quality, retaining key men, complexities of integration, and the balancing of the compensation system.[2] He believes that these areas should be closely examined and monitored before, during, and after the integration has taken place.

To meet the formidable challenge of a post-merger integration, great skill is required. Schoonmaker offers four specific suggestions for guidelines: (1) avoid arbitrary actions, (2) operate within the employees' social norms, (3) deal tactfully with emotional problems, and (4) encourage participation by all levels of the newcomer firm in the decision-making process.[3]

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[1]D. S. Pugh, D. J. Hickson, C. R. Hinings and C. Turner, "The Context of Organization Structures," Administrative Science Quarterly (March, 1969), 91-113.

[2]Alan N. Schoonmaker, "Why Mergers Don't Jell: The Critical Human Elements," Personnel, September-October, 1969, pp. 39-48.

[3]Ibid.

Organizational Effectiveness

Organizational effectiveness is another area of increasing importance to organizational theory. What constitutes true organizational effectiveness? How is it measured? This is another area examined in this study.

There is very little agreement among managers and scholars alike as to a specific criterion for an effective organization. The literature abounds with numerous attempts to find criteria. Based upon an extensive empirical study Mahoney[1] developed a model of seven subjective dimensions of organizational effectiveness.[2]

Mahoney concludes that it appears that the criteria of efficient performance, mutual support, personnel utilization, planning performance, initiation, reliability, and development should adequately cover most situations.[3] The studies done at The University of Michigan and The Ohio State

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[1]Thomas Mahoney, "Management Perception of Organizational Effectiveness," Management Science, XIV (October, 1967), pp. B-76-B-91.

[2]This model accounted for 56 per cent of the variance in manager's judgments of overall effectiveness (R = .74) in terms of an original 114 variables used. Perceptions and judgments of 84 managers describing 283 subordinate units was the basis of his study.

[3]Mahoney, Management Perception.

University[1] and by Mahoney[2] are in part supportive of each other. Most criteria developed in other studies and papers on organizational effectiveness are either too general or too specific to be useful in comparing various business organizations. The criteria as formulated by Mahoney appeared to be the most useful for this study and were, therefore, adopted.[3]

Drucker suggested another objective of performance which should be established--public or social responsibility.[4] This is an area which has rapidly become more important recently and was, also, incorporated into the measurement instrument.

Lawrence and Lorsch employed a model of organizational effectiveness which might be categorized as objective--as compared with the subjective models discussed above.[5] The dimensions of this model are the percentage growth in sales, percentage growth in (before tax) profits

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[1]B. S. Georgopoulos, B. P. Indik and S. Seashore, "Some Models of Organizational Effectiveness," Institute of Social Research, University of Michigan, 1960, (mimeographed); Ralph Stogdill, Managers, Employees, Organization (Columbus, Ohio: Ohio State University, Bureau of Business Research, 1965).

[2]Mahoney, Management Perception.

[3]Ibid.

[4]Peter Drucker, Practice of Management (New York: Harper & Bros., 1954).

[5]Lawrence and Lorsch, Organization and Environment pp. 261-262.

and percentage return on investment before tax. It was decided to include these objective measures of organizational effectiveness along with the subjective ones noted above.

General Hypotheses

Based upon the current state of affairs in organizational theory as laid out in the preceding section of this report and the conditions prevailing in the small but complex company available for study (a company made up of diverse components varying in internal, external, and effectiveness dimensions), eight general hypotheses were formulated. It will be seen that these hypotheses are centered on two groups of variables at present particularly critical in organization theory: personal values and dynamic (organization process). The general hypotheses to be tested are:

Personal Values

1. There is a stronger value consensus (communality) among the managers of the more effective components than among those managers in the less effective components.
2. The value system of a manager is correlated significantly with the level of his position in the corporation.

3. The value A Comfortable Life will rank significantly higher in the value systems of the managers than those of the national sample in the United States (see Table A-2 for national norms).
4. In view of the top management personnel of Acme remaining together, there is a communality of values among them.

Dynamic (Process)

1. The leadership style exercised within each main component is similar and has a compatible interface.
2. The leadership style exercised among the various components is dissimilar and tends toward an incompatible interface.
3. The management leadership style exercised in Division A (large batch and mass production) tends to be more authoritarian (Likert)[1] and more task oriented (low LPC: Fiedler).[2]
4. The management leadership style exhibited in Divisions B and C (small batch and unit

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[1]Likert, New Patterns of Management.

[2]Fiedler, Leadership Effectiveness.

production) tends to be more participative[1] and more people oriented (high LPC).[2]

Expected Results

It was hoped, if not expected, that this exploratory study would: (1) identify variables in the company which are correlated with effectiveness, (2) uncover what significant relationships existed among all the variables, and (3) develop hypotheses for later, more systematic and rigorous testing.

It was further anticipated that the officers of Acme Industries, Inc. could be provided with a profile of the characteristics of Acme as an organization including the leadership styles of each division of the corporation. It was expected that the Acme officers could be provided with: (1) an awareness of the relative measured values possessed by each division and by themselves collectively, and (2) the establishment of a data base that would, over time, make possible a long-term human resources assessment program.

Key Definitions

In view of the looseness with which certain key terms are sometimes used in organization theory as well as certain not necessarily obvious refinements that have crept into terminology, the following is an

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[1]Likert, New Patterns of Management.

[2]Fiedler, Leadership Effectiveness.

attempt to state the meaning of key terms used in this report.

A value is a belief (1) about how we ought or ought not to behave, or (2) about a desirable goal of life. The first type of value is an instrumental value, and second type is referred to as a terminal value. A value is a single belief which guides action and judgment. Values transcend all attitudes, all situations, and all objects. It might be said to be a generalized rule which commits a person. Almost all attitudes and behavior are in the service of these relatively few values.[1]

Value system is the rank-ordering of values along a continuum of importance. Value systems are powerful predictors of what people will do.[2]

Attitude is an organization of several beliefs focused on a specific object or situation.[3]

Behavior is the observed activities of an individual.

Management is a process of the accomplishment of desired objectives by establishing an environment favorable to performance by people operating in organized groups.[4]

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[1]Rokeach, Organization and Change, pp. 15-18.

[2]Ibid. [3]Ibid.

[4]Harold Koontz and Cycil O'Donnell, Principles of Management, 3rd edition (New York: McGraw Hill Book Co., 1964).

Leadership is interpersonal influence exercised in situations and directed, through the communication process, toward the attainment of goals.[1]

Organizational effectiveness is the degree to which an organization achieves its goals.

Mini-conglomerate is a relatively small size business organization consisting of two or more components exhibiting different technologies.

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[1]Robert Tannenbaum, Irving R. Weschler and Fred Massarik, Leadership and Organization: A Behavioral Science Approach (New York: McGraw-Hill Book Co., 1961).

CHAPTER II

NATURE AND DESCRIPTION OF THE ORGANIZATION

Description and History of the Organization

The Acme Corporation* is a mini-conglomerate located in the Midwest of the United States of America. It consists of four divisions each with a different technology. For purposes of this research study these divisions are designated Divisions A, B, C, and D.

Division A

Division A is an original equipment supplier to American Motors, Chrysler, Ford, and General Motors. Its physical facilities include a large fabrication plant of a semi-finished glass product and ten distribution centers strategically located throughout the continental United States of America. Division A employs a total of 300 people; its total sales for 1969 were $21,000,000.

Division B

Division B is a wholesale photofinisher which processes film for drug, discount chains, independent retail outlets, and mail order customers. It processes slides, prints, and movies and sells film and cameras.

*The true name of the corporation has been disguised.

The division was founded as an independent company in the mid-1950's by the present general manager of the division and two associates. Its first location was a third floor "walk-up" with very little equipment and facilities. These facilities became inadequate in five years because of rapid growth.

In the early 1960's it moved to a site which was double in square footage to that of the original site.

A new location was chosen and a new plant was designed, built, and occupied by the late 1960's again because of rapid growth in sales and production. The size of the new building is 70,000 square feet and the capacity is estimated at five million units per year. About one-third of this area is used for photofinishing and 40,000 square feet for warehouse facilities. The remaining space is used for offices of the subsidiaries.

Division B, originally a subsidiary of Acme, became a division in 1969.

Division C

Division C consists of two major components: (1) the centralized comptroller and accounting office to service the mini-conglomerate as a whole and provide separate services needed by Divisions A and B, and (2) a data processing office.

The comptroller and accounting department provide accounting, auditing, and control services to the entire

Acme organization and, on a consulting basis, to other businesses.

The data processing office operates an IBM computer system with the needed ancillary equipment. This office was acquired as a subsidiary in 1969. It recently provided a new, computerized production control system to Division A. Direct tele-communication linkup is maintained between Division A and this office. Eventually it is expected that a similar hookup will be completed with all plants and distribution centers of the Acme organization.

Division D

The facility for Division D is being built at a cost in excess of $10 million on a fifty acre site about twenty miles south of a major metropolitan area and is expected to be in operation by fall 1970. When completed, the new plant will be capable of producing 350 tons of its basic raw material daily and will employ approximately 300 people. This new plant will make Acme self-sufficient in the basic raw material which they believe is essential to their long-term growth and profit potential.

There is apparently a risk of legal action by a foreign firm which refused to license Acme to use its patented process for manufacturing the raw product.

Company officials told the researchers that this new plant will be the first new plant of its type to be built in the United States in the last fifty years. In the

United States it will be competing against two large, well-established firms in this particular technology. In view of this current oligopoly situation and a considerable price reduction, it is expected to be welcomed into the industry by many buyers.

New Division

In late 1969 another corporation involved in the same industry as Division A was acquired as a subsidiary to Acme. It has about 600 employees in five plants in the United States and two in foreign countries. This new subsidiary did not participate in the conduct of this research because of its transitional status and adjustments it was undergoing at the time of the study. Its annual sales for 1969 were $11 million.

Sales and Financial Position Of Acme Industries, Inc.

The total sales (excluding the New Division) for 1969 were $25,000,000. The overall automotive and photo industries had a sustained growth in the United States in 1969; Acme not only shared in this growth but improved its overall industry position.

Income for 1968 was $1,800,000, an increase of $500,000 over that of the year before. Earnings per share were $1.55 in 1968 as compared with $.43 in 1967. Part of this was due to a non-recurring gain of $.65 per share resulting mainly from the sale of investment securities.

The net increase of net income for 1969 was $2,276,000, an increase of $416,000 over 1968.

The president of Acme expects earnings to double in 1970 and again in 1971 based upon the assumption that the new manufacturing plant being built will be in full operation by September 1970.

In November of 1968, the first public offering of shares was offered. It was so well accepted in the market that the offering was over-subscribed. There are about 1,100 shareholders, not including shares held by brokers in street form. Approximately 175 employees subscribed to the 30,000 plus shares which were reserved for them. The stock has traded between $15 and $50 since its offering as of May 1970.

New Products and Services.--During 1968 Acme took part in a program with another corporation to fabricate a radically improved product (windshields) for the automotive market. The product was introduced to the public by one of the major auto manufacturers in two production models. A pilot service program has recently been initiated with another of the major auto giants concerned with the distribution of a replacement product (glass) for heavy duty truck customers.

In its new plant, Division B began processing certain types of films which previously had been done by outside contractors. A summary of employment, number of

respondents in each division, and annual sales is contained in Table 2-1.

TABLE 2.1.--Summary of the employment, number of respondents in each division, and annual sales.

Division	Total Employment (Approximate)	Total No. of Manager-Type Respondents	1969 Annual Sales (Approximate)
A	350	36	$21 million
B	200	29	4 million
C	40	29	. .
D	9	9	. .
Main Office	10	10	. .
Total	610	113	$25 million

Geographic Locations.--The main office, Division A, and Division D of Acme Industries, Inc., currently occupy a six acre site, covering 250,000 square feet in the "industrial heart" of a major city in the Mid-west. Divisions B and C jointly occupy a new plant located on the northern edge of this same city.

Structure and Organizational Demography

The general organizational structure of Acme Industries, Inc., is shown in Figure 2.1.

Organizational Demography

The number of respondents in each position of Acme Industries, Inc. are:

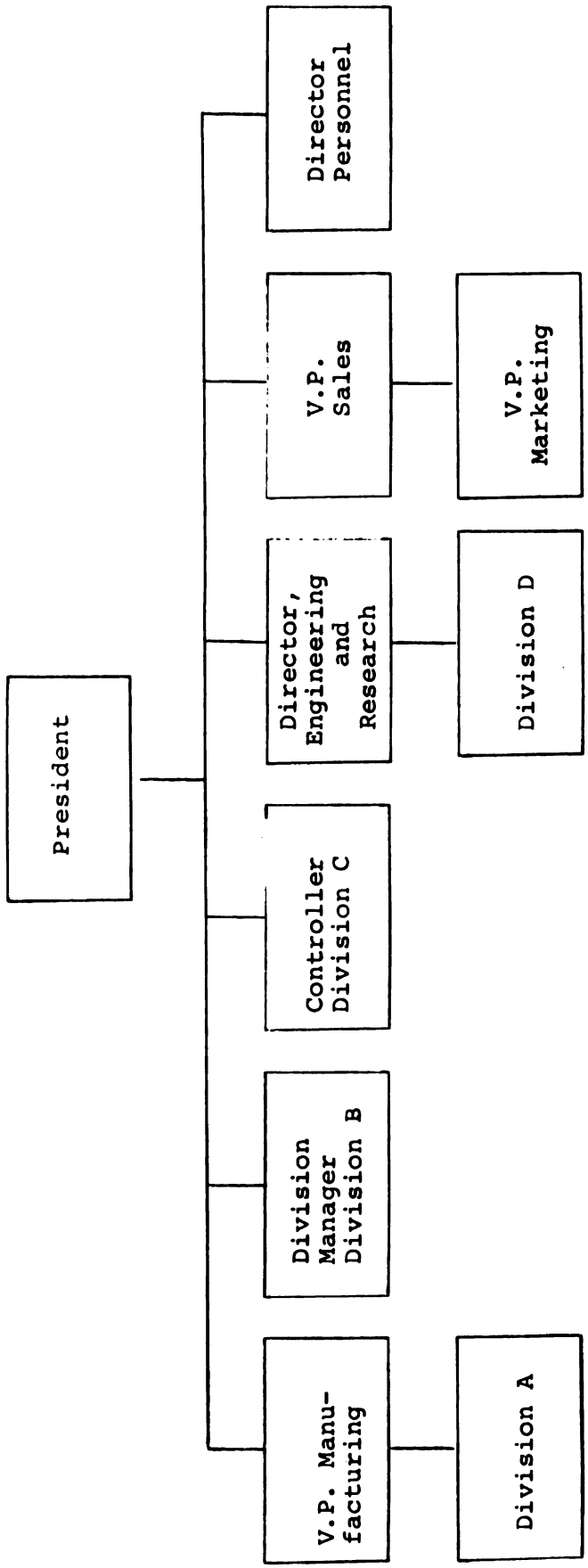

Figure 2.1.--Organizational chart of Acme Industries, Inc.

Division A, C, and D

Foremen	15
Superintendent	2
Department Manager (responsible for 1-5 employees)	8
Department Manager (responsible for 6 or more employees)	4
Engineer/Designer	9
Professional or Administrator (no subordinate except clerical help)	10
Secretary/Clerical/Key Punch Operator	21
Sales Representative	1
Other	2
No Reply	3

Division B

Supervisor	6
Assistant Supervisor	7
Sales Representative	2
Department Manager (1-5 employees)	4
Department or Plant Manager (6 or more employees)	5
Professional or Administrator (no subordinate except clerical help)	1
Secretarial/Clerical	2
Other	2

Main Office

Vice-Presidents and others reporting directly to President	8
President	1
Total	113

Sex of Respondents

Male	82
Female	26
No Reply	5
Total	113

Age of Respondents

Less than 25	18
25-34	41
35-44	29
45-54	18
55 or other	2
No Reply	5
Total	113

Departments in Which Respondents Are Employed

Controller's Operations (Accounting)	26
Engineering/Research	13
Manufacturing or Production	35
Sales-Marketing	11
Production Control	2
Guard	1
Maintenance	1
Quality Control	4
Personnel	1
Services	6
Other	6
No Reply	7
Total	113

The Length of Time Employed in the Division/ Subsidiary Was

Less than 1 Year	32
1-3 Years	33
4-9 Years	26
10 Years or More	17
No Reply	5
Total	113

The Highest Grade or Year Completed in School

8 or Less	3
9	2
10	1
11	10
12	37
13	6
14	19
15	2
16 (BA, BS, or equivalent)	21
Masters Degree or equivalent	7
No Reply	5
Total	113

Factors for Organization Selection

Many factors were considered in the selection of the organization for the research. These were the primary factors:

1. The organization selected had to be willing to cooperate in rather personal and intimate research. Many top managers are understandably reluctant to open up their doors to scrutiny of the kind contemplated.
2. The organization had to be readily available to the researcher.
3. The organization had to have a sufficient number of managers in order for the analysis to be statistically significant and yet not too many to prevent a meaningful and thorough study.
4. The organization had to be a "successful" one: that is, one which has been experiencing steady growth and has sustained continuing profits over the post-depression years. This is a molar criterion of effectiveness.
5. The organization had to have two or more autonomous divisions for comparative purposes.
6. The organization had to be engaged in diverse technologies for comparative purposes.

A Main Issue

A main issue facing Acme Industries, Inc. appears to be centered upon the management and utilization of human resources as the organization expands beyond the early entrepreneurial phase where top management had personal contact with the majority of the people in the organization.

One device the organization has used to assist it in handling its human resources problems is the employment of a professional human relations consultant. This consultant became a professional consultant in the field of human relations, as it relates to business decisions at all levels of management, became a continuing part of the company's management training program on a year around basis in 1968. One of his primary aims was to improve communication within the corporation.

CHAPTER III

RESEARCH DESIGN

This chapter describes the basic design for this study and the research instruments and methods.

A description of the overall research design is provided in the first major section of this chapter. The second major section is devoted to the pre-data collection phase. This phase included the development of the testing instrument and the selection and description of the target variables to be measured. It also contains an explanation of how these variables were measured. In addition, the pre-testing or pilot test procedures are explained. The third major section describes the data collection phase. A description of the administration of the questionnaire to the (main body of) respondents is given. In the fourth major section is presented the post-data collection phase. This includes the methodology for analyzing the unusually high number of variables and an explanation of the assessment of the interrelationships among these variables.[1]

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[1]See Appendix F for a description of the computer program used to handle this high number of variables.

Description of the Over-All Research Design

The basic research design was a "case" study of one company--Acme Industries, Inc. The major variable areas considered were: as predictors, membership, "organizational" (structural), "dynamic" (process), and external environmental, and as criterion, organizational effectiveness. These five areas consisted of 363 manifest variables which are introduced in the second major section of this chapter. A general model of the major variables involved is depicted in Figure 3.1.

The strategy for the methodology of the analysis basically involved two general tasks. First, since there were so many variables, there were no programs capable of dealing with all of them in one analysis. Because of this difficulty, the variables were placed into subsets that seemed to be representative of these 363 variables.[1] Analyses were made of these subsets to determine communality. Those measures which appeared to have communality were "collapsed" into subscales. This procedure was pursued with the ultimate objective of reducing the variables to a maximum number of fifty subscales which was a constraint of the Discriminant Analysis routine one of the routines to be employed. Throughout the entire process the factor analysis and the "cluster" analysis routines were

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[1]See Appendix H for a description of procedures.

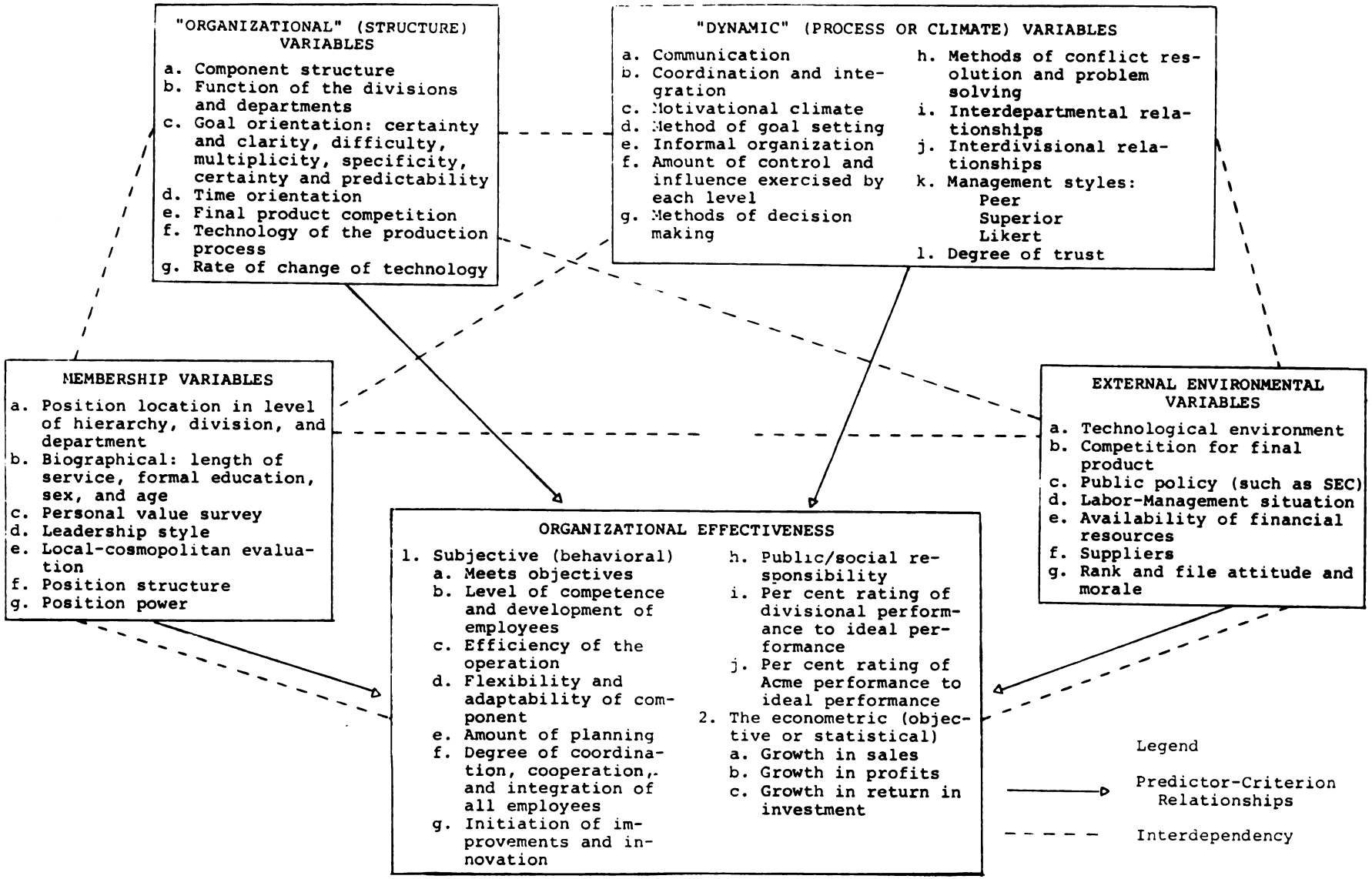

FIGURE 3.1.--A model of the major areas and variables considered in the research design.

The second task was to conduct a series of analyses on these derived variables which are referred to as subscales throughout this study. The four major analysis methods performed were Factor Analysis, Multiple Regression, "Cluster" Analysis, and Discriminant Analysis. The ultimate objective of this second task was to find a few meaningful dimensions of the mini-conglomerate and to find significant predictions of organizational effectiveness.

Pre-Data Collection Phase

Development of the Testing Instrument

The study embraced all levels of the Acme organization with the exception of the rank and file workers. While it might have been desirable to include the latter group, it was not feasible under the existing union-management conditions. An attempt was made to enlist as respondents all of the employees in the stipulated groups. This was almost successful. Only five managers out of the total 118 managers did not participate in this study and none of these five was critical for purposes of this study.

The primary data-gathering method was questionnaires personally administered by the writer. Secondary data-gathering methods included a study of existing records and public documents and brief interviews with all

members of the top two levels of management. The primary measurement technique was scaling.

Target Variables[1]

The target variables of the research design were:

1. Membership (individual) variables (based primarily on psychological theory)

   Respondents: All

   Specific Variables:

   a. Position location in level of hierarchy, division, and department. A detailed organizational chart of Acme Industries, Inc. which shows the relative location of each of the respondent's positions and their codes is incorporated into Figure 3.2.
   b. Biographical: length of service, formal education, sex, and age
   c. Personal value survey: eighteen terminal values and eighteen instrumental values
   d. Leadership style
   e. Local-cosmopolitan evaluation
   f. Position structure
   g. Position power

2. "Organizational" (structural) variables (based primarily on social psychological theory)

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[1]The term "target" is used to designate those variables which are the targets of this research study.

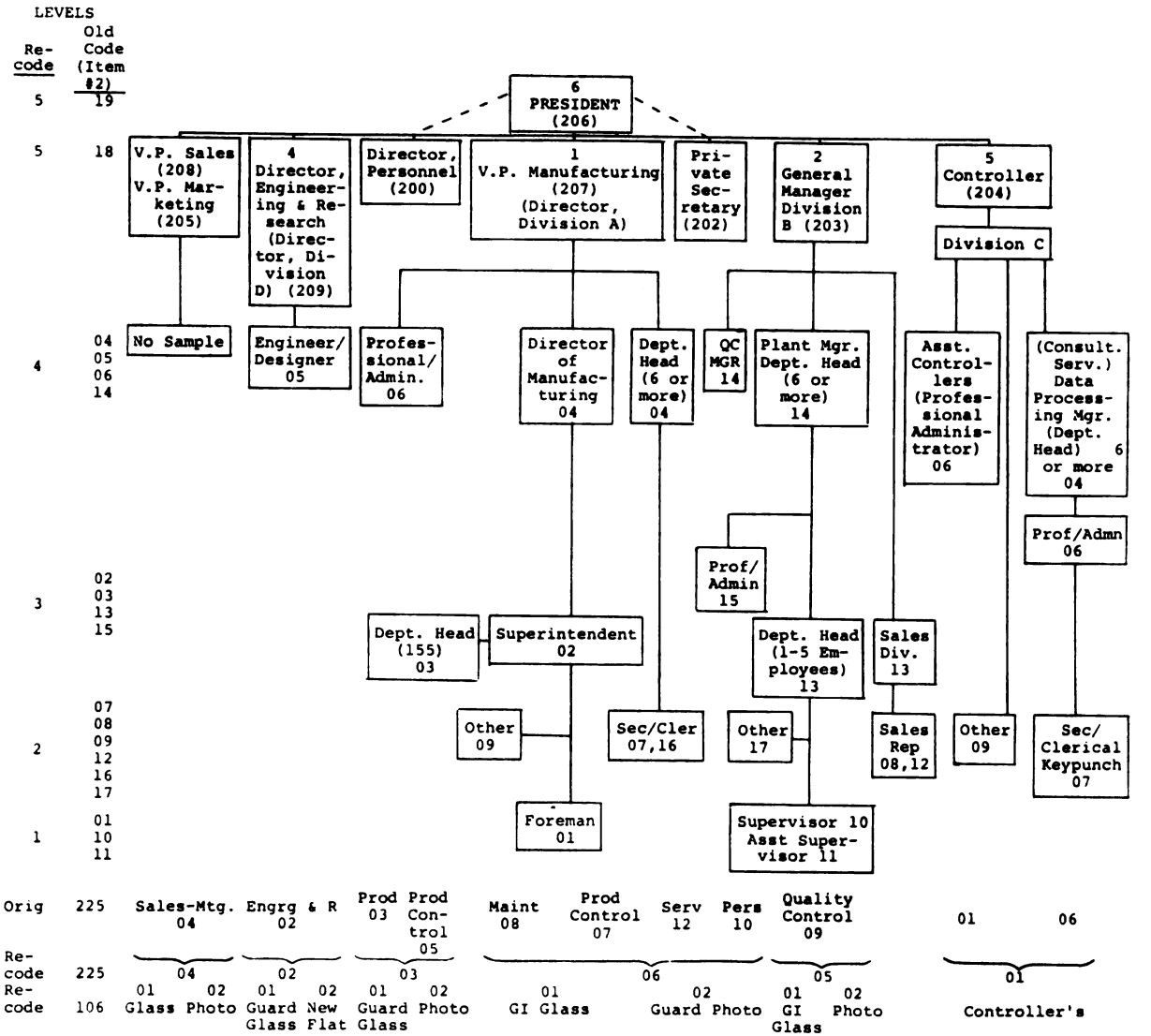

Figure 3.2.--A coded organizational chart of Acme Industries, Inc.

Respondents: All responded except to those variables indicated below with asterisks. Only divisional chiefs and higher responded to these variables since they tended to be the only respondents who were in a position to have information.

Specific Variables:

a. Component structure*

b. Function of the divisions and departments

c. Goal orientation: certainty and clarity, difficulty, multiplicity, specificity, certainty, and predictability

d. Time orientation

e. Final product competition*

f. Technology of the production process*

g. Rate of change of technology*

3. "Dynamic" (process or climate) variables

Respondents: All

Specific Variables:

a. Communication

b. Coordination and integration

c. Motivational climate

d. Method of goal setting

e. Informal organization

f. Amount of control and influence exercised by each level

g. Methods of decision making

h. Methods of conflict resolution and problem solving

i. Interdepartmental relationships

j. Interdivisional relationships

k. Management styles:

Peer

Superior

Likert

l. Degree of trust

4. External environmental variables[1]

Respondents: All

Specific Variables:

The effect of the following variables upon the operation of the division:

a. Technology

b. Competition for final product

c. Suppliers

d. Rank and file attitude and morale

e. Public policy

f. Union-management situation

g. Availability of financial resources

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[1]The writer conducted an informal investigation to determine if any previous attempt had been made to compare the Likert and Lorsch and Lawrence measures.

No one at the Alfred P. Sloan School of Management, Massachusetts Institute of Technology, was aware of any work done correlating the Lorsch and Lawrence and the Likert Scales. Nor was Professor Lorsch at Harvard University aware of anyone who has attempted to find any relationship between the two scales.

The dependent variables.--Thirteen criterion variables are included in the study. Of these, the component criterion variables (measures of success of a component) basically are of two general types: subjective (behavioral) and objective (econometric).

1. Subjective (behavioral)

   Respondents: All in each component

   a. Degree to which objectives are met
   b. Level of competence and development of employees
   c. Efficiency of the operation
   d. Flexibility and adaptability of component
   e. Amount of planning
   f. Degree of coordination, cooperation, and integration of all employees
   g. Initiation of improvements and innovation
   h. Public/social responsibility
   i. Per cent rating of divisional actual performance to the ideal performance
   j. Per cent rating of Acme performance to ideal performance

2. The econometric (objective) variables are:

   Respondents: Divisional managers only

   a. Growth in sales
   b. Growth in profits (before taxes)
   c. Growth in return in investment (before taxes)

A listing of the dependent and independent variables is shown in Appendix B. In this appendix, the reference source for each variable, the number of original and recoded variables under each category, the number of subsets in which each variable was included, and the recoded variable number are given.

An unsuccessful attempt was made to identify each respondent's specific location in the company. Many members of top management believed that such an identification would cause many respondents to compromise their responses. Therefore, it was decided to discard any attempt to pinpoint the specific location of the respondent within his division. Only the general location of the respondent as to his or her division, department, and level was identified in this research.

A listing of the expanded 363 variables is shown in Appendix C.

A copy of the questionnaire in its final form is presented in Appendix D.

Pre-Testing the Questionnaire

Once the component parts of the questionnaire were developed, assembled and checked, it was duplicated in several copies. Its general context was reviewed by several members of management at the vice-presidential level to insure its general acceptance by members of Acme. A detailed review was made by the Personnel Director for

the purpose of insuring the correctness of titles of job positions, levels and departments and specific relevancy to the Acme organization. Many minor but needed changes and corrections were made.

A sample of four persons, one from each division, was given a modified pre-test questionnaire. Each person was briefed as to the purpose of the study and content and was asked to fill out the questionnaire. They were asked to record any ambiguities on the questions and their general reaction to the questionnaire. The amount of time it took was also recorded.

Reactions and comments were evaluated. Question number eighty-one was added as a result of their comments. Every effort was made to shorten the time required to fill out the questionnaire. One hundred and seventy copies of the questionnaire were then duplicated and prepared in envelopes for administration to the total respondent group.

Data Collection Phase

The questionnaire was given to the respondents in their respective plants on two days: Divisions B and C on January 23; and Divisions A and D on January 28, 1970. On each of these days it was administered in three shifts in a central meeting room. The main office personnel (presidential and vice-presidential levels) filled out the questionnaire in their respective offices.

The general reaction from the large majority of the respondents was favorable. There were a few who voiced some resistance or hostility. Specific written comments are contained in Appendix E. One person expressed the opinion that he felt that he could be identified if he filled out all the biographical and position location type questions. He was assured that this would not be possible.

Several respondents said that they would like to see the results. A few at the lower levels asked if the results could be given directly to them.

A few questionnaires with self-addressed envelopes were left for employees who were absent from the plant.

The total number of respondents was 113 out of a possible 118; 95.7 per cent of the complete group. These five who did not participate were managers below the vice-presidential level.

The time required to complete the questionnaire varied from forty-five minutes to one hour and fifty minutes. A few of the lower level personnel expressed some difficulty in understanding some of the questions. The researcher assisted those who raised questions concerning these difficulties.

General Procedure for Administering Questionnaire

The administration of the questionnaire for each group followed this procedure:

1. The researcher introduced himself and stated the reasons for this study. Every reasonable effort was made to convince the respondents of the potential usefulness of this study to them. The general points contained in the cover-sheet of the questionnaire were explained.
2. Explicit mention was made that they could not be identified as individuals.
3. There was no time limit in filling out the questionnaire.
4. The researcher asked the respondents, when finished, to double check their responses to insure that they had answered all questions, to place the completed questionnaire in the envelope, seal it, and place it in a ballot box provided.

Post-Data Collection Phase

Upon completion of the administration of the questionnaires to the respondents, the conduct of this study entered the post-data collection phase. This phase consisted of those steps required to complete the analysis of the basic data.

The Purpose and Description of the Various Analytical Methods Employed

The ultimate objectives of utilizing derived statistics in this research were to: (1) describe, (2) analyze, (3) classify, and (4) predict.

Description is provided in the form of means and standard deviations. An explanation and description of the computer programs used is contained in Appendix F.

To analyze the variables and their interrelationships, two multivariate analysis methods were employed: Factor Analysis, and the Largest Average Within Clusters Similarity Method. A description of these methods is presented later in this chapter.

The discriminant analysis method was executed in an attempt to classify the variables and their interrelationships. A description of this method is outlined on page 57 of this chapter.

To determine variables or combinations of variables which can predict the effectiveness of an organization was the purpose of performing the multiple regression analysis. This method is described in the second major section of this chapter. A summary of these multivariate methods and other computer programs employed is presented in Table 3.1.

TABLE 3.1--A summary of multivariate analysis methods employed.[a]

	Valutest	Percount	Histogram (DAP1)	IDCORR	Factor Analysis	Cluster Analysis (LAWS)	Multiple Regression	LSADD	LSDEL	DISCRIMINANT
249 Variables										
Total		✓								
Values	✓	✓								
363 Variables										
Total										
Each of 13 Subsets				✓	✓	✓				
Divisions		x	x							
92 Subscales				✓	✓	✓				
64 Subscales										
Total (113 OBSER)			x	✓	✓		✓			✓
Total (56 OBSER)										✓
Total (Dependent Subscale Separately)									✓	
Divisions			x							x
Total										
50 Subscales										
By Division			✓							✓
By Level										✓

✓ = Completed

x = Desirable

[a]See Appendix F (pages 187-195) for an explanation of the above named programs.

Largest Average Within-Cluster Similarity (LAWS) Method[1]

The Largest Average Within Cluster Similarity (LAWS) is a hierarchical clustering method sometimes referred to as cluster analysis. Its general purpose is to summarize and divide complex data into clusters and subclusters. It achieves two specific major objectives: (1) to construct sets of successively more inclusive clusters, and (2) to form these clusters in such a manner that the elements within each cluster are as similar to one another as possible and as dissimilar from all other elements as possible.

Factor Analysis

Factor analysis is a method for determining the number and nature of the underlying constructs (factors) among manifest variables.

The factor analysis and Largest Average Within Cluster Similarity (LAWS) methods were employed in conjunction with each other initially to reduce the variable space of 363 dimensions to a factor or cluster space of 92 dimensions and still preserve the common variance of the original variables.

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[1]Leighton A. Price, Hierarchical Clustering Based on a Criterion of Largest Average Within-Cluster Similarity (East Lansing, Mich.: Computer Institute for Social Science Research, Michigan State University, March, 1969).

Multiple Regression Analysis

Multiple regression analysis provides an analysis of the linear relationship between two or more predictor measures and a single criterion measure. The multiple regression program in this study was used to determine the extent of the relationship between the independent subscales and each of the dependent or criterion subscales.

Discriminant Analysis

The purpose for discriminant analysis is to maximize interclass variance among central tendencies for all combinations of variables and to minimize intraclass variance among these same tendencies. For example, discriminant analysis would maximize the variance among the divisions of Acme and at the same time it would make manifest those variations which are the most descriptive of each division. It was hoped that certain variables would be found to be unique to each division but the results did not disclose any unique subscales.

Because of the lack of any apparent unique variable it might be concluded that, although the organization is divisional, it is relatively homogeneous in terms of the variables with which the organization was sought to describe.

The discriminant analysis program is used when the investigator is interested in examining or predicting the group membership of individuals on the basis of a set of attributes of those individuals. This program determines linear combinations of the variables, called discriminant

functions, which maximize the ratio of between group variability to pooled within group variability.[1]

In this study we were interested in examining the divisional (group) membership of managers in Acme on the basis of the set of the fifty subscale scores of these individual managers. By finding one or more subscales that can reliably discriminate between the divisions a valuable management tool in the selection and assignment of manpower might be developed.

Methodology of Analysis

For purposes of this study, the numerous steps conducted in the analysis are categorized into the following several stages in chronological order:

Stage One: Preliminary Steps

Stage Two: Inversion, Recoding, Reinversion

Stage Three: Subsets Determination and Initial Processing

Stage Four: Factor and Cluster Analysis of Thirteen Subsets

Stage Five: Collapsing into a Single Subset (92 Subscales) and Recoding

Stage Six: Factor and Cluster Analysis of the 92 Subscales

Stage Seven: Collapsing to the 63 Subscales and Recoding

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[1] Ibid.

Stage Eight: Multiple Regression Analysis of the 63 Subscales: Histogram and Validity Check

Stage Nine: Discriminant Analysis

The purpose of stages three through seven was to reduce the number of variables down to within the input capacity constraints of multiple regression and discriminant analysis computer programs.

Stage One.--The following preliminary steps were taken after the data were collected:[1]

1. A master code book was compiled containing these codes:
   a. Column number corresponding to the question number
   b. Card number
   c. A respondent identification number
   d. Each option of each question was given a code number
   e. Respondent answers to fill-in questions were coded
   f. Variable category number
2. Each questionnaire was edited by the writer. This editing included the appropriate response

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[1]Specific details are contained, as indicated, in Appendices: Various and numerous insignificant problems encountered are not discussed herein.

code in the right hand column. Where no response was given, a zero code number was assigned.

3. Next, the data from the questionnaires were keypunched onto Fortran cards. The cards were then verified by a different person. A duplicate deck of the cards was made as an insurance against possible loss.

4. The cards containing the value survey data (card 4) were separated from the deck by means of the mechanical sorter. The letters were converted to numbers through the use of the LETTERS program. A general editing was conducted and a frequency distribution was performed by the use of the Computer Institute of Social Science Research (CISSR) PERCOUNT[1] program. The data were screened for bad codes, errors, etc. Another check of the value cards was a summation of the responses of each respondent utilizing a SUMCHEKS program.[2] Any sum not equaling 176 was checked for keypunch errors.

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[1]Details of CISSR PERCOUNT program are given in Technical Report 18, Computer Institute of Social Science Research, Michigan State University. (Mimeographed.)

[2]Details of SUMCHEKS program are contained in the paper subject "Valutest," by Charles Hollen, Department of Psychology, Michigan State University. (Mimeographed.)

5. A frequency distribution of each question was run to determine whether any responses were (1) outside of the possible range of options (usually an indication of a punching error), (2) incomplete. All data were screened and given a general editing. Several keypunching errors were found and corrected. It was only after the completion of this step that the raw data cards were considered to be in proper form for the second stage.

Stage Two.--

1. The data matrix was inverted because of the horizontal data constraints which precluded writing 249 responses horizontally onto the computer tape.
2. Blank responses were replaced by the mean value of all responses in each variable category.
3. Recoding Routine. A routine was programmed to recode all 249 variables. This recoding was necessary to build dummy variables, where required, because of the computer's binary system. Each variable was categorized as one of the following: (a) unordered discrete, (b) ordered discrete, or (c) continuous. If a variable was not considered to be ordered according to a continuum, a "dummy" variable(s)

was created to provide a "Yes-No" answer for the computer. This brought the total number of variables (including the new dummy variables) to 363.

4. Next, the data matrix was reinverted, printed, and punched into a new set of data cards.

Stage Three.--

1. Because of the limited capacity of the computer it was necessary to break the 363 variables down into thirteen subsets of ninety-two variables each. This breaking down or collapsing was done in accordance to a set of rules. These rules and further details are contained in Appendix H.
2. The new set of data cards was then read into a user's tape (Tape No. 2658) in the form of thirteen subsets sometimes referred to as "files." These files were numbered consecutively one through thirteen onto this tape. The entire set of data for the entire 363 variables were read onto this same tape and designated File 14.

Stage Four.--

1. From the user's magnetic tape the arithmetic means, standard deviations, frequencies and Pearson product-moment correlation coefficients were calculated for data (on the tape) for each subset. A standard correlation coefficient was computed between all variables. For those cases of incomplete data, an adjustment technique was employed where the program based the computations upon the data furnished, adjusting the frequencies in the computational formulae to compensate for the missing data. The mean and standard deviation for each variable were based only on observations including measurements of that variable, and correlations were computed only from observations which included measurements of both variables.
2. A principal-axis solution to factor analysis was computed. Both Quartimax and Varimax methods of factor-analysis were also employed for each subset. Further details of these methods are continued in Appendix F.
3. A "cluster analysis" was computed for each of the thirteen subsets. For details of this method see Appendix G.

Stage Five.--

1. The purpose of this step was to reduce the number of variables to a maximum of ninety-two.
2. Two or more variables that fell within a single factor and also within a single cluster were combined (collapsed) into one subscale.
3. The subscales were then coded and "read" onto an appropriate "file."

Stage Six.--The same analysis used in Stage Four was employed on the ninety-two subscales.

Stage Seven.--Similar steps which were used in Stage Five were followed to reduce (collapse) the number of subscales to a maximum of fifty. This degree of reduction was not found possible according to the results of Stage Six. The number of subscales was reduced to sixty-four and recoded. This data for the sixty-four subscales was "read" onto an appropriate "file."

Stage Eight.--A multiple regression analysis was conducted on the sixty-four subscales.[1] Because of a singular matrix this analysis was not successful and the culprit subscale(s) had to be found. This was done by use

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[1]Multiple Regression (Least Squares) Analysis, STAT Series Description No. 7, Agricultural Experiment Station, Michigan State University. (Mimeographed.)

of the Least Squares ADD program.[1] Subscale 52, Ease of Entry, was found to be a linear combination with another subscale, and was therefore deleted from the analysis. This procedure reduced the number of subscales to sixty-three.

Stage Nine.--Unfortunately it was not possible to conduct a discriminant analysis of the sixty-three subscales (because of the maximum limit of fifty subscales in its program) nor was it possible to collapse the sixty-three subscales to the ultimate objective of fifty subscales. Consequently, a discriminant analysis of the first fifty subscales was computed.

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[1] Least Squares ADD Program, STAT Series Description No. 9, Agricultural Experiment Station (East Lansing, Mich.: Michigan State University).

CHAPTER IV

THE IDENTIFICATION AND INTERPRETATION OF THE SIXTY-THREE SUBSCALES CONSIDERED SINGLY

The objective of this chapter is to present the empirical findings as they pertain to the sixty-three predictor and criterion subscales. The characterization and description of the organization in terms of these subscales may yield a potential insight into understanding the perceptions of respondents with regard to behavior within the Acme organization. Specific findings relating to the leadership styles, personal values, organizational (structural), dynamic (process), external environmental, and organizational effectiveness factors will be outlined in this chapter.

The sixty-three subscales were developed in the eight stages as outlined in Chapter III.

These procedures are briefly reviewed:

The Original 249 Variables

The results of the measurements of all 249 variables need not be reported here; rather, only those results that have some bearing on the objectives of this study outlined in Chapter I are to be given. In other words, the results of the measurements of each of the sixty-four subscales only will be presented.

The Expanded 363 Variables

A listing of the total feasible, inclusive number of 363 variables is contained in Appendix C. In this listing are brief descriptions of each variable including the means and standard deviation.

The Ninety-Two Subscales

Ninety-two subscales were developed and processed in accordance with the procedures described in Chapter III. The sixty-four subscales were determined as a result of this processing and its subsequent analysis. The ultimate objective to collapse the number of subscales to a maximum of fifty was not successful.

The Sixty-Three Subscales

Results of the Measurements of the Sixty-Three Subscales

The writer administered the questionnaire to the 113 managers using the procedure described previously in Chapter III. The data were processed and the original

249 variables were "collapsed" (in accordance with the procedure(s) explained in Chapter III).

Table 4.1 shows a listing of the sixty-three subscales with their titles. A more complete listing of these subscales is presented in Appendix I in which is also given the original variable numbers, means, standard deviations, and ranges.

The general categories of the sixty-three subscales were:

Predictor subscales: leadership styles, values, external environment measures, structural variables, and personal characteristics. Biographical and "locational" subscales on individuals.

Criterion subscales: subjective evaluation of effectiveness and objective evaluation. The only subjective question that did not fit into the organizational effectiveness (subjective) subscale was found to be somewhat faulty in its wording. However, it did serve a worthy purpose in that it provided a check against the alertness of the respondents when answering these questions.

Biographical and "locational" measures for each individual were treated as mediating variables.

These general categories of the sixty-three subscales are summarized in Table 4.2.

TABLE 4.1.--The sixty-three subscales.*

Subscale Number	Title	Subscale Number	Title
1	Organizational Effectiveness (Subjective)	33	Equality, Forgiving, Loving, Helpful
2	Organizational Effectiveness (Quantitative)	34	Family Security
3	Least Preferred Coworker I	35	Freedom
4	Least Preferred Coworker II	36	Inner Harmony, Responsible, Self-Control
5	Division A	37	Mature Love
6	Division B	38	Pleasure
7	Division D	39	Salvation, Honest
8	Division C	40	Self Respect, Social Responsibility, True Friendship
9	Main Office	41	Wisdom, Logical
10	Foreman (1st level)	42	Ambitious
11	Secretary/clerk/sex/ (2d level)	43	Broadminded
12	3d Level	44	Capable
13	4th Level	45	Courageous
14	Length of Service	46	Independent
15	Education	47	Intellectual
16	Age	48	Obedient-Polite
17	Bowers, Likert--Dynamics	49	Responsible, Self-Control
18	Technology	50	Technology of Production, Small Batch
19	Environment--(not enough information)	51	Technology of Production, Large Batch, Number of Competitors, Ratio of Managers/ Total
20	Competition, Suppliers, Rank & File, Finances	52	Number of Product Changes
21	Rank & File	53	Local-Cosmopolitan
22	Public Policy	54	Sales Department
23	% Ideal Performance by Company	55	QC Department
24	Departmental & Divisional Relationships	56	Personnel/Maintenance/Guard Departments
25	Departmental Relationships (Not enough information or not required)	57	Rate of Change in Technology
26	Divisional Relationships (Not enough information or not required)	58	Length of Time: Feedback on Success
27	Structural Design	59	Length of Time: Feedback on Success (Not Possible)
28	Comfortable Life	60	Multiplicity, Specificity, Job Control
29	Exciting Life & Imagination	61	Direction & Demand from Superior
30	Sense of Accomplishment	62	Position Power (Authority)
31	World of Peace	63	Goal Setting in Division
32	World of Beauty		

*Abstracted from Appendix I.

TABLE 4.2.--General categories of the sixty-three subscales.

1. Predictor subscales
   - 1.1 Leadership style and dynamic (process)
     - 1.11 Bowers-Likert--"Dynamic"
     - 1.12 Fiedler's Least Preferred Coworker
   - 1.2 Personal values
   - 1.3 External environment measures
   - 1.4 Structural subscales: adaptation "technology,"[a] number of levels, sub-units, goal-setting, job-control, communication, and departmental and divisional relationships.
   - 1.5 Personal characteristics, e.g., "local-cosmopolitan"

2. Mediating subscales
   - 2.1 Biographical of each individual
   - 2.2 "Locational" level, division, and department of each individual

3. Criterion subscales
   - 3.1 Subjective evaluation of effectiveness
   - 3.2 Objective: per cent of growth in profits and sales

[a]J. D. Thompson's concept of the type of technology employed by an organization to adapt to its environment.

Interpretation of Each Important Class of Variables Singly

The subjective measure of organizational effectiveness (subscale 1) has a mean of 2.29 (Range = 1 to 5) which seems to show that the individuals of Acme do not perceive the organizational effectiveness of their respective divisions to be particularly high or low.

The lowest-preferred coworker measures[1] became two subscales (3 and 4) which are referred to as LPC I and LPC II, respectively. Each subscale consists of several semantic differential measures. LPC I is a composite of six measures: pleasant-unpleasant, friendly-unfriendly, helpful-frustrating, cooperative-uncooperative, supportive-hostile, and efficient-inefficient. The mean of LPC I was found to be 4.73. The reflected mean was 3.27.

LPC II is a composite of five measures: distant-close, cold-warm, boring-interesting, quarrelsome-harmonious, and gloomy-cheerful. The mean of LPC II was 4.04.

The means of both scores fall between the ranges which Fiedler rates as "low" and "high." Fiedler's "low" LPC scores run from about 1.2 to 2.2; his "high" LPC scores run from about 4.1 to 5.7 for the entire eighteen measures.

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[1]See Appendix M for Fiedler's original description of the terms involved.

Assuming, for the moment, that the total number of both LPC I and II measures were collapsed together, the resulting mean would fall somewhere between 3.27 and 4.04.

In Fielder's words, high LPC leaders tend to be more concerned with establishing good interpersonal relations--while low LPC leaders tend to be more concerned with the task and are seen as more efficient and goal oriented in their leadership behavior.

Since the overall means of the Acme organization fall in-between these two ranges, it appears that their overall leadership style is somewhere in between being "people-oriented" and "task-oriented."

Subscales 5 through 8 measured the division in which the individual belonged. Subscales 9 through 13 measured the position level in which the respondent was located.

The length of service (Subscale 14) indicates that the average length of service of the managers to be about five years.

The years attained in formal education (Subscale 15) averaged almost three years of college.

The average age (Subscale 16) of the managers is about thirty years.

Subscale 17 was a composite measure containing the Bowers and Seashore,[1] Likert,[2] and a few other miscellaneous dynamic variable measures. This subscale essentially seems to measure the degree to which the individuals felt that they had influence or control over the operation of their division. The mean of 3.36 appears to show that they feel a fair amount of participation and influence in their respective divisions.

The managers believed that technology used by their division affects very significantly their operation. Subscale 18 mean was 3.84.

The managers believed that the availability of financial resources to the division was even more significant than technology. The mean of this subscale was 4.16.

About one-third of the managers felt that they did not have enough information to make even an estimate of the effect of the various environmental factors (subscale 19). Its mean was 1.32.

The managers felt that the factors of competition for the final product, the suppliers, the rank and file attitude and morale and availability of finances (subscale 20) to be almost as significant as technology. The mean of subscale 20 was 3.84.

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[1]Bowers and Seashore, Organizational Effectiveness.

[2]Likert, Human Organizations.

Public policy (subscale 22) was not considered to be as significant as the above named environmental factors but was still considered to be significant. The mean of public policy was 3.03.

The perceived overall departmental and divisional relationships were "somewhat better than average" (the mean of subscale 24 was 2.91). The Main Office managers perceived the relationships to be slightly better than those in the divisions.

The ranking of personal values followed a remarkable pattern. The values, Family Security, Ambitious, and Capable were ranked in the highest six in every division.[1] Sense of Accomplishment and Freedom were ranked in the upper five in all but one division.[2] Obedient-Polite, Pleasure, World of Beauty, and Mature Love were ranked in the lowest five in every division. Equality-Forgiving-Loving-Helpful was in the lowest six in every division except one (subscales 28-49). This value was ranked significantly higher by Division C (N = 29). See Table 5.17 for the specific rankings. These results seem to show that the values of the managers throughout the mini-conglomerate are strikingly similar.

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[1]Each personal value is underlined throughout this study as an aid to the reader.

[2]Sense of Accomplishment was ranked ninth by Division (N = 9) and Freedom was ranked twelfth by the Main Office (N = 10). In view of the small population in each of these two components, this statistic is considered less reliable in a technical sense.

CHAPTER V

INTERPRETATION OF THE INTERRELATIONSHIPS AMONG THE SIXTY-THREE SUBSCALES

The objective of Chapter V is to present the empirical findings as they pertain to the interrelationships among the sixty-three subscales.

In the first major section the results of the interrelationships among all subscales, including both predictor and criterion measures, are presented. Both factor and "cluster" analyses are used to reduce the number of variables and to point up significant relationships.

In the second major section the results of the interrelationships between the predictor subscales and the criterion subscales are presented and interpreted. The method of analysis is multiple regression.

In the third major section the results of the interrelationships of all variables within each division are presented and discussed. The multiple discriminant and histogram methods are used for this analysis.

In the last major section a comparison between the results of the analyses and interpretations of the preceding major sections is presented.

Interrelationships Among All Subscales

Factor analysis was utilized to determine the interrelationships among all subscales. The procedure used to determine the level of significance is presented in Appendix J. The eight factors, rotated for simple structure, are found in Appendix K-1. Such a rotation was conducted for the purpose of facilitating the interpretation of the data.

These eight factors are:

Factor No. 1 which accounted for 5.64 per cent of the total variance consists of the following predictor subscales:[1]

7 Membership in Division D

10 1st Level (Foremen)

13 4th Level

15 Level of formal education--Personal values: Cheerful-Clean-Cosmopolitan-Local (Ability to Leave Job)

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[1]The variance (V) of the factor loadings is accounted for by communality (h^2) and uniqueness (u). The uniqueness consists of the usual two forms: specific and error. Mathematically, this can be shown as:

$$v = h^2 + u$$
$$u = s + e$$
$$v = h^2 + s + e$$

26 Did not have enough information to make an evaluation of the divisional relationships or relationships not required

37 Mature Love

41 Wisdom-Logical

57 Rate of Change in Technology

Factor No. 2 accounted for 4.85 per cent of total variance and consists of these predictor subscales:

36 Inner Harmony-Responsible-Self-Control

53 Local-Cosmopolitan: Social Life

54 Quality Control Department

Factor No. 3 accounts for 5.01 per cent of the total variance and consists of:

1 (Criterion)--Organizational Effectiveness (Subjective)

3 (Predictor)--Fiedler's LPC I

4 (Predictor)--Fiedler's LPC II

17 (Predictor)--Bowers-Likert-"Dynamics"

24 (Predictor)--Departmental and Divisional Relationships

48 (Predictor)--Obedience-Politeness

60 (Predictor)--Multiplicity, Specificity, and Job Controllability

61 (Predictor)--Direction and Demand from Superior

63 (Predictor)--Goal Setting in the Division

Factor No. 4 accounts for 5.32 per cent of the total variance and consists of these predictor subscales:

5 Division A

8 Division C

11 2nd Level

14 Length of Service

16 Age

19 Environment (not enough information)

43 Broadminded

45 Courageous

56 Personnel and other service type departments

59 Length of time for Feedback on Success (not possible to evaluate)

62 Position power and authority

Factor No. 5 accounts for 4.83 per cent of the total variance and consists of:

2 (Criterion)--Organizational Effectiveness (Quantitative)[1]

40 (Predictor)--Self-Respect-Social Responsibility-True Friendship

50 (Predictor)--Technology of Production-Small Batch

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[1]This Organizational Effectiveness (Objective) Subscale was essentially discarded for reasons described later in the chapter.

51 (Predictor)--Technology of Production-Large Batch--Number of Competitors--Ratio of Number of Managers to the Total

52 (Predictor)--Number of Product Changes During Past Ten Years

Factor No. 6 accounts for 4.83 per cent of the total variance and consists of these predictor subscales:

18 Technology

20 Competition-Suppliers-Rank and File Attitude and Morale-Availability of Finances

22 Public Policy

27 Structural Design (Size of Division, Number of Levels of Authority, Number of Subunits, and Product Characteristics)

Factor No. 7 accounts for 6.57 per cent of the total variance and consists of these predictor subscales:

28 Comfortable Life

29 Exciting Life and Imaginative

30 Sense of Accomplishment

31 World of Peace

32 World of Beauty

33 Equality-Forgiving-Loving-Helpful

38 Pleasure

39 Salvation-Honest

42 Ambitious

44 Capable

46 Independent

47 Intellectual

Factor No. 8 accounts for 4.67 per cent of the total variance and consists of these predictor subscales:

6 Division B

9 Main Office

12 3rd Level

25 Departmental Relationships (Not Enough Information)

34 Family Security

35 Freedom

55 Sales Departments

59 Length of Time for Feedback on "Success"

Results of the "Cluster" Analysis

A summary of the "cluster" analysis of the sixty-three subscales is presented in Appendix K-5. The complete results of the "cluster" analysis are shown in Appendix K-2.

Interpretations of the Factor and Cluster Analysis

An approach taken to interpret the sixty-three subscale analysis was to compare the rotated factor loadings with the "clusters" of the Largest Average Within a Cluster Similarity solution. Those items which were found together both in a common factor and a common "cluster" were considered to be definitive of underlying constructs.

A summary of those subscales which met the dual criterion is contained in Appendix K-5.

Eight factor groups or dimensions meeting this criterion emerged and are described and interpreted in the foregoing paragraphs.

The Eight Factor Groups or Dimensions.--One factor group which met the criterion was: Organizational Effectiveness (Subjective), Fiedler's Least Preferred Coworker Measures, Bowers-Likert-"Dynamics," Multiplicity-Specificity-Job Controllability, and Direction and Demand from Superior. An interpretation of this factor-group might be the character of the management style (Authoritarian-Participative) prevailing within the organization. This factor-group seems to reflect the degree of freedom and participation to which the managers are involved. Two of these predictors, Bowers-Likert-"Dynamics" and Direction and Demand from Superior were found, according to the Multiple Regression Analysis (described later in chapter), to maximally predict organizational effectiveness.

Another factor-group consisted of Length of Service, Age, 2nd Level (+), Environment (not enough information) (+), Broadminded (+), and Position Power (Authority) (+). An interpretation of this group is that the personnel in the 2nd level tended to be younger and have shorter length of service, not to have enough information

about their external environment to make an evaluation, ranked Broadminded lower, and considered their position power to be low.

Organizational Effectiveness (Objective) (+), Self-Respect-Social Responsibility-True Friendship (+), Technology of Production (Large Batch) (+), and Number of Product Changes During the Past Ten Years (-) subscales appeared in another factor-grouping. An interpretation of this factor-grouping might be mass production orientation. The first three subscales had positive factor loadings and the third subscale had a negative factor loading.

Five value subscales composed into another factor-group were: Comfortable Life, Exciting Life-Imaginative, Sense of Accomplishment, Capable, and Intellectual. All had positive loadings onto one factor. An overall characterization of this group might be McClelland's Need for Achievement, because these values seem to describe those intrinsic motivators inherent in the life style of a business executive.

World of Peace, and Equality-Forgiving-Loving-Helpful, were found to be in another factor grouping. These two subscales had negative factor loadings. This factor-grouping might be interpreted as the Rationalization of Idealism, where World of Peace and Equality-Forgiving-Loving-Helpful are the higher values of the fundamental idealist.

Another factor-grouping consisted of the Main Office and Freedom--both having negative loadings on a common factor. As seen in Table 5.2, the Main Office ranked Freedom lower than the other divisions. This might be interpreted to mean that the personnel in the higher echelons of an organization tend to give lesser weight to value of Freedom. Perhaps this is because they have more Freedom than others within the same organization and hence are less aware of it.

Education and Wisdom-Logical formed another factor group. Those managers with a low education tended to rank Wisdom-Logical low. This factor-group might be characterized as a rationalization of the status quo or a form of anti-intellectualism. From this characterization, one might suspect a possible clash between two subcultures within the organization.

The first level (foremen) and Rate of Change in Technology were in a common factor group. The first level technological conditions appear to be stable to the foremen. The boundary units seem to be doing an effective job of protecting the technical core, to use J. D. Thompson's terminology.

Interrelationships Between the Predictors and Each Criterion Subscale Individually

Organizational Effectiveness (Subjective)

In the multiple regression analysis in which dependent (criterion) subscale number one was used, it was found that independent subscales 17, 6, 61, 34, 30, 62, 13, and 48 were significantly correlated. These are listed in decreasing order of predictive efficacy.[1]

Subscale 17 is the Bowers-Likert-"Dynamics" subscale.*

Subscale 6 is Division B.

Subscale 61 is the amount of direction and demand perceived as being received by the respondents' superior.

Subscale 34 is the personal value of Family Security.

Subscale 30 is the personal value of Sense of Accomplishment.

Subscale 62 is amount of position power in form of authority perceived by the respondent.

Subscale 13 is the fourth level at which respondent's position is located.

Subscale 48 is the combined personal values of Obedience and Politeness.*

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[1]All of these predictors are positively correlated with the criterion except that having a negative correlation are marked with an asterisk.

These eight predictor subscales accounted for 55 per cent of the total variance of the subjective organizational effectiveness criterion.

Interpretations

The Bowers-Likert-"Dynamics" subscale appears to be the best predictor of all of the subscales for mini-conglomerate effectiveness. But, contrary to the writer's expectations, it is a negative correlation. This finding might be interpreted that the lesser participative (more authoritarian) that the managers tend to consider their divisions to be, the greater they perceive the effectiveness to be. In comparing the mean divisional scores on the Bowers-Likert-"Dynamics" subscale (17) (shown in Appendix I), the mean scores for Divisions A and B, which are both highly production-oriented, are the least participative (most authoritarian) while the research and engineering oriented Division D scores the most participative of all the divisions. This seems to confirm the recent studies of Lorsch, Lawrence, and Morse who report similar findings.[1] Further investigation is recommended to determine a few individual measures within this subscale which could be the best measures of this subscale.

Division B of Acme Industries appears to be self-perceived as an exemplary division of effectiveness within

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[1]Morse and Lorsch, "Beyond Theory Y," Harvard Business Review (May-June, 1970).

the mini-conglomerate based upon the result that Division D was found to be a significant predictor of organizational effectiveness. By the same logic, it is interpreted that the fourth level (the level immediately below the vice-presidential-general manager level) is self-perceived as an exemplary group or level within Acme.

The amount of perceived direction and demand from a manager's superior is another significant predictor of division effectiveness. An interpretation is that the lesser direction and demand perceived by the manager is related to greater mini-conglomerate effectiveness. The correlation between the lesser direction and demand from their superiors and the Bowers-Likert-"Dynamics" subscale is .44. One would expect these two measures to be logically related.

It appears that those managers who rank Family Security and Sense of Accomplishment higher perceive their division to be more effective. Those managers who ranked Obedience-Politeness lower believe their division to be more effective.

Those managers having more position power in the form of authority for their own position tend to consider their division to be more effective.

Criterion subscale 2 could not be used. Originally, in view of Acme's being a conglomerate made up of relatively autonomous divisions (components), the intent

was to obtain the three objective organizational effectiveness measures involving fiscal matters from each division. This did not prove to be feasible; fiscal data were obtained for the overall organization and Division B only. Since it was not logical to relate the figures of Division B with any other division, these figures should have been discarded. The problem then became what to do with the one response to the objective criterion which no longer is a variable but a constant. Because there was no known way to relate this criterion to the other variables, the whole objective criterion was essentially discarded as being meaningless. (A method by which the objective criterion could be used would be to obtain divisional data, transmute to a common scale, and to collect, in some way, the stated corporate expectations for each division. In short, the attempt made to salvage the objective organizational effectiveness criterion was unsuccessful.)

Interrelationships of All Subscales Within Each Division

In an attempt to determine a clearer understanding of the nature and characteristics of each division, analyses were conducted to study the interrelationships within each division.

The analyses to study the interrelationships of all subscales within each division were primarily based upon two methods: "Data Plot and Statistics for Variables"

(DAP 1) and Multiple Discriminant Analyses. These methods were previously described in Chapter III. The results and interpretations of each method are discussed in that order.

For each division, the "Data Plot and Statistics for Variables" (DAP 1) program formed histograms for each subscale and provided computations for each subscale consisting of the mean and standard deviation.

In Table 5.1 is a summary comparison of the non-value subscale scores by divisions in the order of their perceived effectiveness and in Table 5.2 is a summary comparison of the value subscale scores.

In Appendix I is a complete comparison summary of the means with variances of each of the sixty-three subscales for each division in order of their perceived effectiveness. To quickly identify each subscale, the reader is invited to refer to the listing of the sixty-three subscales with their titles in Table 4.1.

The division perceived to be the most effective by their managers was Division D. Division B, Main Office, Division C, and Division A is the ranking of the other divisions in decreasing order of their perceived effectiveness.[1]

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[1]There was a .29 correlation between the Ideal Performance subscale and Organizational Effectiveness (Subjective) for the overall organization. For the Main Office, the correlation between these same two subscales was .28. The correlation between these same two subscales: within Division A, .28; Division B, .35; Division C, .37; and Division D, .004. Since Division D had yet to become a formal organization at the time of this study, this lack of correlation would appear to be expected.

TABLE 5.1.--A comparison of the non-value subscale scores by divisions in order of their perceived effectiveness.

Sub-scale	Title	Division Means				
		D	B	Main Office	C	A
1	Organizational Effectiveness (Subjective)	2.06	2.13	2.17	2.34	2.47
2	Organizational Effectiveness (Objective)	576.5	576.5	576.5	576.5	576.5
3	LPC I	4.167	5.08	5.66	4.569	4.450
4	LPC II	4.221	3.83	3.54	4.215	4.164
5-13	Designation of Division and Levels	--	--	--	--	--
14	Length of Service	3.16	3.280	3.450	3.396	3.535
15	Education	8.588	7.749	9.488	8.045	7.449
16	Age	2.111	2.396	3.400	2.034	2.776
17	Bowers-Likert--"Dynamics"	3.770	3.188	3.698	3.400	3.263
18	Technology	3.543	3.941	4.161	3.993	3.779
19	External Environment (not enough information)	1.143	1.361	1.150	1.385	1.333
20	Competition Suppliers--Rank and File Morale and Attitude--Availability of Finance	3.833	3.886	3.951	3.855	3.771
21	Rank and File Attitude and Morale	3.744	3.84	4.033	3.783	3.598
22	Public Policy	3.210	3.040	2.560	3.067	3.066
23	Per cent Performance by Division/Company to the Ideal	84.804	87.806	85.548	87.714	85.101
24	Departmental and Divisional Relationships	2.762	2.968	2.369	2.909	3.057
25	Departmental Relationships (not enough information or not required)	1.230	1.089	1.051	1.339	1.343
26	Divisional Relationships (not enough information or not required)	1.152	1.53	1.152	1.332	1.496
27	Structural Design	2.500	2.50	2.500	2.500	2.500
28-49	Personal Values	- - - - - - See Table 5.2 - - - - - - - -				
50	Technology of Production (Small Batch)	1.600	1.600	1.600	1.600	1.600
51	Technology of Production, Large Batch, Number of Competitors, Ratio of Managers	2.02	2.02	2.02	2.02	2.02
52	Number of Product Changes During Past Ten Years	1.50	1.50	1.50	1.50	1.50
53	Local-Cosmopolitan (Social Life)	4.11	3.55	3.79	4.34	3.99
54-56	Departmental Designation	--	--	--	--	--
57	Rate of Change in Technology	3.56	3.11	2.80	3.61	2.92
58	Length of Time for Feedback on Success	2.51	1.99	2.19	1.79	1.54
59	Length of Time for Feedback on Success (not possible to evaluate)	1.33	1.00	1.10	1.18	1.03
60	Multiplicity, Specificity, Job Control	2.33	2.73	2.19	2.62	2.70
61	Direction and Demand from Superior	3.44	3.04	3.22	3.28	3.15
62	Position, Power and Authority	2.63	2.49	2.00	3.29	2.50
63	Goal Setting in Division	2.79	2.51	3.67	2.55	3.10

TABLE 5.2.--Personal value median rank orders for Acme Industries, each division, and national sample of male whites (NORC).

Subscale Number		Acme	Div D	Div B	Main Office	Div C	Div A	*Nat'l Sample
28	Comfortable Life	9.36	13.77	8.86	10.90	9.89	7.80	8.1
29	Exciting Life-Imaginative	11.38	9.05	11.37	10.11	12.30	11.57	14.5
30	Sense of Accomplishment	6.21	8.66	5.54	5.20	6.14	6.44	8.1
31	World of Peace	8.23	8.33	9.15	9.40	6.73	8.36	3.6
32	World of Beauty	13.73	14.22	14.75	14.60	13.13	13.05	13.4
33	Equality-Forgiving-Loving-Helpful	10.54	12.19	11.21	10.62	8.86	10.92	10.1
34	Family Security	6.51	5.11	6.12	6.60	7.21	6.59	3.7
35	Freedom	7.12	5.77	6.66	9.20	7.24	7.14	5.0
36	Inner Harmony-Responsible-Self-Control	8.68	9.18	7.70	9.10	8.69	9.20	11.1
37	Mature Love	12.68	14.55	13.09	10.90	12.92	12.19	12.3
38	Pleasure	13.43	13.78	12.98	15.20	13.57	13.11	14.2
39	Salvation-Honest	8.32	7.50	8.25	8.51	8.59	8.32	9.8
40	Self-Respect, Social Responsibility, True Friendship	9.59	10.26	9.09	8.50	9.67	10.05	8.4
41	Wisdom-Logical	9.03	7.89	8.84	7.77	9.41	9.51	8.4
42	Ambitious	5.14	4.44	5.76	4.31	6.28	4.11	5.5
43	Broadminded	8.65	8.00	10.19	8.26	9.06	7.36	7.0
44	Capable	6.35	5.66	6.22	5.43	7.70	5.80	8.6
45	Courageous	9.55	9.67	10.26	8.15	10.67	8.42	7.6
46	Independent	10.17	10.11	9.52	10.12	10.76	10.25	10.4
47	Intellectual	10.47	8.77	10.64	9.75	10.74	10.75	12.9
48	Obedient-Polite	12.34	12.39	12.61	12.43	11.42	12.80	13.7
49	Responsible-Self Control	8.06	9.11	6.84	8.65	8.07	8.59	6.6

*The median for the national sample of male whites (NORC) as indicated above is for the underlined personal value. All other medians are for the composite (subscale) value.

Note: Divisions are listed in decreasing order of their perceived effectiveness.

As shown in Figure 5.1 the Main Office scores the lowest LPC followed by Division B; Division D scored the highest LPC. This seems to indicate that the Main Office managers are more "task-oriented" than the divisions and that Division D is the most "people-oriented." For a more detailed description of high and low LPC ratings see Appendix M.

A comparison of the Bowers-Likert-"Dynamics" by division as shown in Figure 5.2 places Division B the furthest to the left on the Authoritarian-Participative scale. This seems to indicate that Division B has the least involvement of their subordinates in the operation of their division. Division D and the Main Office is by far the furthest to the right--which appears to show that the managers of these two components have the highest freedom in handling their operations and projects and have the most involvement in decision-making.

A ranking of the personal values by divisions listed in the order of their perceived effectiveness is given in Table 5.2. A comparison of these rankings indicates that, in general, the personal values of the managers in every division are quite similar.

From these comparisons, the subscale measures which had the maximum difference among the divisions were determined. The five most discriminating value subscales and the seven most discriminating non-value subscales were selected and are presented in the next two sections.

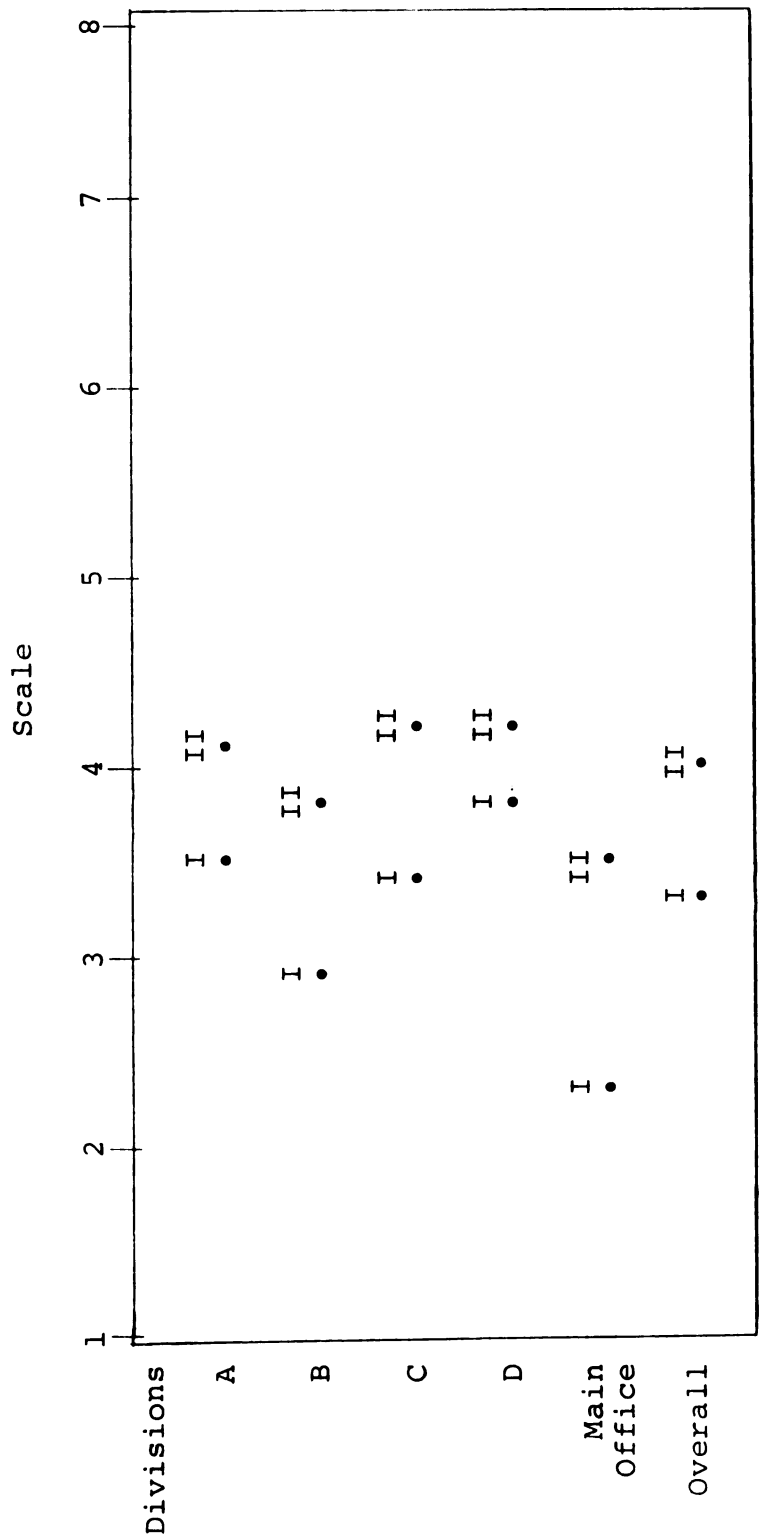
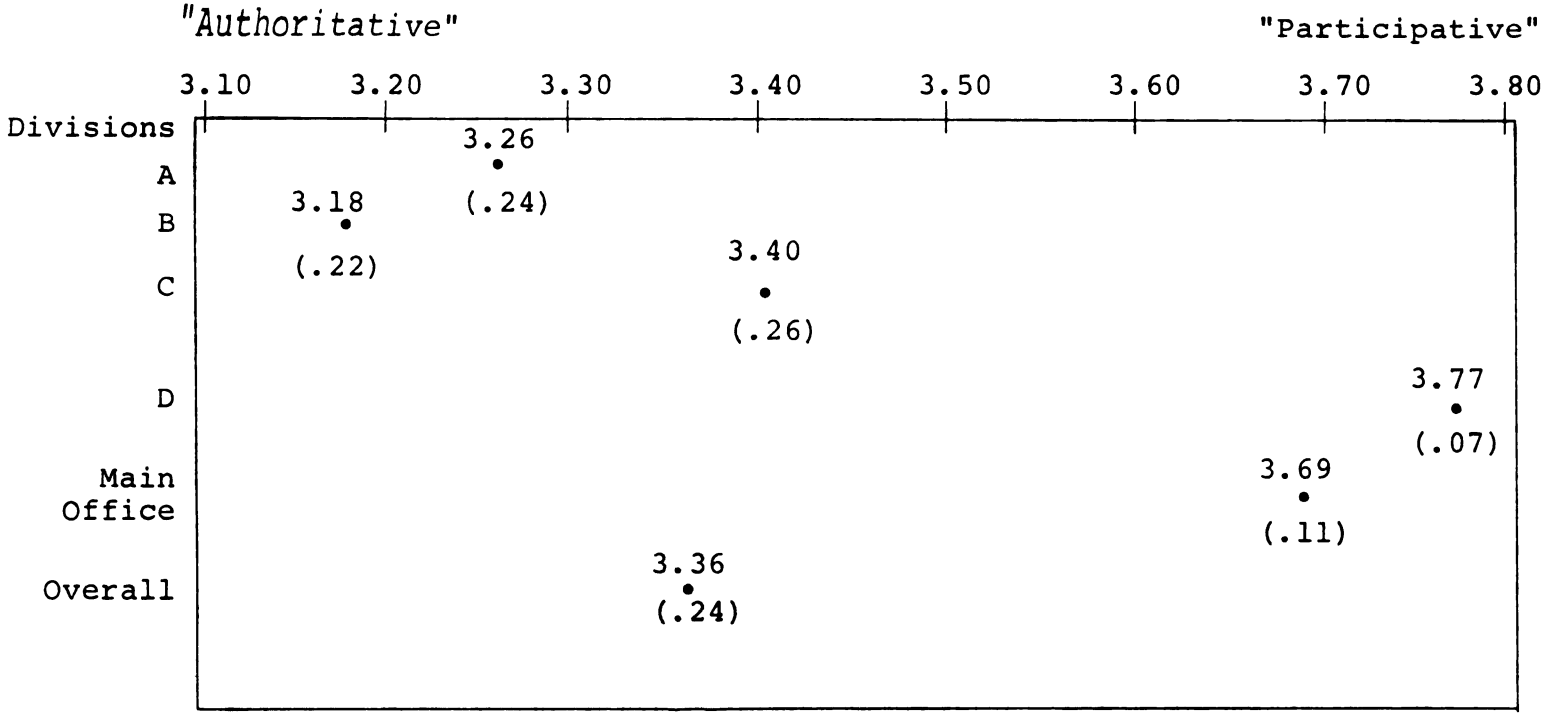


Figure 5.1.--A comparison of the Fiedler LPC Scores (Subscales 3 and 4) by division.



NOTE: The value of each variance is given in parentheses.

Figure 5.2.--A comparison of the Bowers-Likert-"Dynamics" scores by division.

The Seven Most Discriminating Non-Value Subscale Measures

The seven non-value subscale measures which had the maximum difference among the divisions were found to be the Percentage Performance of Divisions/Company to the Ideal, Education, Least Preferred Coworker, Age, Position Power, Goal Setting in Division, and Length of Time for Feedback on Success. Further details are presented in Table 5.3.

TABLE 5.3.--The five non-value subscale measures which had the maximum difference among the divisions.

Subscale	Title	Maximum Differences Among Divisions
23	Per Cent Performance of Division/Company to the Ideal	3.00
15	Education	2.00
3	Least Preferred Coworker	1.50
16	Age	1.37
62	Position Power (Authority)	1.29
63	Goal Setting in Division	1.16
58	Length of Time for Feedback on Success	.97

Division B perceived that their division and company was performing the highest (87.8 per cent) in comparison with an ideal performance of 100 per cent. Division C, Main Office, Divisions A, and D followed in that order.

The Main Office has the highest formally educated personnel averaging midway between a master's and a bachelor's degree. Divisions D, C, B, and A followed in that order. Division A managers averaged two and one-half years of college education.

The youngest managers are located in Division D (average age: thirty years), Division D, B, A, and Main Office have older managers in increasing order.

The Main Office considered the departmental and divisional relationships to be sounder than did the managers in the divisions. Division D, C, B, and A rated the relationships to be somewhat less in that order. The evidence is shown by subscale 24 in Appendix I-2.

Position power was perceived to be the highest (2.00) by the Main Office and to be the lowest by Division C. Divisions B, A, and D in ther order were in the middle.

Goal Setting in the division was considered to be the most participative by the Main Office. Division B considered Goal Setting in the Division to be the least participative. Divisions A, D, and C were in between in this order. These results seem to confirm the results of the Bowers-Likert-"Dynamics" subscale. The level at which goals are established within the division might be considered to be a vital measure of the degree of participation managers at all levels possess in the operation and decision making process within their divisions. And yet, there was only a .25 correlation between the Goal Setting and the Bowers-Likert-"Dynamics" subscales.

The length of time for Feedback on Success was considered to be shortest by Division A and to be the longest by Division D. This might be interpreted to mean that Division A has a short-term time orientation and Division D has a long-term time orientation. Division C ranked next shortest followed by Division B and the Main Office.

The Five Most Discriminating Value Subscale Measures

Because of the large number of value measures the five most discriminating value subscale measures were selected by the writer for detailed discussion in this section.

The five value subscale measures which had the maximum difference among the divisions were found to be Comfortable Life, Mature Love, Sense of Accomplishment, Freedom, and Equality-Forgiving-Loving-Helpful. These values are listed in decreasing order of maximum differences among the divisions. Further details are presented in Table 5.4.

Comfortable Life was found to be the most discriminative value. Division A ranked Comfortable Life the highest (7.80); Division D ranked it the lowest (13.77) --a sizeable difference of 5.97. Division A is comprised of manufacturing personnel as compared with the research-oriented engineers in Division D. This tends to confirm the findings of Beech's study previously described in

TABLE 5.4. The five value subscale measures which had the maximum difference among the divisions (from a total number of twenty-two value subscales).

Subscale	Title	Maximum Differences Among Divisions
29	Comfortable Life	5.97
37	Mature Love	3.60
30	Sense of Accomplishment	3.46
35	Freedom	3.43
33	Equality-Forgiving-Loving-Helpful	3.33

Chapter I. Division B, C, and Main Office followed in that order of ranking.

Mature Love was ranked the highest (10.90) by the Main Office. Divisions A, C, B, and D ranked Mature Love in decreasing order.

Sense of Accomplishment was ranked the highest (5.20) by the Main Office. In decreasing ranking order were Divisions B, C, A, and D in that order. Sense of Accomplishment was found to be a significant predictor of the Organizational Effectiveness (Subjective) criterion by the Multiple Regression Analysis method described earlier in this chapter.

Division D ranked Freedom the highest (5.77) of all of the divisions and Main Office ranked it the lowest. Divisions B, A, and C in that order ranked Freedom in between.

Equality-Forgiving-Loving-Helpful was ranked the highest (8.86) by Division C, followed by the Main Office, Divisions A, B, and D.

In Table 5.5 is presented a comparison of all the rankings of personal values with divisions listed in the order of their perceived effectiveness and with the rankings of a national sample.

Multiple Discriminant Analysis

A Multiple Discriminant Analysis was conducted to test the significance of the differences among divisions. Each of the subscales which were the most significant under each of the four discriminant functions were subscales that identified the respondent's division (group). No other subscales were more significant. It was suspected that these five subscales were suppressing the other subscales, so another program analysis was planned to be run omitting those subscales which identified the respondent's division and level. Because of unavoidable computer difficulties this analysis has not been completed at the time of the completion of the thesis.

A Summary of the Interrelationships of All Subscales Within Each Division

These results seem to confirm those of Lorsch, Lawrence, and Morse who propose that the most productive organization is one that fits the needs of its task and people in any particular situation, rather than adopting

TABLE 5.5.--Ranking of personal values by divisions listed in order of perceived effectiveness.

National Sample (Terminal Values Only) (N = 561)	Acme (Overall) (N = 113)	Most Effective ← Division D (N = 9)	Division B (N = 29)	Main Office (N = 10)	Division C (N = 29)	→ Lesser Effective Division A (N = 36)
World of Peace	Ambitious	Sense of Accomplishment	Sense of Accomplishment	Ambitious	Sense of Accomplishment	Ambitious
Family Security	Sense of Accomplishment	Family Security	Ambitious	Sense of Accomplishment	Ambitious	Capable
Freedom	Capable	Capable	Family Security	Capable	World of Peace	Sense of Accomplishment
Happiness	Family Security	Freedom	Capable	Family Security	Family Security	Family Security
Sense of Accomplishment	Freedom	Salvation-Honest	Freedom	Wisdom-Logical	Freedom	Freedom
A Comfortable Life	Responsible-Self Control	Wisdom-Logical	Responsible-Self Control	Courageous	Capable	Broadminded
Wisdom	World of Peace	Broadminded	Inner Harmony Responsible Self Control	Broadminded	Responsible Self Control	Comfortable Life
Self-Respect	Salvation, Honest	World of Peace	Salvation, Honest	Self-Respect Social Responsibility True Friendship	Salvation, Honest	Salvation, Honest
National Security	Broadminded	Sense of Accomplishment	Wisdom-Logical	Salvation, Honest	Inner Harmony Responsible Self-Control	World of Peace
True Friendship	Inner Harmony Responsible Self-Respect	Intellectual	Comfortable Life	Responsible Self-Control	Equality, Forgiving, Loving, Helpful	Courageous
Salvation	Wisdom-Logical	Exciting Life Imaginative	Self-Respect Social Responsibility True Friendship	Inner Harmony Responsible Self-Control	Broadminded	Responsible Self-Control
Equality	Comfortable Life	Responsible Self-Control	World of Peace	Freedom	Wisdom-Logical	Inner Harmony Responsible Self-Control
Inner Harmony	Courageous	Inner Harmony Responsible Self-Control	Independent	World of Peace	Self-Respect Social Responsibility True Friendship	Wisdom-Logical

Mature Love	Self-Respect Social Responsibility True Friendship	Courageous	Broadminded Courageous	Intellectual	Comfortable Life	Self-Respect Social Responsibility True Friendship
World of Beauty	Independent	Independent	Intellectual	Exciting Life Imaginative	Courageous	Independent
Social Recognition	Intellectual	Self-Respect Social Responsibility True Friendship	Equality, Forgiving, Loving, Helpful	Independent	Intellectual	Intellectual
Pleasure	Equality, Forgiving, Loving, Helpful	Equality, Forgiving, Loving, Helpful	Exciting Life Imaginative	Equality, Forgiving, Loving, Helpful	Independent	Equality, Forgiving, Loving, Helpful
An Exciting Life	Exciting Life Imaginative	Obedient- Polite	Obedient- Polite	Comfortable Life	Obedient- Polite	Exciting Life Imaginative
	Obedient- Polite	Comfortable Life	Pleasure	Mature Love	Exciting Life Imaginative	Mature Love
	Mature Love	Pleasure	Mature Love	Obedient- Polite	Mature Love	Obedient- Polite
	Pleasure	World of Beauty	World of Beauty	World of Beauty	World of Beauty	World of Beauty
	World of Beauty	Mature Love		Pleasure	Pleasure	Pleasure

only the participative (Theory Y) approach. In this research Division D which has a long-term time orientation and a scientific goal orientation was found to have the most participative character of superior-subordinate relations than the other divisions. The managers of Division D were found to be more "people-oriented." Whereas Division B operates in different "climate" of short-term time orientation and a manufacturing goal orientation was found to have the least participative freedom of its superior-subordinates and the styles of its managers were found to be more "task-oriented."

A comparison of the most significant differences in the two most effective divisions and the Main Office is summarized in Table 5.6.

The Main Office whose primary goal orientation is conglomerate management and its time orientation might be considered to be combination Short-Long-Term rated their Superior-Subordinate relationships next to the most participative of all. And yet, the Main Office was found to be the most "task-oriented."

The five values, Comfortable Life, Mature Love, Sense of Accomplishment, Freedom, and Equality-Forgiving-Loving-Helpful were found to be not only the most discriminating values of all but provided a significant dichotomy among the two most effective divisions and the Main Office. This is shown in Table 5.6. Division D ranked these values either the lowest or the highest among the divisions and Main Office. Division D, with its

TABLE 5.6.--An extract of the most significant differences in the two most effective divisions and the main office.

Characteristics	Division B	Division D	Main Office
Time Orientation:	Short Term	Long Term	Short-Long Term
Goal Orientation:	Manufacturing	Scientific	Conglomerate Management
Position Power and Authority:	Higher	Lower	Highest
Superior-Subordinate Relationships:	Least Participative	Most Participative	Next to Most Participative
Goal Setting in Component:	Least Participative	In-Between	Most Participative
Managerial Style:	More "Task-Oriented"	More "People Oriented"	Most "Task-Oriented"
Values:			
Comfortable Life:	Next to Highest (2)	Lowest (5)	Next to Lowest (4)
Mature Love:	Next to Lowest (4)	Lowest (5)	Highest (1)
Sense of Accomplishment:	Next to Highest (2)	Lowest (5)	Highest (1)
Freedom:	Next to Highest (2)	Highest (1)	Lowest (5)
Equality-Forgiving-Loving-Helpful:	Next to Lowest (4)	Lowest (5)	Next to Highest (2)

scientific orientation, considers Freedom to be of more value than the other divisions. Main Office ranked Sense of Accomplishment and Mature Love the highest among the five components. The value Sense of Accomplishment might be considered to be similar to McClelland's Need for Achievement. It is not surprising then that the Main Office managers would possess this high sense of intrinsic motivation.

A Comparison Between the Eight Factor Groups and the Eight Significant Predictors

A comparison was made between the eight factor-groups described previously and the eight predictor subscales which, according to the multiple regression analysis discussed earlier, maximally predicted the effectiveness criterion. Four of these eight predictor subscales were found to be a part of three of the eight factor-groups. Inferentially, it appears that there are three distinct dimensions to the subjective elements of organizational effectiveness of the mini-conglomerate.[1]

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[1]The writer does not wish to convey the notion to the reader that there is a direct mathematical tie between the findings of the factor analysis and the multiple regression analysis methods. In other words, it is not intended to directly compare the factor loadings with the beta weights of the multiple-regression.

These three apparent dimensions of mini-conglomerate behavioral effectiveness might then be described as: (1) the character of the management style--the degree of participative management involving superior-subordinate relationships, (2) the power or authority in the hierarchy, and (3) the need for accomplishment or achievement possessed by the individual managers.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Chapter VI consists of five sections--the first is a general summary of the background and nature of the research. The second section of the chapter presents an evaluation of the research hypotheses based on the findings presented in Chapters IV and V. Section three contains the major conclusions of the study. Section four proposes some implications of the research. Section five identifies areas warranting further investigation suggested by the research.

General Summary of the Research

The investigation was prompted by an interest in the peculiar organizational and management problems associated with conglomerates. These problems tend to become acute as the organization expands beyond the early entrepreneurial phase. Top management is no longer able to make daily personal contact with the majority of the people in the organization as growth occurs. The key problem then becomes how can the organizational effectiveness (needs and goals of the mini-conglomerate) be maximized while at the same time the needs and personal goals of the members and of

each of the rather different organizational sub-components (here the "divisions") be satisfied?

The research focused upon an extremely successful Midwestern mini-conglomerate which recently expanded beyond its highly personal, entrepreneurial stage. One hundred thirteen members of management ranging from foremen to the president were the respondents to a detailed questionnaire. Five molar dimensions of organization were examined: (1) "membership," (2) "organizational" (structure), (3) "dynamic" (process), (4) external environment, and (5) organizational effectiveness. The basic objective was to make an intensive case study of the firm using all possible measures and instruments which the literature search revealed as holding promise.

Conclusions

The analysis presented in Chapters IV and V would seem to warrant these conclusions:

1. The results of the study appear to generally support the general hypothesis that organizational effectiveness is significantly related to three of the four other molar dimensions. The personal values of the "membership," Family Security, and Sense of Accomplishment were found to be significantly and positively related, and Obedience-Politeness to be significantly but negatively related to organizational effectiveness. The "dynamic" measures found to be significantly related were the Bowers-Likert-

"Dynamics" subscale, the amount of direction and demand received from the superior, and the amount of position power. The "organizational" measures, goals and time orientations, were found to be effective mediating variables in distinguishing between the management and leadership styles of the most effective divisions (see Table 5.6 on page 101).

2. This study appears to have presented an accurate description of how people differ within the corporate organization. This difference is evident but many of the variables do not appear to relate to organizational effectiveness. On the other hand, several dimensions and measures appear to be potentially effective for measuring organizational effectiveness, namely, the Bowers-Likert-"Dynamics" subscale, the amount of direction and demand received from the superior, Family Security, Sense of Accomplishment, Obedience-Politeness, and the amount of position power in the mini-conglomerate.

Since the results show that membership in Division B is positively related to perceived effectiveness, Division B appears to be an exemplary division with respect to organizational effectiveness. Division B would then appear to be a worthwhile norm or standard for the other divisions of Acme Industries, providing that their technologies are comparable.

The amount of direction and demand perceived as being received from the superior is positively related to the degree of perceived organizational effectiveness.

The amount of position power in the form of authority is positively related to the degree of perceived organizational effectiveness.

The comments of the respondents indicate that the questions were helpful and insightful to them in respect to the performance of their positions.

3. There appear to be seven behavioral dimensions which describe the conglomerate used as the case study. These seven dimensions are: (a) The character of the management styles prevailing within the organization. Those divisions with a short-term time orientation and a manufacturing goal tended to have less participative management style and their managers seemed to be more "task oriented." The division with a longer-term time orientation and a scientific goal orientation had a more participative management style and their managers tended to be "people oriented." This seems to confirm the findings of Lorsch, Lawrence, and Morse. (b) Position power and information about the external environment tend to be correlated, i.e., where the position power is less in the lower levels of the organization, the knowledge of their external environment tends to be less. (c) The need for achievement consisting of several personal values emerged as intrinsic motivators in the managers of the conglomerate. These values are Comfortable Life, Exciting Life-Imaginative, Sense of Accomplishment, Capable, and Intellectual. (d) The

rationalization of idealism. Two fundamentally idealistic values, World at Peace and Equality-Loving-Helpful-Forgiving, were universally ranked together at the lower end of the manager's scale. (e) An inverse hierarchy of Freedom seems to exist where the higher level managers consider Freedom to be a lower value than do those managers in the lower levels. (f) A rationalization of the status quo (managers with less education tended to rank Wisdom-Logical low). (g) A hierarchy of a perceived rate of change of technology (lower level managers tended to consider the technological conditions to be stable while the higher level of managers tended to consider the rate of change of technology to be less stable).

4. Pertaining to personal values:
    a. There is a strong communality of values among the managers of every division.
    b. There does not seem to be a stronger value consensus (communality) among the managers of the more effective divisions than among those managers in the less effective divisions.
    c. The value A Comfortable Life did not rank significantly higher in the value systems of the managers than the national sample but it did prove to be a discriminating value among the divisions.

d. The values A Sense of Accomplishment and Family Security appear to be positively and significantly related to organizational effectiveness. The value Obedience-Politeness seems to be negatively but significantly related to organizational effectiveness.

e. The results of the study provide to top management certain clues concerning company values[1] as manifest in their managers which should serve as a guide in expanding the management team.

5. Pertaining to the "dynamic" (process) variables:

a. The management leadership style exercised in Division A and B (manufacturing goal orientation and short-term time orientation) appear to be more task oriented and appear to be more authoritarian than the other divisions.

b. The management style exhibited in Division C and D (scientific goal orientation and longer-term time orientation) tends to be more "people oriented" and appears to be more participative. Since Division D has the least predictable type of situation of all the components in Acme, it would seem that all levels of Division D management

[1]See Table 5.5 for a ranking of the company and divisional values.

would need more influence to deal with this environmental uncertainty. The more participative structure for Division D as recommended by Likert would seem to be desirable. The results of this study confirm this.

c. The leadership style of the Main Office of the mini-conglomerate tends to be "task oriented" and yet, at the same time, the management style of the Main Office is more participative. This result might be an indicator of an innovative combination for top management of a conglomerate. While being "task oriented," they believe in participation of the managers in decision making at all levels.

d. The result that the Bowers-Likert-"Dynamics" measures collapsed into one subscale seems to substantiate the validity of their scales. It would appear that one underlying dimension exists common to these scales.

6. Although values are generally homogeneous in Acme, there is a striking polarization of four values between Division D and Main Office.

7. The findings in this study do not support Mahoney's findings of seven dimensions of subjective criteria for organizational effectiveness but instead, within the framework of the analysis used in the present study, all of the subjective criteria fell into one subscale.

Implications of the Research for Management

As noted in Chapter I, the identification of the personal values of the members of the organization provide to each division an awareness of the relative values their members possess.

The extent of the relationship between certain values and organizational effectiveness provides top management with profile of the firm's key values and a base from which to plan in the years ahead.

By taking steps to better understand their own and other group's values, management can gain an important advantage in developing workable, well-supported, and more rational policies.

Utilization of Human Resources

Management, as defined in Chapter I, is considered to be a process of planning, organizing, leading, and controlling a complex mix of resources to achieve the objectives of the mini-conglomerate. These resources include: human resources which consist of those members of the mini-conglomerate, and their values, skills and knowledge; financial resources; material resources consisting of the mini-conglomerate's buildings, equipment, and other property; and proprietary resources comprising trademarks, trademarks and the mini-conglomerate's name and reputation.

To determine more precisely the effectiveness of management's performance it is necessary to have

information about the status and utilization of all resources of the mini-conglomerate.

Without such information, it is difficult for the mini-conglomerate top management to know whether profit is being generated by converting a resource into cash or, conversely, whether sub-optimal performance actually has been generated by investments in developing human resources.

To generate this information it is suggested that Acme Industries and other conglomerates institute a practice of including the accounting of their human resources within the existing framework of their conventional accounting procedures.

Another course of action which should be helpful would be the establishment of a personnel assessment program. The purpose of this program would be to objectively and uniformly measure those special managerial qualities and to determine an individual's overall potential for a supervisory position.

Based upon the findings of this study it is recommended that the following programs be considered for implementation by Acme Industries:[1]

1. A well planned continuous program to improve the communication within and among the divisions should be instituted. Several suggested means to improve this

[1]See Appendix E, pages 175-186 for some of the basis for the suggestions in this section.

communication might include: (a) various written media such as periodical newsletters, bulletins, or a company paper designed to increase greater understanding of the other areas of operations and problems, (b) scheduled, periodic meetings, conferences, seminars, and workshops designed to increase the flow of accurate communication downward, upward, and laterally, and (c) the distribution to all managers from foremen to president of the summary extracts of the results of this study. These extracts might include such items as a comparison between the divisions and levels in the areas of communications, relationships between departments and divisions, personal values, management styles, and perceived effects of the external environment. If follow-on studies are conducted in the future, a comparison of the results of this study with the results of later studies could be distributed. This could provide management with a valuable divisional and mini-conglomerate profile over a period of years.

2. A sustained multi-stage development program designed for two main thrusts: (a) the development of individual management capability and potential at all levels in decision making and problem solving; and (b) the development of several key aspects of the divisions and the mini-conglomerate. These aspects could include objectives and goal setting, policy formulation, long-range and short-range strategies for their organization, and improved communications.

Implications of the Research for Organizational Theory

The present research has potentiality in the development of organizational theory primarily in its contribution to relevant descriptive content and methodology. Descriptive efficacy is a prerequisite to more analytical and predictive studies.

The general theory proposed by Likert, that in the long run those organizations whose overall management style is more participative will be more effective, does not seem to be fully supported. As indicated earlier, the most effective division which had a short-term time orientation and a manufacturing goal orientation appeared to be the least participative. The most effective division with the longer term time orientation and a scientific goal orientation appeared to be the most participative.

The contingency theory advanced by Lorsch and Lawrence seems to be generally confirmed in this research. Where differentiation in the aspects of time and goal orientations are considered within each of the two most effective divisions, significantly different management styles prevailed (using primarily the Bowers-Likert measures). Furthermore, significantly different leadership orientations of the managers (measured by Fiedler's scales) seemed to emerge.

Advantages and Disadvantages of This Type of Research

The advantages of the field study type of research of one organization might be summarized thus:

1. It provides an intensive in-depth look at one organization. By penetrating deeply below the surface, it avoids the superficiality of the survey type of research.
2. Face-to-face data collection obviates the "non-response" problem. Related to this, all members of management can be included.

The disadvantages of this type of study might be stated as:

1. Its scope is confined to one company. The findings may not be applicable on a general basis.
2. It demands more time, money, skill, and energy to conduct than the survey type of research. It requires a good deal of research knowledge and sophistication.[1]
3. It has the potential weakness of the respondent not responding truthfully or frankly. To limit this possibility in the present study, the respondent was assured complete anonymity.

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[1]Kerlinger, Foundations of Behavioral Research, pp. 387-391.

4. It may give answers that reveal methods the respondent would like to use rather than those he does use. To limit these effects in the present study, careful phrasing of the questions and handling of responses was exercised by the researcher.
5. Variables such as social class, prejudiced attitudes, conservatism, liberalism, economic frustration, and mass communication can have a contaminating effect on this type of study.
6. There is so much noise in the communication channel that even if the effects are strong and the variance great, it is not easy for the researcher to separate the variables.
7. It is a scientifically weak "cousin" to laboratory and field experiments. Its ex post facto character require weaker statements of possible causal relations.
8. There is, to a certain degree, a lack of precision in the measurement of the field variables.
9. It includes no means to specify the time sequence of the variables whose relationship is being tested.[1]

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[1]James L. Price, "Design of Proof in Organizational Research," Administrative Science Quarterly (June, 1968), 121-134.

Implications for Further Research

The conclusions in this research must be regarded as specific to the environment in which the study was conducted. A next step in this area would be to conduct a similar research analysis of other mini-conglomerates and to make a comparison with the findings of this study.

Another step would be replicate this same research with the same organization (Acme Industries) in another year or two and to compare the findings with those of this study.

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APPENDICES

APPENDIX A

COMPOSITE VALUE SYSTEMS BASED ON EMPIRICAL RESEARCH

TABLE A-1.--Composite terminal value system of scientists and business executives in Bengal.

Group	Rank	Scientists	Business Executives
Six most important values	1	Freedom	Freedom
	2	Wisdom	Family Security
	3	Social Recognition	Social Recognition
	4	A Sense of Accomplishment	Wisdom
	5	An Exciting Life	A Sense of Accomplishment
	6	Happiness	Happiness
Six middle values	7	Family Security	A World at Peace
	8	Self-Respect	*A Comfortable Life
	9	National Security	Self-Respect
	10	A World at Peace	National Security
	11	True Friendship	Equality
	12	Equality	True Friendship
Six least important values	13	Inner Harmony	An Exciting Life
	14	A World of Beauty	A World of Beauty
	15	Mature Love	Inner Harmony
	16	*A Comfortable Life	Mature Love
	17	Pleasure	Pleasure
	18	Salvation	Salvation

Source: Robert P. Beech, "Scientists and Business Executives in Bengal," Unpublished paper based on article in NORM: Calcutta University, 1968.

*Statistically significant beyond the .05 level of probability using a Kruskal-Wallis H statistic with a two tailed test.

N = 25 in each group.

Note: Beech's report is taken at its face value with respect to the differences he reports as significant. The writer recognizes that to get two significant differences out of about twenty differences at the 5 per cent level is what would be expected by chance.

TABLE A-2.--Terminal value composite rank orders for national samples of male whites.

Values	NORC Whites N=561 Md.	Rank
A Comfortable Life (a prosperous life)	8.1	(6)
An Exciting Life (a stimulating, active life)	14.5	(18)
A Sense of Accomplishment (lasting contribution)	8.1	(5)
A World at Peace (free of war and conflict)	3.6	(1)
A World of Beauty (beauty of nature and the arts)	13.4	(15)
Equality (brotherhood, equal opportunity for all)	10.1	(12)
Family Security (taking care of loved ones)	3.7	(2)
Freedom (independence, free choice)	5.0	(3)
Happiness (contentedness)	8.0	(4)
Inner Harmony (freedom from inner conflict)	11.1	(13)
Mature Love (sexual and spiritual intimacy)	12.3	(14)
National Security (protection from attack)	8.8	(9)
Pleasure (an enjoyable, leisurely life)	14.2	(17)
Salvation (saved, eternal life)	9.8	(11)
Self-Respect (self-esteem)	8.4	(7)
Social Recognition (respect, admiration)	13.9	(16)
True Friendship (close companionship)	9.5	(10)
Wisdom (a mature understanding of life)	8.4	(8)

Source: Milton Rokeach, "A Theory of Organization in Change within Value-Attitude Systems," Journal of Social Issues, XXIV (1968).

TABLE A-3.--Instrumental value composite rank orders for national samples of male whites.

Values	NORC Whites N=561 Md.	Rank
Ambitious (hard-working, aspiring)	5.5	(2)
Broadminded (open-minded)	7.0	(4)
Capable (competent, effective)	8.6	(8)
Cheerful (lighthearted, joyful)	10.3	(11)
Clean (neat, tidy)	9.9	(10)
Courageous (standing up for your beliefs)	7.6	(5)
Forgiving (willing to pardon others)	8.2	(6)
Helpful (working for the welfare of others)	8.4	(7)
Honest (sincere, truthful)	3.3	(1)
Imaginative (daring, creative)	14.3	(18)
Independent (self-reliant, self-sufficient)	10.4	(12)
Intellectual (intelligent, reflective)	12.9	(15)
Logical (consistent, rational)	13.3	(16)
Loving (affectionate, tender)	10.8	(13)
Obedient (dutiful, respectful)	13.7	(17)
Polite (courteous, well-mannered)	10.9	(14)
Responsible (dependable, reliable)	6.6	(3)
Self-controlled (restrained, self-disciplined)	9.7	(9)

Source: Milton Rokeach, "A Theory of Organization in Change within Value-Attitude Systems," Journal of Social Issues, XXIV (1968).

TABLE B-1.--A listing of independent and dependent variables.[a]

Recoded Variable	Variables	Basic Source	Number of Variables		Used in Subset Numbers
			Original	Recoded	
	1. Potential (possible) Tables of component effectiveness:				
	1.1 External (to each component) measures:				
1140-1191	1.11 Technology	L & L	6	12	2,13
1200-1251	1.12 Competition for final product	L & L	6	12	7,11
1260-1311	1.13 Suppliers	L & L	6	12	6,11
1320-1371	1.14 Rank and file attitude and morale		6	12	6,11,12
1380-1431	1.15 Public policy	L & L	6	12	10,11
1440-1491	1.16 Union-management situation	L & L	6	12	2,11
1500-1551	1.17 Availability of financial resources	RESPON	6	12	12,13
1560-1610	1.18 Marketing and sales	RESPON	6	6	11
1620-1670	1.19 U.S. economy	RESPON	6	6	12
1680-1730	1.110 Level of skill possessed by employees	RESPON	6	6	12
1740-1790	1.111 Training program	RESPON	6	6	12
	1.112 Acme Industries (overall)				
	1.1121 Conglomerate technology				
	1.1122 Competition for final product				
	1.1123 Suppliers				
	1.1124 Rank and file attitudes and morale				
	1.1125 Public policy				
	1.1126 Union-management situation				
	1.1127 Availability of financial resources				
	1.1128 Marketing and sales				
	1.1129 U.S. economy				
	1.11210 Level of skill possessed by employees				
	1.11211 Training program				
	TOTALS		66	108	

[a]See page 132 for explanation of abbreviations and footnotes used in this table.

TABLE B-1.--Continued.

Recoded Variable	Variables	Basic Source	Number of Variables		Used in Subset Numbers
			Original	Recoded	
	1.2 Internal component measures:				
	1.21 Member measures				
4060-4760	1.211 Personal values	ROK	36	36	1,2,3,6,7
1090-1130	1.212 Personal biographical	SELF	4	4	1,2,3,4,5,6,7,8,9
1061-1076	1.213 Position location	SELF	3	17	1,2,3,4,5,6,7,8,9
2251-2256	1.214 Leadership style				
	1.2141 LPC-Self	FIED	16	16	1,2
2220-2240	1.215 Local-cosmo evaluation	HOUSE	3	3	1,4,7
2560	1.216 Position power (Fiedler)	FIED	2	2	1,7
3410	1.217 Position structure				
2310	1.22153 Goal path multiplicity	FIED	1	1	1,3,4,13
2320	1.22154 Solution specificity		1	1	1,3,4
2530	1.2232 Direction and demand from superiors		1	1	1,3
2330	1.22155 Controllability and predictability	HARVEY	1	1	1,3,4,13
2270	1.2215 Certainty and clarity	L & L	1	1	1,3,4,13
2280	1.22152 Difficulty	L & L	1	1	1,3,4,13
	1.22 Organization measures:				
	1.221 Structural				
	1.2211 Component values	ROK	36	36	
5380-5420	1.2212 Component structure	HARVEY	4	4	3,4,12
2060-2210	1.2213 Interpersonal orientation	FIED	16	16	1,2

TABLE B-1.--Continued.

Recoded Variable	Variables		Basic Source	Number of Variables		Used in Subset Numbers
				Original	Recoded	
2250	1.2214	Function of Dept.		1	1	1,2,3,4,5,6,7,8,9
1060		Function of Div.		1	1	1,2,3,4,5,6,7,8,9
	1.2215	Goal Orientation				
2270		1.22151 Certainty and clarity	L & L	1	1	1,3,4,13
2280		1.22152 Difficulty	L & L	1	1	1,3,4,13
		1.22153 Multiplicity	FIED	1	1	1,3,4,13
2320		1.22154 Specificity		1	1	1,3,4,13
2330		1.22155 Control and Predictability	HARVEY	1	1	1,3,4,13
2300-2301	1.2216	Time orientation	L & L STIG	1	2	3,4,6
5350-5370 5331-	1.2217	Competition of Division	FERG THOM	3	3	3,4,6
5341-5342	1.2218	Technology	WOOD	2	3	3,4,5,8,11,13
2290 5380	1.2219	Rate of change of technology	BOW L & L	2	2	3,4,6,10
		TOTALS		141	155	
	1.222	Dynamic (climate or processes)				
2420	1.2221	Communication	1968	1	1	4,5,6,11
2430-2440	1.2222	Coordination and integration	1968	2	2	4,5,11
2450	1.2223	Motivation	1968	1	1	6,12
2470-2480	1.2224	Goal setting	1968	2	2	4,5
3370 3390	1.2225	Informal Organ.	LIK	(2)*	(2)*	5,6
2490-2520	1.2226	Control; influence	1968	4	4	5,6,8

TABLE B-1.--Continued.

Recoded Variables	Variables		Basic Source	Number of Variables		Used in Subset Numbers
				Original	Recoded	
2460	1.2227	Decision making	1968	1	1	5,6
3210-3220	1.2228	Conflict resolution, problem solving	1968	2	2	5,6,8
2570-2712	1.2229	Interdependent relations	L & L	15	43	4,5,9
	1.2230	Management styles				
2340-2370		1.22301 Superior	BOW	4	4	2,3,7
2380-2410		1.22302 Peer	BOW	4	4	2,3,7
3230-3400		1.22303 Likert	LIK	18	18	2,5,6
2540-2550	1.2231	Trust	1968	2	2	5,6
3060-3201	1.2234	Interdivisional relations	ORIG	15	36	8,9
		TOTALS		71	120	
	2. Component criterion variables (measures of component success or effectiveness):					
	2.1 Ratings of effectiveness by each individual of its component's effectiveness					
	2.11 Subjective					
3420	2.111	Meets objectives	MAH	1	1	3,5,7,8,9,10,11
3430	2.112	Development, level of competence	MAH	1	1	3,5,7,8,9,10,11,12
3470	2.113	Efficiency	MAH	1	1	3,5,7,8,9,10,11,12
3440	2.114	Flexibility and adaptability	MAH	1	1	3,5,7,8,9,10,11,12
3450	2.115	Planning	MAH	1	1	3,5,7,8,10,11,12
3460	2.116	Coordination, cooperation, integration	MAH	1	1	3,5,7,8,9,10,11,12
3480	2.117	---------- and innovation	MAH	1	1	3,5,7,8,9,10,11,12

TABLE B-1.--Continued.

Recoded Variables	Variables		Basic Source	Number of Variables		Used in Subset Numbers
				Original	Recoded	
3490	2.118	Public/social responsibility	DRVC	1	1	3,5,7,8,9,10,11,12
3500	2.119	Per cent rating of performance w/comp (DIV)	L & L	1	1	3,5,7
3530	2.1110	Per cent rating of performance w/comp (GI)	L & L	1	1	3,5,7
	2.12 Objective					
5230	2.121	Sales trend, long term growth	L & L	1	1	7,10
5260	2.122	Profitability	L & L	1	1	3,7,10
5300	2.123	Return on investment	L & L	1	1	3,10
	2.2 President and vice president at overall GI level ratings of each component					
	2.21 Subjective					
	2.211-2.2110	Same as above	L & L			
	2.22 Objective					
	2.221-2.223	Same as above	L & L			
	2.3 Rating of immediate subordinates					
5060-5120	2.31	Present contribution		7	7	7,10
5140-5200	2.32	Potential		7	7	7,10
5131-5132		Check - (extraneous)		1	2	

TABLE B-1.--Continued.

Recoded Variables	Variables	Basic Source	Number of Variables		Used in Subset Numbers
			Original	Recoded	
	3. Comments:	SELF			
5211-5213	3.1 Concerning company division, etc.	SELF	1	3	12
5221-5225	3.2 Concerning mechanics of study	SELF	1	5	12
	TOTAL		29	37	
	GRAND TOTAL		249	363	

Source Legend

LIK - Likert	THOMP - J. D. Thompson
STIG - Stigler	WOOD - Woodward
L & L - Lorsch and Lawrence	HARVEY - Harvey
RESPON - Respondent's Fill-in	HOUSE - House
ROK - Rokeach	ORIG - Original
FIED - Fiedler	BOW - Bowers and Seashore
FERG - Ferguson	

*Also included in Likert Scale.

Var. No. Recoded	Description of Variable	Var. Seq. No.	Mean	SD
1061	Div Location-A	1	1.34	.47
1062	Div Location-B	2	1.27	.44
1063	Div Location-D	3	1.09	.28
1064	Div Location-C	4	1.27	.44
1065	Div Location-Main Office	5	1.04	.21
1071	1st Level-Foremen	6	1.25	.43
1072	2d Level-Sec/Clerical/Other	7	1.27	.44
1073	3d Level-Dept Head (1-5)	8	1.14	.34
1074	4th Level-Dept Head (6 or More)/Engr/Professional	9	1.25	.43
1075	5th Level-VP/GM	10	1.07	.26
1076	6th Level-President	11	1.01	.09
1090	Length of Service 9 (1-1 Yr or Less) 4-10 Yrs or More)	12	2.26	1.03
1100	Education (1-8 Yrs or Less) 11-Ph.D.-11)	13	6.29	2.13
1120	Sex (1 Male) 2 Female)	14	1.24	.42
1130	Age (1-Less Than 25) 5-55 or Over)	15	2.49	.99
1140	Environ-Technology-AI (1-Unimportant) 5-Critically Affects the Opn)	16	3.88	.69
1141	Environ-Technology-(Blank or Did Not Have Enough Info)	17	1.26	.37
1150	Environ-Technology-A (1-Unimportant) 5-Critically Affects the Opn)	18	3.90	.71
1151	Environ-Technology-(Blank or Did Not Have Enough Info)	19	1.24	.36
1160	Environ-Technology-New Div (1-Unimportant) 5-Critically Affects the Opn)	20	3.93	.68
1161	Environ-Technology-(Blank or Did Not Have Enough Info)	21	1.42	.40
1170	Environ-Technology-D (1-Unimportant) 5-Critically Affects the Opn)	22	4.63	.43
1171	Environ-Technology-(Blank or Did Not Have Enough Info)	23	1.37	.39
1180	Environ-Technology-B (1-Unimportant) 5-Critically Affects the Opn)	24	4.16	.80
1181	Environ-Technology-(Blank or Did Not Have Enough Info)	25	1.24	.37
1190	Environ-Technology-C (1-Unimportant) 5-Critically Affects the Opn)	26	3.76	.86
1191	Environ-Technology-(Blank or Did Not Have Enough Info)	27	1.39	.41
1200	Environ-Competition-AI (1-Unimportant) 5-Critically Affects the Opn)	28	3.81	.84
1201	Environ-Competition-(Blank or Did Not Have Enough Info)	29	1.27	.37
1210	Environ-Competition-A (1-Unimportant) 5-Critically Affects the Opn)	30	3.98	.75
1211	Environ-Competition-(Blank or Did Not Have Enough Info)	31	1.24	.36
1220	Environ-Competition-New Div (1-Unimportant) 5-Critically Affects the Opn)	32	4.07	.59
1221	Environ-Competition-(Blank or Did Not Have Enough Info)	33	1.41	.39
1230	Environ-Competition-D (1-Unimportant) 5-Critically Affects the Opn)	34	3.83	.78
1231	Environ-Competition-(Blank or Did Not Have Enough Info)	35	1.34	.37
1240	Environ-Competition-B (1-Unimportant) 5-Critically Affects the Opn)	36	4.08	.86
1241	Environ-Competition-(Blank or Did Not Have Enough Info)	37	1.24	.36
1250	Environ-Competition-C (1-Unimportant) 5-Critically Affects the Opn)	38	2.72	.99
1251	Environ-Competition-(Blank or Did Not Have Enough Info)	39	1.40	.41
1260	Environ-Suppliers-AI (1-Unimportant) 5-Critically Affects the Opn)	40	3.44	.92

1261	Environ-Suppliers-(Blank or Did Not Have Enough Info)	41	1.22	.34
1270	Environ-Suppliers-A (1-Unimportant) 5-Critically Affects the Opn)	42	3.69	.79
1271	Environ-Suppliers-(Blank or Did Not Have Enough Info)	43	1.22	.34
1280	Environ-Suppliers-New Div (1-Unimportant) 5-Critically Affects the Opn)	44	3.74	.65
1281	Environ-Suppliers-(Blank or Did Not Have Enough Info)	45	1.46	.39
1290	Environ-Suppliers-D (1-Unimportant) 5-Critically Affects the Opn)	46	3.87	.74
1291	Environ-Suppliers-(Blank or Did Not Have Enough Info)	47	1.36	.38
1300	Environ-Suppliers-B (1-Unimportant) 5-Critically Affects the Opn)	48	3.76	.92
1301	Environ-Suppliers-(Blank or Did Not Have Enough Info)	49	1.27	.38
1310	Environ-Suppliers-C (1-Unimportant) 5-Critically Affects the Opn)	50	2.42	.85
1311	Environ-Suppliers-(Blank or Did Not Have Enough Info)	51	1.37	.40
1320	Environ-Rank & File Attitude-AI (1-Unimportant) 5-Critically Affects the Opn)	52	3.79	.82
1321	Environ-Rank & File Attitude-(Blank or Did Not Have Enough Info)	53	1.20	.34
1330	Environ-Rank & File Attitude-A (1-Unimportant) 5-Critically Affects the Opn)	54	3.81	.80
1331	Environ-Rank & File Attitude-(Blank or Did Not Have Enough Info)	55	1.21	.34
1340	Environ-Rank & File Attitude-New Div (1-Unimportant) 5-Critically Affects the Opn)	56	4.10	.64
1341	Environ-Rank & File Attitude-(Blank or Did Not Have Enough Info)	57	1.42	.39
1350	Environ-Rank & File Attitude-D (1-Unimportant) 5-Critically Affects the Opn)	58	3.91	.70
1351	Environ-Rank & File Attitude-(Blank or Did Not Have Enough Info)	59	1.36	.38
1360	Environ-Rank & File Attitude-B (1-Unimportant) 5-Critically Affects the Opn)	60	3.88	.93
1361	Environ-Rank & File Attitude-(Blank or Did Not Have Enough Info)	61	1.20	.34
1370	Environ-Rank & File Attitude-C (1-Unimportant) 5-Critically Affects the Opn)	62	3.56	.89
1371	Environ-Rank & File Attitude-(Blank or Did Not Have Enough Info)	63	1.29	.38
1380	Environ-Public Policy-AI (1-Unimportant) 5-Critically Affects the Opn)	64	3.33	.90
1381	Environ-Public Policy-(Blank or Did Not Have Enough Info)	65	1.23	.35
1390	Environ-Public Policy-A (1-Unimportant) 5-Critically Affects the Opn)	66	2.95	.80
1391	Environ-Public Policy-(Blank or Did Not Have Enough Info)	67	1.26	.36
1400	Environ-Public Policy-New Div (1-Unimportant) 5-Critically Affects the Opn)	68	3.02	.69
1401	Environ-Public Policy-(Blank or Did Not Have Enough Info)	69	1.43	.39
1410	Environ-Public Policy-D (1-Unimportant) 5-Critically Affects the Opn)	70	3.07	.78
1411	Environ-Public Policy-(Blank or Did Not Have Enough Info)	71	1.37	.38
1420	Environ-Public Policy-B (1-Unimportant) 5-Critically Affects the Opn)	72	3.27	1.02
1421	Environ-Public Policy-(Blank or Did Not Have Enough Info)	73	1.20	.34
1430	Environ-Public Policy-C (1-Unimportant) 5-Critically Affects the Opn)	74	2.61	.95
1431	Environ-Public Policy-(Blank or Did Not Have Enough Info)	75	1.36	.39
1440	Envir-Union-Mgt-AI (1-Unimportant) 5-Critically Affects the Opn)	76	3.42	.93
1441	Envir-Union-Mgt-(Blank or Did Not Have Enough Info)	77	1.27	.37
1450	Envir-Union-Mgt-A (1-Unimportant) 5-Critically Affects the Opn)	78	3,85	.84
1451	Envir-Union-Mgt-(Blank or Did Not Have Enough Info)	79	1.24	.36
1460	Envir-Union-Mgt-New Div (1-Unimportant) 5-Critically Affects the Opn)	80	3.85	.69
1461	Envir-Union-Mgt-(Blank or Did Not Have Enough Info)	81	1.52	.40
1470	Envir-Union-Mgt-D (1-Unimportant) 5-Critically Affects the Opn)	82	3.41	.89
1471	Envir-Union-Mgt-(Blank or Did Not Have Enough Info)	83	1.48	.40

Var. No. Recoded	Description of Variable	Var. Seq. No.	Mean	SD
1480	Envir-Union-Mgt-B (1-Unimportant) 5-Critically Affects the Opn)	84	2.65	1.14
1481	Envir-Union-Mgt-(Blank or Did Not Have Enough Info)	85	1.33	.40
1490	Envir-Union-Mgt-C (1-Unimportant) 5-Critically Affects the Opn)	86	1.91	.77
1491	Envir-Union-Mgt-(Blank or Did Not Have Enough Info)	87	1.44	.41
1500	Envir-Avail. of Fin. Resources-AI (1-Unimportant) 5-Critically Affects the Opn)	88	4.29	.57
1501	Envir-Avail. of Fin. Resources-(Blank or Did Not Have Enough Info)	89	1.25	.36
1510	Envir-Avail. of Fin. Resources-A (1-Unimportant) 5-Critically Affects the Opn)	90	4.09	.61
1511	Envir-Avail. of Fin. Resources-(Blank or Did Not Have Enough Info)	91	1.29	.37
1520	Envir-Avail. of Fin. Resources-New Div (1-Unimportant) 5-Critically Affects the Opn)	92	4.17	.58
1521	Envir-Avail. of Fin. Resources-(Blank or Did Not Have Enough Info)	93	1.43	.39
1530	Envir-Avail. of Fin. Resources-D (1-Unimportant) 5-Critically Affects the Opn)	94	4.62	.39
1531	Envir-Avail. of Fin. Resources-(Blank or Did Not Have Enough Info)	95	1.34	.38
1540	Envir-Avail. of Fin. Resources-B (1-Unimportant) 5-Critically Affects the Opn)	96	3.98	.79
1541	Envir-Avail. of Fin. Resources-(Blank or Did Not Have Enough Info)	97	1.29	.38
1550	Envir-Avail. of Fin. Resources-C (1-Unimportant) 5-Critically Affects the Opn)	98	4.06	.82
1551	Envir-Avail. of Fin. Resources-(Blank or Did Not Have Enough Info)	99	1.37	.40
1560	Envir-MKTG & Sales-AI (1-Unimportant) 5-Critically Affects the Opn)	100	5.00	.00
1570	Envir-MKTG & Sales A (1-Unimportant) 5-Critically Affects the Opn)	101	5.00	.00
1580	Envir-MKTG & Sales-New Div (1-Unimportant) 5-Critically Affects the Opn)	102	5.00	.00
1590	Envir-MKTG & Sales-D (1-Unimportant) 5-Critically Affects the Opn)	103	5.00	.00
1600	Envir-MKTG & Sales-B (1-Unimportant) 5-Critically Affects the Opn)	104	5.00	.00
1610	Envir-MKTG & Sales-C (1-Unimportant) 5-Critically Affects the Opn)	105	2.00	.00
1620	Envir-U.S. Economy-AI (1-Unimportant) 5-Critically Affects the Opn)	106	.00	.00
1630	Envir-U.S. Economy-A (1-Unimportant) 5-Critically Affects the Opn)	107	.00	.00
1640	Envir-U.S. Economy-New Div (1-Unimportant) 5-Critically Affects the Opn)	108	.00	.00
1650	Envir-U.S. Economy-D (1-Unimportant) 5-Critically Affects the Opn)	109	.00	.00
1660	Envir-U.S. Economy-B (1-Unimportant) 5-Critically Affects the Opn)	110	3.00	.00
1670	Envir-U.S. Economy-C (1-Unimportant) 5-Critically Affects the Opn)	111	.00	.00
1680	Envir-Level of Skills-AI (1-Unimportant) 5-Critically Affects the Opn)	112	.00	.00
1690	Envir-Level of Skills-A (1-Unimportant) 5-Critically Affects the Opn)	113	5.00	.00
1700	Envir-Level of Skills-New Div (1-Unimportant) 5-Critically Affects the Opn)	114	5.00	.00
1710	Envir-Level of Skills-D (1-Unimportant) 5-Critically Affects the Opn)	115	5.00	.00
1720	Envir-Level of Skills-B (1-Unimportant) 5-Critically Affects the Opn)	116	5.00	.00
1730	Envir-Level of Skills-C (1-Unimportant) 5-Critically Affects the Opn)	117	5.00	.00
1740	Envir-TRG Program-AI (1-Unimportant) 5-Critically Affects the Opn)	118	.00	.00
1750	Envir-TRG Program-A (1-Unimportant) 5-Critically Affects the Opn)	119	5.00	.00
1760	Envir-TRG Program-New Div (1-Unimportant) 5-Critically Affects the Opn)	120	5.00	.00
1770	Envir-TRG Program-D (1-Unimportant) 5-Critically Affects the Opn)	121	5.00	.00
1780	Envir-TRG Program-B (1-Unimportant) 5-Critically Affects the Opn)	122	5.00	.00
1790	Envir-TRG Program-C (1-Unimportant) 5-Critically Affects the Opn)	123	5.00	.00

2060	Leadership-LPC-Pleasant-Unpleasant-(1-8)	124	4.29	2.09
2070	Leadership-LPC-Friendly-Unfriendly	125	3.91	2.00
2080	Leadership-LPC-Rejecting-Accepting	126	3.74	1.84
2090	Leadership-LPC-Helpful-Frustrating	127	5.59	2.29
2100	Leadership-LPC-Unenthusiastic-Enthusiastic	128	5.02	2.04
2110	Leadership-LPC-Tense-Relaxed	129	3.37	1.91
2120	Leadership-LPC-Distant-Close	130	3.71	1.72
2130	Leadership-LPC-Cold-Warm	131	3.99	1.75
2140	Leadership-LPC-Coop-Uncoop	132	5.05	2.10
2150	Leadership-LPC-Support-Hostile	133	5.02	1.75
2160	Leadership-LPC-Boring-Interesting	134	4.40	2.01
2170	Leadership-LPC-Quarrelsome-Harmonious	135	3.53	1.82
2180	Leadership-LPC-Self-Assured-Hesitant-(1-8)	136	3.82	2.14
2190	Leadership-LPC-Efficient-Inefficient	137	4.51	2.14
2200	Leadership-LPC-Gloomy-Cheerful	138	4.57	1.62
2210	Leadership-LPC-Open-Guarded	139	5.41	1.94
2220	Cosmo-Local-Social Life (1-Very Large) 5 Not at All)	140	3.96	1.00
2230	Cosmo-Local-Ability to Leave Job (1-Not at All) 5 Very Likely)	141	4.22	1.07
2240	Cosmo-Local-Usefulness or Job Knowledge (1-Not at All) 5 Very Useful)	142	4.54	.78
2251	Dept-Controllers	143	1.29	.44
2252	Dept-Engr/Research	144	1.22	.32
2253	Dept-MFG/Prod/Prod Control	145	1.35	.46
2254	Dept-Sales-MKTG	146	1.10	.30
2255	Dept-Quality Control	147	1.04	.19
2256	Dept-Personnel/Maint/Guard/Services/Clerical/Other	148	1.09	.28
2270	Clarity of Jobs in Dept (1-Very Clear) 5 Not Clear)	149	1.96	1.23
2280	Difficulty of Jobs in Dept (1-Little Difficulty) 7 Extreme Difficulty)	150	2.82	1.59
2290	Rate of Change of Technol in Dept (1-Very Stable--5 Very Fast)	151	3.19	.96
2300	Length of Time Feedback on Success in Dept (1-One Day) 5 Over 3 Years)	152	1.86	.79
2301	Length of Time Feedback on Success in Dept Not Possible to Be Evaluated	153	1.09	.28
2310	Position Structure Multiplicity of Job (1-Almost Always Diff Ways) 5 Almost Never)	154	2.50	1.02
2320	Solution Specificity of Job (1-Almost Always Diff Solution) 5 Almost Never)	155	2.65	1.12
2330	Job Controllability & Results Predictability (1-Very Great) 6 None at All)	156	2.70	1.13
2340	Superior Leadership Style-(Bowers) Easy to Approach (1-Very Little) 5 Very Great)	157	4.06	1.07
2350	Superior Leadership Style-(Bowers) Give Encouragement (1-Very Little) 5 Very Great)	158	4.04	1.10
2360	Superior Leadership Style-(Bowers) Offer Assistance (1-Very Little) 5 Very Great)	159	3.64	1.10
2370	Superior Leadership Style-(Bowers) Encourage Teamwork (1-Very Little) 5 Very Great)	160	3.82	1.15
2380	Peers Leadership Style-(Bowers) Easy to Approach (1-Very Little) 5 Very Great)	161	3.82	.84
2390	Peers Leadership Style-(Bowers) Encourage Each Other (1-Very Little) 5 Very Great)	162	3.60	1.05
2400	Peers Leadership Style-(Bowers) Assist Each Other (1-Very Little) 5 Very Great)	163	3.62	.96
2410	Peers Leadership Style-(Bowers) Encourage Each Other (1-Very Little) 5 Very Great)	164	3.48	1.11
2420	Communication Within Division (1-Very Little) 5 Very Great)	165	3.07	1.14
2430	Communication Within Division & Coordination (1-Very Little) 5 Very Great)	166	3.17	1.09
2440	Planning Within Division & Coordination (1-Very Little) 5 Very Great)	167	2.97	.93

APPENDIX B

A LISTING OF INDEPENDENT AND DEPENDENT VARIABLES

Var. No. Recoded	Description of Variable	Var. Seq. No.	Mean	SD
2450	Motivational Working Conditions (1-Very Little) 5 Very Great)	168	3.81	.99
2460	Decision Making At Level Where the Most Adequate & Accurate Info Is (1-Very Little) 5 Very Great	169	3.67	.99
2470	Objectives/Goal Setting in Dept (1-Objectives Announced) 5 Full Partic by Subord)	170	3.07	1.28
2480	Objectives/Goal Setting in Division (1-Objectives Announced & 78 5 Full Partic by Subord	171	2.83	1.27
2490	Level of Influence in Division-Foreman (1-Very Little) 5 Very Great)	172	3.35	.98
2500	Level of Influence in Division-Top MGT (1-Very Little) 5 Very Great)	173	4.50	.69
2510	Level of Influence in Division-Rank & File (1-Very Little) 5 Very Great)	174	2.44	1.00
2520	Level of Influence in Division-Middle MGT (1-Very Little) 5 Very Great)	175	3.36	.79
2530	Amount of Direction & Demand by Superior Upon Respondent (1-Much Less Than Suffic) 5 More Than Suffic)	176	3.19	.74
2540	Extent of Trust-Superior Has In Respondent (1-Very Little) 5 Very Great)	177	4.01	.71
2550	Extent of Trust-Respondent Has in Superior (1-Very Little) 5 Very Great)	178	4.13	.87
2560	Position Power-(Amount of Authority) (1-Complete Auth) 5 No Auth)	179	2.67	1.08
2570	Dept Relationships Between MEG-Controllers (1-Sound) 7 Bad)	180	2.94	1.17
2571	Dept Relationships Between MFG-Controllers-Not Required	181	1.07	.24
2572	Dept Relationships Between MFG-Controllers-Not Enough Info	182	1.15	.35
2580	Dept Relationships Between Engr/Res-Controll. (1-Sound) 7 Bad)	183	3.00	.05
2581	Dept Relationships Between Engr/Res-Controll-Not Required	184	1.03	.16
2582	Dept Relationships Between Engr/Res-Controll-Not Enough Info	185	1.21	.39
2590	Dept Relationships Between Engr/Res-MFG (1-Sound) 7 Bad)	186	3.13	1.18
2591	Dept Relationships Between Engr/Res-MFG-Not Required	187	1.02	.13
2592	Dept Relationships Between Engr/Res-MFG-Not Enoung Info	188	1.20	.37
2600	Dept Relationships Between Sales/MTG-Controllers (1-Sound) 7 Bad)	189	2.65	.83
2601	Dept Relationships Between Sales/MTG-Controllers-Not Required	190	1.03	.16
2602	Dept Relationships Between Sales/MTG-Controllers-Not Enough Info	191	1.21	.39
2610	Dept Relationships Between Sales/MTG-MFG (1-Sound) 7 Bad)	192	3.10	.84
2611	Dept Relationships Between Sales/MTG-MFG-Not Required	193	1.07	.24
2612	Dept Relationships Between Sales/MTG-MFG-Not Enough Info	194	1.22	.38
2620	Dept Relationships Between Sales/MTG-Engr/Res (1-Sound) 7 Bad	195	3.17	1.00
2621	Dept Relationships Between Sales/MTG-Engr/Res-Not Required	196	1.01	.09
2622	Dept Relationships Between Sales/MTG-Engr/Res-Not Enough Info	197	1.30	.42
2630	Dept Relationships Between Distrib Centers-Controllers (1-Sound) 7 Bad)	198	2.92	1.05
2631	Dept Relationships Between Distrib Centers-Controllers-Not Required	199	1.22	.39
2640	Dept Relationships Between Distrib Centers-MFG (1-Sound) 7 Bad)	200	3.07	1.03
2641	Dept Relationships Between Distrib Centers-MFG-Not Required	201	1.01	.09
2642	Dept Relationships Between Distrib Centers-MFG-Not Enough Info	202	1.24	.39
2650	Dept Relationships Between Distrib Centers-Engr/Res (1-Sound) 7 Bad)	203	3.21	.95
2651	Dept Relationships Between Distrib Centers-Engr/Res-Not Required	204	1.12	.29
2652	Dept Relationships Between Distrib Centers-Engr/Res-Not Enough Info	205	1.30	.41
2660	Dept Relationships Between Distrib Centers-Sales/MTG (1-Sound) 7 Bad)	206	3.01	1.07

2661	Dept Relationships Between Distrib Centers-Sales/MTG-Not Required	207	1.27	.40
2670	Dept Relationships Between Presidents Office-Controller (1-Sound) 7 Bad)	208	2.21	1.14
2671	Dept Relationships Between Presidents Office-Controller-Not Required	209	1.01	.09
2672	Dept Relationships Between Presidents Office-Controller-Not Enough Info	210	1.23	.40
2680	Dept Relationships Between Presidents Office-MFG (1-Sound) 7 Bad)	211	2.33	1.07
2681	Dept Relationships Between Presidents Office-MFG-Not Required	212	1.02	.13
2682	Dept Relationships Between Presidents Office-MFG-Not Enough Info	213	1.24	.39
2690	Dept Relationships Between Presidents Office-Engr/Res (1-Sound) 7 Bad)	214	2.15	.95
2691	Dept Relationships Between Presidents Office-Engr/Res-Not Required	215	1.01	.09
2692	Dept Relationships Between Presidents Office-Engr/Res-Not Enough Info	216	1.29	.41
2700	Dept Relationships Between Presidents Office-Sales/MTG (1-Sound) 7 Bad)	217	2.34	1.02
2701	Dept Relationships Between Presidents Office-Sales/MTG-Not Required	218	1.02	.13
2702	Dept Relationships Between Presidents Office-Sales-MTG-Not Enough Info	219	1.29	.41
2710	Dept Relationships Between Presidents Office-Distr Centers (1-Sound) 7 Bad)	220	2.45	1.10
2711	Dept Relationships Between Presidents Office-Distr Centers-Not Required	221	1.05	.18
2712	Dept Relationships Between Presidents Office-Distr Centers-Not Enough Info	222	1.27	.39
3060	Divsional Relationships Between G.Glass-Float Glass (1-Sound) 7 Bad)	223	2.79	.96
3061	Divsional Relationships Between G.Glass-Float Glass-Not Required	224	1.46	.44
3070	Divsional Relationships Between Photo-Float Glass (1-Sound) 7 Bad)	225	3.19	.68
3071	Divsional Relationships Between Photo-Float Glass-Not Required	226	1.24	.38
3072	Divsional Relationships Between Photo-Float Glass-Not Enough Info	227	1.45	.44
3080	Divsional Relationships Between Photo-G.Glass (1-Sound) 7 Bad)	228	3.54	1.02
3081	Divsional Relationships Between Photo-G.Glass-Not Required	229	1.19	.35
3082	Divsional Relationships Between Photo-G.Glass-Not Enough Info	230	1.38	.43
3090	Divsional Relationships Between Permaglass-Float (1-Sound) 7 Bad)	231	3.22	.78
3091	Divsional Relationships Between Permaglass-Float-Not Required	232	1.05	.18
3092	Divsional Relationships Between Permaglass-Float-Not Enough Info	233	1.51	.43
3100	Divsional Relationships Between Permaglass-GGlass (1-Sound) 7 Bad)	234	3.09	.83
3101	Divsional Relationships Between Permaglass-GGlass-Not Required	235	1.45	.43
3110	Divsional Relationships Between Permaglass-Photo (1-Sound) 7 Bad)	236	3.91	.64
3111	Divsional Relationships Between Permaglass-Photo-Not Required	237	1.28	.39
3112	Divsional Relationships Between Permaglass-Photo-Not Enough Info	238	1.46	.44
3120	Divsional Relationships Between Main Office-Float (1-Sound) 7 Bad)	239	2.73	.98
3121	Divsional Relationships Between Main Office-Float-Not Required	240	1.44	.43
3130	Divsional Relationships Between Main Office-G.Glass (1-Sound) 7 Bad)	241	2.89	1.10
3131	Divsional Relationships Between Main Office-G.Glass-Not Required	242	1.33	.41
3140	Divsional Relationships Between Main Office-Photo (1-Sound) 7 Bad)	243	2.96	1.07
3141	Divsional Relationships Between Main Office-Photo-Not Required	244	1.01	.09
3142	Divsional Relationships Between Main Office-Photo-Not Enough Info	245	1.46	.43
3150	Divsional Relationships Between Main Office-Perma. (1-Sound) 7 Bad)	246	2.86	.93
3151	Divsional Relationships Between Main Office-Perma.-Not Required	247	1.50	.44
3160	Divsional Relationships Between Controllers-Float (1-Sound) 7 Bad)	248	2.78	1.04
3161	Divsional Relationships Between Controllers-Float-Not Required	249	1.01	.09

APPENDIX C

PRINTOUT OF THE 363 VARIABLES

(Conclusion of Stage Two)

Var. No. Recoded	Description of Variable	Var. Seq. No.	Mean	SD
3162	Divsional Relationships Between Controllers-Float-Not Enough Info	250	1.39	.44
3170	Divsional Relationships Between Controllers-G Glass (1-Sound) 7 Bad)	251	3.04	1.16
3171	Divsional Relationships Between Controllers-G Glass-Not Required	252	1.27	.40
3180	Divsional Relationships Between Controllers-Photo (1-Sound) 7 Bad)	253	3.07	1.12
3181	Divsional Relationships Between Controllers-Photo-Not Required	254	1.34	.43
3190	Divsional Relationships Between Controllers-Perma. (1-Sound) 7 Bad)	255	2.98	.96
3191	Divsional Relationships Between Controllers-Perma.-Not Required	256	1.46	.45
3200	Divsional Relationships Between Controllers-Main Office (1-Sound) 7 Bad)	257	2.63	1.11
3201	Divsional Relationships Between Controllers-Main Office-Not Required	258	1.37	.43
3210	Conflict Resolution in Division. (1-Disagreement Avoided) 6 Disagree Accepted)	259	4.10	.96
3220	Conflict Resolution in Dept (1-Disagreement Avoided) 6 Disagree Accepted)	260	3.80	1.16
3230	Confidence & Trust in Subordinates in Div (Likert) (1 None) 4 Great Val)	261	3.12	.77
3240	Freedom to Talk W/Superiors in Div (Likert) (1 Not Free) 4 Very Free)	262	3.03	.90
3250	Frequency Subordinates Ideas Sought in Div (Likert) (1 Seldom) 4 Very Freq)	263	2.70	.87
3260	Predominant Use of (1) Fear, (2) Punishment, (3) Rewards, (5) Involvement in Div (Likert) (1-1,2	264	3.07	.97
3270	Level Response is Felt in Div (1-At Top) 4 At All Levels)	265	2.86	1.03
3280	Amount or Coop Teamwork in Div (1 Very Little) 4 Great Deal)	266	3.25	.69
3290	Direction of Info Flow in Div (1 Downward) 4 Down Up & Sideway)	267	3.01	.88
3300	How Downward Comm. Accepted in Div (1 Suspicion) 4 Receptive)	268	3.38	.63
3310	How Accurate Upward Comm in Div (1 Inaccurate) 4 Accurate)	269	2.97	.60
3320	How Well Superiors Know Sub Problems in Div (1 Not Well) 4 Very Well)	270	2.62	.90
3330	Level Decisions are Made in Div (1 At Top) 4 Thouout)	271	2.27	1.03
3340	Contribution of Decision Making Process on Motivation Indiv (1 Not Much) 4 Substant)	273	3.20	.75
3360	How Orgn Goals Established (1 Orders Issue) 4 By Group)	274	2.79	1.00
3370	Amount of Covert Resistance (1 Strong Resist) 4 Little)	275	3.02	.74
3380	Concentration of Review & Control Ens (1-At Top) 4 Shared)	276	2.55	.82
3390	Informal Orgn Resistance (1 Yes) 4 No)	277	3.35	.75
3400	Use of Cost. Productivity, Other Control Data (1 Policing) 4 Self Guid)	278	3.19	.74
3410	How Well Respondent Knows His Subord's Work (1 Much Better) 4 Not as Well)	279	2.57	1.08
3420	Meets Objectives-Orgn Effectiveness of Division (1 Very Often) 5 Rarely)	280	2.46	1.15
3430	Trg & Dert-Orgn Effectiveness of Division (1 Very Often) 5 Rarely)	281	2.28	.83
3440	Flexibility Among Assignments-Orgn Effectiveness of Division (1 Very Often) 5 Rarely)	282	2.28	.87
3450	Opns Planned & Scheduled-Orgn Effectiveness of Division (1 Very Often) 5 Rarely)	283	2.38	.92
3460	Orns Coordinated W/Other Depts-Orgn Effectiveness of Division (1 Very Often)	284	2.06	.94
3470	Efficient Performance Mutual Support-Orgn Effectiveness of Division (1 Very Often)	285	2.13	.88
3480	Initiates Improvements-Orgn Effectiveness of Division (1 Very Often) 5 Rarely)	286	2.19	.75
3490	Performs Share of Public Respon-Orgn Effectiveness.of Division (1 Very Often) 5 Rarely)	287	2.71	1.01
3500	% of Ideal Performance of Div	288	86.48	11.70

3530	% of Ideal Performance of GI	289	86.49	10.37
4060	Comfortable Life (Ranking 1-18)	290	8.96	4.81
4080	Exciting Life	291	11.55	4.71
4100	Sense of Accomplishment	292	6.21	4.35
4120	World of Peace	293	8.23	5.07
4140	World of Beauty	294	13.74	3.67
4160	Equality	295	10.32	4.97
4180	Family Security	296	3.53	3.23
4200	Freedom	297	7.12	3.95
4220	Happiness	298	7.85	4.09
4240	Inner Harmony	299	9.91	3.88
4260	Mature Love	300	9.95	3.99
4280	National Security	301	12.69	4.60
4300	Pleasure	302	13.43	3.62
4320	Salvation	303	11.53	6.00
4340	Self Respect	304	5.69	3.86
4360	Social Recognition	305	13.04	4.19
4380	True Friendship	306	10.04	3.70
4400	Wisdom	307	7.67	4.49
4420	Ambitious (Ranking 1-18)	308	5.14	4.01
4440	Broadminded	309	8.65	4.83
4460	Capable	310	6.35	3.59
4480	Cheerful	311	11.01	4.64
4500	Clean	312	10.29	5.27
4520	Courageous	313	9.55	4.82
4540	Forgiving	314	10.35	4.91
4560	Helpful	315	9.97	4.08
4580	Honest	316	5.12	4.00
4600	Imaginative	317	11.21	5.16
4620	Independent	318	10.17	5.07
4640	Intellectual	319	10.47	5.05
4660	Logical	320	10.40	4.83
4680	Loving	321	11.54	5.20
4700	Obedient	322	13.41	3.99
4720	Polite	323	11.26	4.09
4740	Responsible	324	5.96	3.96
4760	Self-Controlled	325	10.15	4.78
5060	Rating of Imm Subord 1 (1 Extremely Val) 5 Not Outstanding Asset)	326	1.90	.55
5070	Rating of Imm Subord 2 (1 Extremely Val) 5 Not Outstanding Asset)	327	2.50	.56
5080	Rating of Imm Subord 3 (1 Extremely Val) 5 Not Outstanding Asset)	328	2.38	.42
5090	Rating of Imm Subord 4 (1 Extremely Val) 5 Not Outstanding Asset)	329	2.29	.36
5100	Rating of Imm Subord 5 (1 Extremely Val) 5 Not Outstanding Asset)	330	2.59	.42
5110	Rating of Imm Subord 6 (1 Extremely Val) 5 Not Outstanding Asset)	331	2.92	.28

Var. No. Recoded	Description of Variable	Var. Seq. No.	Mean	SD
5120	Rating of Imm Subord 7 (1 Extremely Val) 5 Not Outstanding Asset)	332	2.70	.33
5131	Do Not Have Subord or Am Not a Foreman	333	. .	. .
5132		334	. .	. .
5140	Potential of Imm Subord 1 (1 Real Promise) 5 Gone For Enuf)	335	2.28	.79
5150	Potential of Imm Subord 2 (1 Real Promise) 5 Gone For Enuf)	336	2.70	.57
5160	Potential of Imm Subord 3 (1 Real Promise) 5 Gone For Enuf)	337	3.08	.46
5170	Potential of Imm Subord 4 (1 Real Promise) 5 Gone For Enuf)	338	3.14	.41
5180	Potential of Imm Subord 5 (1 Real Promise) 5 Gone For Enuf)	339	3.13	.44
5190	Potential of Imm Subord 6 (1 Real Promise) 5 Gone For Enuf)	340	3.67	.24
5200	Potential of Imm Subord 7 (1 Real Promise) 5 Gone For Enuf)	341	3.50	.24
5211	General Comment, Criticisms and/or Recommendations Concerning Company	342	1.15	.17
5212	Specific Comment, Criticisms and/or Recommendations Concerning Company	343	1.37	.24
5213	General & Specific Comment Criticisms and/or Recommendations Concerning Company	344	1.48	.24
5221	Comment Concerning This Study 9 Additional Areas (No-Yes)	345	1.22	.19
5222	Comment Concerning This Study 9 Negative (No-Yes)	346	1.09	.13
5223	Comment Concerning This Study 9 Positive	347	1.43	.22
5224	Comment Concerning This Study 9 Both Additional & Positive	348	1.17	.17
5225	Comment Concerning This Study 9 Difficulty in Understanding Questions	349	1.09	.13
5230	% Sales Growth (5 Yr)	350	187.50	2.06
5260	% Increase in Return on Investment Before Tax (5 Yr)	351	965.50	88.14
5300	% Increase in Return on Investment Before Tax (5 Yr)	352	310.00	1.33
5331	Type of Technology (J.D. Thompson) 9 Long Linked	353	2.00	.00
5341	Technique of Production (Woodward) Small Batch & Unit Production	354	1.60	.10
5342	Technique of Production (Woodward) Large Batch & Mass Production	355	1.40	.10
5350	No. of Competitors (1-None) 4 Over Eighty)	356	2.25	.08
5360	Ease of Entry (1 Perfect Ease) 4 Very High Barriers)	357	3.00	.19
5370	Product Characteristics (1-Homog) 4 No Substitutes)	358	1.20	.08
5380	No. of Product Changes in Last 10 Yrs. (Harvey) (1-1-8) 5) 72 & Up)	359	1.50	.09
5390	Size of Division (Harvey) (1) Under 50 4) Over 300)	360	3.00	.23
5400	No. of Levels of Authority in Division (Harvey) (1-1) 8) More Than 7)	361	4.40	.22
5410	Ratio of Mgrs to Total Personnel (Harvey) (1-2 or Fewer) 3) 5 or More Per 45)	362	2.40	.17
5420	No. of Sub Units in Division (Harvey) (1-4 or Fewer) 3) 8 or More)	363	1.40	.10

APPENDIX D

A COPY OF THE QUESTIONNAIRE WITH CODE BOOK NOTATIONS

A STUDY OF ACME INDUSTRIES, INC.

MICHIGAN STATE UNIVERSITY

239 Eppley Center

EAST LANSING, MICHIGAN

HOW MANAGERS IN ACME INDUSTRIES SEE THEIR COMPANY

Often in the life of a company, it becomes worthwhile to take a special, intensive look at the company, to do an out-of-the-ordinary analysis of what the company is like and where it's going.

Such an analysis was proposed by Richard Brunson to meet his doctoral thesis requirements at Michigan State University Graduate School of Business under the guidance of three experienced management professors: Frederic Wickert, William Crissy, and Dalton McFarland. Acme Industries, Inc., was chosen for this study because of its diversity and growth rate. The management of Acme Industries agreed to cooperate with Mr. Brunson in this study.

As a result, the MSU group has put together a set of questions which each manager, from foreman to President, as well as many staff employees, is asked to answer.

You are <u>not</u> asked to identify yourself nor anyone else in completing this questionnaire. However, we do need to know the general location (what department and what level) of each respondent in order to make the analysis useful. This questionnaire has been read by the top managers of Acme and it is with their full consent and agreement that this study is being made. They encourage you to be honest and open in your answers.

THE QUESTIONS

Instructions: Please go ahead now and answer all of the questions. DO NOT PLACE YOUR NAME ON THE QUESTIONNAIRE.

Strictly Confidential

BACKGROUND AND EXPERIENCE

6 1. Division (or subsidiary) of Acme Industries (check one) in which I am employed: 1.2121

Division A ___1___ Division B ___2___ Division E ___3___
Division C ___4___ Division D (includes Consulting Services and Controller's Staff) ___5___
Other(Fill in): *Main Office* 6

Note: Several questions throughout the questionnaire will refer to your division/subsidiary. Please keep this same division/subsidiary you have checked above in mind when answering them.

7,8 2. Present position level (check one): 1.2122

If you are in Division A, C, or D

01 _____ Foreman
02 _____ Superintendent
03 _____ Department Manager (responsibility for 1-5 employees)
04 _____ Department Manager (responsibility for 6 or more employees)
05 _____ Engineer/Designer
06 _____ Professional or administrator (no subordinates except clerical help)
07 _____ Secretary/Clerical/Key Punch Operator
08 _____ Sales Representative
09 _____ Other

If you are in Division B:

10 _____ Supervisor
11 _____ Assistant Supervisor
12 _____ Sales Representative
13 _____ Department Manager (1-5 employees)
14 _____ Department or Plant Manager (6 or more)
15 _____ Professional or administrator (no one reporting to you except clerical help)
16 _____ Secretarial/clerical
17 _____ Other

18 _____ Reporting directly to the President
19 _____ *President*

No response code 0 or 00.
NOTE: those items in Italics are Code Book Notations only.

9 3. How long have you been employed with your present division/subsidiary? (Circle one) 1.2123

1	2	3	4
less than 1 year	1-3 years	4-9 years	10 years or more

10,11 4. Highest grade or year completed in school: (Circle the highest grade completed) 1.2124

01	02	03	04	05	06	07	08	09	10	11
8 or less	9	10	11	12	13	14	15	16 (BA, BS, or equiv.)	Masters degree or equiv.	PhD or equiv.

12 5. Sex (check one): Male____1____ Female____2____ 1.2125

13 6. Age (Circle appropriate group): 1.2126

1	2	3	4	5
Less than 25	25-34	35-44	45-54	55 and over

7. Factors which are outside of the company are often significant in their effect upon the operation and the effectiveness of the company. Please indicate in the appropriate box below the effect which you feel each factor has had upon each division (using the code below): 1.1

FACTORS

Fill in other factors that you feel are significant:

Division/Subsidiary	Technology used by Division/Subsidiary	Competition for Final Product(s) of Division/Subsidiary	Suppliers	Rank & File Attitude & Morale	Public Policy	Union-Management Situation	Availability of financial resources to Division/Subsidiary	Marketing & Sales 150	U.S. Economy 001	Level of Skill Possessed by employee 007	Training Program 007
Acme Industries, Inc.	14	20	26	32	38	44	50	56	62	68	74
Division A	15	21	27	33	39	45	51	57	63	69	75
Division E	16	22	28	34	40	46	52	58	64	70	76
Division C	17	23	29	35	41	47	53	59	65	71	77
Division B	18	24	30	36	42	48	54	60	66	72	78
Division D	19	25	31	37	43	49	55	61	67	73	79

Effect which factor has on the operation and effectiveness of the division/subsidiary:

1 - Unimportant or unrelated

2 - Affects operation somewhat

3 - Significantly influences operation

4 - Very significant effect upon operation

5 - Critically affects the operation

6 - I don't really have enough information to make even an estimate

0 - Left blank

Col No

1,2,3 *Respondent Identification:* 147

4,5 *Card Number: 02*

People differ in the ways they think about those with whom they work. This may be important in working with others. 1.2141

Below are pairs of words which are opposite in meaning, such as "Very neat" and "Not neat." Each space represents how well the adjective fits the person you are describing, as if it were written as shown in the following example:

FOR EXAMPLE: If you were to describe the person with whom you are able to work *least well*, and you ordinarily think of him as being *quite neat*, you would put an "X" in the second space:

Very Neat:		X						Not Neat
8 very neat	7 quite neat	6 some-what neat	5 slight-ly neat	4 slight-ly un-tidy	3 some-what un-tidy	2 quite un-tidy	1 very untidy	

8. Think of the person *with whom you can work least well.* He may be someone you work with now, or he may be someone you knew in the past. He does not have to be the person you like least well, but should be the person with whom you had the most difficulty in getting a job done.

   Describe this person as he appears to you by placing an X in one of the eight spaces on the line between the two words.

6	Pleasant	: 8	7	6	5	4	3	2	1 :	Unpleasant 1.21411
7	Friendly	: 8							1 :	Unfriendly 1.21412
8	Rejecting	: 1							8 :	Accepting 1.21413
9	Helpful	: 8							1 :	Frustrating 1.21414
10	Unenthusiastic	: 1							8 :	Enthusiastic 1.21415
11	Tense	: 1							8 :	Relaxed 1.21416

		1	2	3	4	5	6	7	8		
12	Distant	1							8	Close	1.21417
13	Cold	1							8	Warm	1.21418
14	Cooperative	8							1	Uncooperative	1.21419
15	Supportive	8							1	Hostile	1.214110
16	Boring	1							8	Interesting	1.214111
17	Quarrelsome	1							8	Harmonious	1.214112
18	Self-assured	8							1	Hesitant	1.214113
19	Efficient	8							1	Inefficient	1.214114
20	Gloomy	1							8	Cheerful	1.214115
21	Open	8							1	Guarded	1.214116

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22 9. To what extent is your social life connected with your job? *(Cosmos-Local)*

1 Very large_____
2 Large_____
3 Somewhat_____
4 Slightly_____
5 Not at all_____

1.2171

23 10. To what extent is it likely that you can leave your present job and obtain an equivalent one elsewhere? *(Cosmos-Local)*

1 Not at all_____
2 Slight_____
3 Some_____
4 Likely_____
5 Very likely_____

1.2172

24 11. How useful to you is the knowledge you obtain on this job if you were to seek employment elsewhere? *(Cosmos-Local)*

Not at all	1
Little	2
Somewhat	3
Quite a bit	4
Very useful	5

1.2173

Because of rapid change in an industry, or the state of development in the technology used by the industry, or vast differences in customer requirements, etc., company executives often have varying degrees of certainty concerning what their departmental job requirements are and the kind of activities their department *must* engage in to achieve these requirements. The following series of questions is an effort to obtain data concerning this aspect of your business:

25,26 12. The department in which I work is (check one):
Guard 07 *Maint 08*
Quality Control 09
Personnel 10 *Other 11*
Services (Building & Transportation) 12

Controller's Operations (Accounting)	01 01
Engineering-Research	02
Manufacturing or Production	03
Sales-Marketing	04
Other (Please state)	
Production Control	05
Consulting Services(IBM)	06

1.2214

NOTE: Please keep this same department you have checked above in mind when answering the next four questions.

27 13. Please circle the point on the scale provided which most nearly describes the degree to which present job responsibilities in your department are clearly stated or known in your company: **(L & L, Fiedler)** 1.22151

Job responsibilities are very clear in most instances — 1 2 3 4 5 — Job responsibilities are not at all clear in most instances

28 14. Please circle the point on the scale provided which most nearly describes the degree of difficulty that your department has in accomplishing its assigned job, given the limitation of the technical and economic resources which are available to it. **(L & L, Fiedler)** 1.22152

Degree of difficulty: 1 2 3 4 5 6 7

Little difficulty — Extremely difficult

29 15. The rate of change of the technology of the industry (auto or architectural glass, photo processing, or computer) in which my department operates is (circle one): *(J. D. Thompson, Burns & Stalker, L & L)* *1.2219*

1	2	3	4	5
very stable technology	slow changing technology	moderate changing technology	fast changing technology	very fast changing technology

30 16. Please circle the item below which most nearly describes the typical length of time involved before feedback is available to your department concerning the success of its job performance. (For example: The sales manager may be able to determine at the end of the week how successful the selling effort was by examining the total sales reported by his salesmen for that week. In contrast, the production manager may know the results of production within the same day.) *(L & L)* *1.2216*

1	2	3	4	5	6
one day	one week-one month	between 2-11 months	between 1-3 years	over 3 years	not possible to be evaluated

---

In the following questions, circle the answer which is most appropriate:

31 17. To what extent are there different ways to accomplish your job responsibilities? *(Fiedler) Position Structure Goal Path Multiplicity* *1.22153*

1	2	3	4	5
Almost always	Great deal	Somewhat	Slightly	Almost never

32 18. What is the degree to which there is more than one correct solution to your problems? *(Fiedler) Solution Specificity* *1.22154*

1	2	3	4	5
Almost always	Great deal	Somewhat	Slightly	Almost never

33 19. To what extent would you say that your job responsibilities are controllable and their results predictable? *(Harvey)* *1.22155*

1	2	3	4	5	6
To a very great extent	To a great extent	To a large extent	To a moderate extent	To a small extent	None at all

---

(Bowers--Leadership--Superior & Peers)

34 20. To what extent is your superior easy to approach and willing to listen to your problems? *1.223011*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

35 21. How much does your superior encourage people to give their best effort? *1.223012*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

36 22. To what extent does your superior offer you assistance and new ideas for solving job related problems? *1.223013*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

37 23. To what extent does your superior encourage the persons who work for him to work as a team? *1.223014*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

Peers are those who report to the same immediate superior that you do, and those who do not report to the same superior but who hold positions at about the same level in the organization and with whom the nature of your job makes it necessary for you to coordinate. *(Bowers)*

38 24. To what extent are your peers easy to approach and willing to listen to your job related problems? *1.223021*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

39 25. How much do your peers encourage each other to give their best effort? *1.223022*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

40 26. To what extent do your peers offer each other assistance and new ideas for solving job-related problems? *1.223023*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

41 27. How much do your peers encourage each other to work as a team? *1.223024*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

42 28. To what extent do persons in your division/subsidiary keep each other informed about important events and situations? *(Blue 1968)* *1.2221*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

43 29. How adequate for your needs is the amount of information you get about what is going on in other departments? *1.22221*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

44 30. To what extent do persons in different departments plan together and coordinate their efforts? *1.22222*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

45 31. To what extent are there things about working here (people, policies, or conditions) that encourage you to work hard? *1.2223*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

46 32. In your division, to what extent are decisions made at those levels where the most adequate and accurate information is available? *1.22261*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

1.22241

47 33 How are objectives set in your department? (Circle one)
(Influence-Control--1968 Blue)

1. Objectives are announced with no opportunity to raise questions or give comments.
2. Objectives are announced and explained and an opportunity is then given to ask questions.
3. Objectives are drawn up, but are discussed with subordinates and sometimes modified before being issued.
4. Specific alternative objectives are drawn up by superiors and subordinates are asked to discuss them and indicate the one they think is best.
5. Problems are presented to the persons who are involved, and the objectives felt to be the best are then set by the subordinates and superior jointly, by group participation and discussion.

48 34. How are objectives set in your division/subsidiary? (circle one) *I.22242*

1. Objectives are announced with no opportunity to raise questions or give comments.
2. Objectives are announced and explained and an opportunity is then given to ask questions.
3. Objectives are drawn up, but are discussed with subordinates and sometimes modified before being issued.
4. Specific alternative objectives are drawn up by superiors and subordinates are asked to discuss them and indicate the one they think is best.
5. Problems are presented to the persons who are involved, and the objectives felt to be the best are then set by the subordinates and superior jointly, by group participation and discussion.

In general, how much say or influence does each of the following groups of people have on what goes on in your division/ subsidiary? *I.22263 (1968 Blue--Influence)*

49 35. First line supervisors (foremen, office supervisors, etc.) *1.222631*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

50 36. Top managers (president, vice-presidents, general manager, etc.) *(1.222632)*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

51 37. Employees (people who have no subordinates) *(1.222633)*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

52 38. Middle Managers (department heads, area managers, superintendents, etc.) *(1.222634)*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

53 39. In working on new or continuing projects: How much direction and demand do you receive from your superiors? *(1.2232)*

1	2	3	4	5
Much less than sufficient	Somewhat less than sufficient	About sufficient	More than sufficient	Much more than sufficient

54 40. To what extent do you feel that your superior has confidence and trust in you? *1.22311*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

55 41. To what extent do you have confidence in your superior? *1.22312*

1	2	3	4	5
To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

56 42. In setting performance objectives for your subordinates, you: *1.2161*

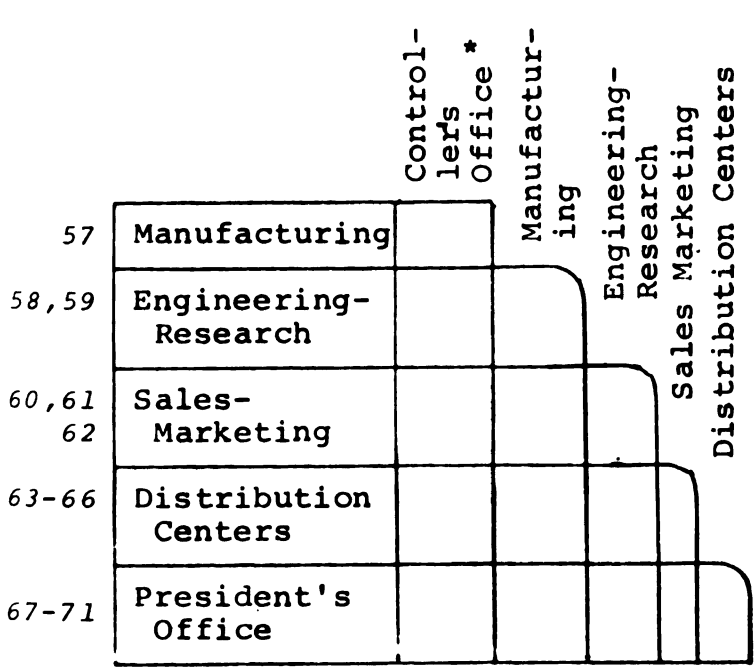
1	2	3	4	5
have complete authority	have much authority	have some authority	have little authority	have no authority

We would like to know about relationships between different parts of the division/subsidiary in which you are employed. This question is aimed at obtaining your evaluation of the relations between various departments.

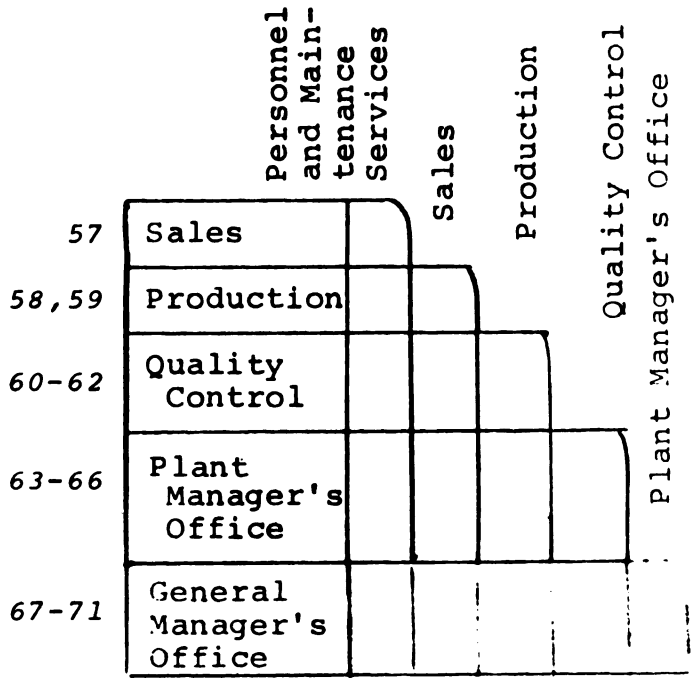
Listed below are eight descriptive statements. Each of these might be thought of as describing the general state of the relationship between various units. We would like you to select that statement which *you feel* is most descriptive of *each* of the departmental relationships shown on the grid and to enter the corresponding number in the appropriate square.

43. We realize you may not be directly involved in *all* of the departmental relationships between the various departments listed. However, you probably have impressions about the state of the relationships. We therefore would like you to fill out the complete grid by using the code below it. *(L & L)* *1.2229*

a) If you are in Division A, Division C or D, fill out this grid:



b) If you are in Division B, fill out this grid:



Relations between these two Departments are:

1. Sound--full unity of effort is achieved
2. Almost full unity of effort.
3. Somewhat better than average relations
4. Average--sound enough to get by even though there are many problems of achieving joint effort
5. Somewhat of a breakdown in relations
6. Almost complete breakdown in relations
7. Couldn't be worse--bad relations--serious problems exist which are not being solved
8. Relations are not required
9. I don't really have enough information to make even an estimate.

0. Left blank

44. We would like for your evaluation of the relationship between the various divisions/subsidiaries of Guardian Industries, using the same code as before: *1.175*

Col No		Division C Plant	Division A	Division B	Division E	Main Office-- Acme Industries
1,2,3	*Respondent's Identification*					
4,5	*Card Number: 03*					
6	Division A					
7,8	Division B					
9-11	Division E					
12-15	Main Office, Acme Industries					
16-20	Division D Controller's Office*					

*Includes Consulting Services and Controller's Staff.

---

21 45. How are differences and disagreements between persons or units handled in your division/subsidiary? (circle one) *(Bowers)* *1.22281*

1. Disagreements are almost always avoided, denied, or suppressed.
2. Disagreements are often avoided, denied or suppressed.
3. Disagreements are resolved in accordance with the direction of the superior.
4. Sometimes disagreements are accepted and worked through; sometimes they are avoided or suppressed.
5. Disagreements are usually accepted as necessary and desirable and are worked through.
6. Disagreements are almost always accepted as necessary and desirable and are worked through.

22 46. Which of the following best describes the manner in which problems between "Departments" are generally resolved? (circle one) *(Bowers)* *1.22282*

1. Little is done about these problems...they continue to exist.

2. Little is done about these problems...they work themselves out with time.

3. The problems are appealed to a high level in the organization...but often are still not resolved.

4. The problems are appealed to a higher level in the organization...and are usually resolved there.

5. The problems are worked out at the level where they appear through mutual effort and understanding.

Please circle the item which, in your experience, describes your division/subsidiary at the present time. *(Likert)*

23 47. How much confidence and trust is shown in subordinates? *1.223031*

1	2	3	4
Virtually none	Some	Substantial amount	A great deal

24 48. How free do they feel to talk to superiors about job? *1.223032*

1	2	3	4
Not very free	Somewhat free	Quite free	Very free

25 49. How often are subordinate's ideas sought and used constructively? *1.223033*

1	2	3	4
Seldom	Sometimes	Often	Very frequently

26 50. Is predominant use made of 1) fear, 2) threats, 3) punishment, 4) rewards, 5) involvement? *1.223034*

1	2	3	4
1), 2), 3), & occasionally 4)	4), & some 3)	4), & some 3) & 5)	5), 4) based on group

27 51. Where is responsibility felt for achieving organization's goals? *1.223035*

1	2	3	4
Mostly at top	Top and middle	Fairly general	At all levels

28 52. How much cooperative teamwork exists? *1.223036*

1	2	3	4
Very little	Relatively little	Moderate amount	Great deal

29 53. What is the usual direction of information flow? *1.223037*

1	2	3	4
Downward	Mostly downward	Down and up	Down, up and sideways

30 54. How is downward communication accepted? *1.223038*

1	2	3	4
With suspicion	Possibly with suspicion	With caution	With a receptive mind

31 55. How accurate is upward communication? *1.223039*

1	2	3	4
Usually inaccurate	Often inaccurate	Often Accurate	Almost Always Accurate

32 56. How well do superiors know problems faced by subordinates? *1.2230310*

1	2	3	4
Not very well	Rather well	Quite well	Very well

33 57. At what level are decisions made? *1.2230311*

1	2	3	4
Mostly at top	Policy at top, some delegation	Broad policy at top, more delegation	Throughout but well integrated

34 58. Are subordinates involved in decisions related to their work? *1.2230312*

1	2	3	4
Almost never	Occasionally consulted	Generally consulted	Fully involved

35 59. What does decision-making process contribute to motivation? *1.2230313*

1	2	3	4
Not very much	Relatively little	Some contribution	Substantial contribution

36 60. How are organizational goals established? *1.2230314*

1	2	3	4
Orders issued	Orders, some comments invited	After discussion, by orders	By group action (except in crisis)

37 61. How much covered resistance to goals is present? *1.2230315*

1	2	3	4
Strong resistance	Moderate resistance	Some resistance at times	Little or none

38 62. How concentrated are review and control functions? *1.2230316*

1	2	3	4
Very highly at top	Quite highly at top	Moderate delegation to lower levels	Widely shared

39 63. Is there an informal organization resisting the formal one? *1.2230317*

1	2	3	4
Yes	Usually	Sometimes	No--same goals as formal

40 64. What are cost, productivity, and other control data used for? *1.2230318*

1	2	3	4
Policing, punishment	Reward and punishment	Reward, some self-guidance	Self-guidance, problem-solving

---

41 65. You know the work of your subordinates (on the whole): *(Position Power)* *1.2162*

1	2	3	4	5
much better than subordinates do	better than subordinates do	about as well as subordinates do	not as well as subordinates do	not nearly as well as subordinates do

---

In your best judgment rate the division/subsidiary (in which you are employed) in terms of a five point rating scale for each characteristic listed below: *(Organizational Effectiveness-Subjective)*

42 66. Meets objectives without necessity to follow up and checking; rarely fails to meet responsibilities. *2.111*

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

43 67. Personnel participate in training and development activities; personnel have high level of competence and skill. 2.112

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

44 68. Personnel have flexibility among assignments; division encourages development for promotion from within the organization. 2.113

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

45 69. Operations are planned and scheduled to avoid lost time; little time is spent on minor crises and "putting out fires." 2.114

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

46 70. Operations are scheduled and coordinated with other departments. 2.115

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

47 71. Efficient performance; mutual support and respect of supervisors and subordinates; utilization of people skills and abilities. 2.116

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

48 72. Initiates improvements (and innovation) in work methods and operations. 2.117

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

49 73. Performs its share of public responsibility; helps community relations. 2.118

1	2	3	4	5
Very often	Often	Some	Seldom	Rarely

We need to obtain your subjective assessment of the performance of your division as it relates to competitors in its industry. Equating 100% to ideal performance indicate what percent of this ideal or optimal performance you feel your division/subsidiary is achieving in its industry.

50-52 74. I personally feel that the overall performance of the division/subsidiary in which I am employed should be rated as _____%. *2.119*

53-55 75. I personally feel that the overall performance of Acme Industries should be rated as _____%. *2.1110*

76. On the next page are 18 values listed in alphabetical order. Your task is to arrange them in order of their importance to YOU, as guiding principles in YOUR life. Each value is printed on a gummed label which can be easily peeled off and pasted in the boxes on the left-hand side of the page. *1.211*

Study the list carefully and pick out the one value which is the most important for you. Peel it off and paste it in Box 1 on the left.

Then pick out the value which is second most important for you. Peel it off and paste it in Box 2. Then do the same for each of the remaining values. The value which is least important goes in Box 18.

Work slowly and think carefully. If you change your mind, feel free to change your answers. The labels peel off easily and can be moved from place to place. The end result should truly show how you really feel.

1,2,3
4,5 Respondent's Identification
Card Number: 04

6,7	1	**A COMFORTABLE LIFE** (a prosperous life)
8,9	2	**AN EXCITING LIFE** (a stimulating, active life)
10,11	3	**A SENSE OF ACCOMPLISHMENT** (lasting contribution)
12,13	4	**A WORLD AT PEACE** (free of war and conflict)
14,15	5	**A WORLD OF BEAUTY** (beauty of nature and the arts)
16,17	6	**EQUALITY** (brotherhood, equal opportunity for all)
18,19	7	**FAMILY SECURITY** (taking care of loved ones)
20,21	8	**FREEDOM** (independence, free choice)
22,23	9	**HAPPINESS** (contentedness)
24,25	10	**INNER HARMONY** (freedom from inner conflict)
26,27	11	**MATURE LOVE** (sexual and spiritual intimacy)
28,29	12	**NATIONAL SECURITY** (protection from attack)
30,31	13	**PLEASURE** (an enjoyable, leisurely life)
32,33	14	**SALVATION** (saved, eternal life)
34,35	15	**SELF-RESPECT** (self-esteem)
36,37	16	**SOCIAL RECOGNITION** (respect, admiration)
38,39	17	**TRUE FRIENDSHIP** (close companionship)
40,41	18	**WISDOM** (a mature understanding of life)

WHEN YOU HAVE FINISHED, GO ON TO THE NEXT PAGE.

Below is another list of 18 values. Arrange them in order of importance, the same as before.

42,43	1	**AMBITIOUS** (hard-working, aspiring)
44,45	2	**BROADMINDED** (open-minded)
46,47	3	**CAPABLE** (competent, effective)
48,49	4	**CHEERFUL** (lighthearted, joyful)
50,51	5	**CLEAN** (neat, tidy)
52,53	6	**COURAGEOUS** (standing up for your beliefs)
54,55	7	**FORGIVING** (willing to pardon others)
56,57	8	**HELPFUL** (working for the welfare of others)
58,59	9	**HONEST** (sincere, truthful)
60,61	10	**IMAGINATIVE** (daring, creative)
62,63	11	**INDEPENDENT** (self-reliant, self-sufficient)
64,65	12	**INTELLECTUAL** (intelligent, reflective)
66,67	13	**LOGICAL** (consistent, rational)
68,69	14	**LOVING** (affectionate, tender)
70,71	15	**OBEDIENT** (dutiful, respectful)
72,73	16	**POLITE** (courteous, well-mannered)
74,75	17	**RESPONSIBLE** (dependable, reliable)
76,77	18	**SELF-CONTROLLED** (restrained, self-disciplined)

RATING OF IMMEDIATE SUBORDINATES

77. This part to be filled in by all managers (except foremen) having subordinates reporting directly to them. Foremen: do not fill this out. *2.31*

Please circle the number which best describes the contribution of each one of your immediate subordinate(s):

	Extremely valuable to the unit for which I am responsible--makes a good deal more contribution than I normally have any reason to expect from one of my subordinates:		Makes a good contribution to the unit for which I am responsible--about what I would normally expect of one of my subordinates:		Not an outstanding asset to the unit for which I am responsible--not quite the contribution at times that I would expect from one of my subordinates:
Each immediate subordinate:					
6 A:	1	2	3	4	5
7 B:	1	2	3	4	5
8 C:	1	2	3	4	5
9 D:	1	2	3	4	5
10 E:	1	2	3	4	5
11 F:	1	2	3	4	5
12 G:	1	2	3	4	5

If checked; or above is blank: DO NOT PUT ANY NAMES ON QUESTIONNAIRE

13 *1* I do not have any subordinates at all or I am a foreman.

If this is not checked and above is filled in; code #2.
If neither is filled in; code #0 (no response).

78. Most subordinates are probably going to advance no more than one or two levels above their present level, if that much. A few are already over their heads. A few are going close to or all the way to the top. *2.32*

Please circle the number which best states your judgment of each immediate subordinate:

Each immediate subordinate:		Real promise of going a long way:		Could go up another level or two in time:		Has gone about as far as he can or maybe too far:
14	A:	1	2	3	4	5
15	B:	1	2	3	4	5
16	C:	1	2	3	4	5
17	D:	1	2	3	4	5
18	E:	1	2	3	4	5
19	F:	1	2	3	4	5
20	G:	1	2	3	4	5

79. **Comments which you may have concerning significant points or problems which were not asked and should have been:**

21 *Comments, criticisms and/or recommendations concerning company: (combined with question 81).* 3.1

0 - No Response

1 - General

2 - Specific

3.- General and Specific

80. **Comments which you may have concerning the purpose or mechanics of this study:**

22 *0 - No response* 3.2

5221 *1 - Additional areas and nothing else*

5222 *2 - Negative Response*

5223 *3 - Positive Response*

**None* *4 - Both 1 and 2*

5224 *5 - Both 1 and 3*

5225 *6 - Difficulty in Understanding Question*

81. (ANSWER THIS QUESTION ONLY IF YOU WANT TO.) Go back to the grids on pages 14 and 15 which asks about relationships between units of Guardian Industries. Select the one relationship which you believe to be the most unsatisfactory:

a. Why do you think this relationship is not any better?

b. What suggestions do you have to improve this relationship?

END OF QUESTIONNAIRE

Please check each page to make sure you have answered each question.

THANK YOU FOR YOUR COOPERATION

Col No (Supplement)
23-42

[redacted]

QUESTIONS: ANSWERS TO BE OBTAINED FROM TOP MANAGEMENT

82. We are also interested in obtaining a few empirical measures of the trend of your division's performance over the past five years. In the table below we would like you to indicate the percentage change on a five year basis of three performance indicators: Sales, before tax profits; and return on investment before taxes. Considering the base year 1964 as 100, would you please indicate, in the spaces provided below, the level for each indicator for 1969. For example, if sales in 1969 were 5% above 1964, you would put 105 in the 1969 column. If sales were 5% below the 1964 level in 1969, you would put 95 in the 1969 column, and so forth. *(Organizational Effectiveness-Objective)*

			1964	1969	
23-25	2.31	Sales	100		*2.221*
26-29	2.32	Before Tax Profits	100		*2.222*
30-32	2.33	Return on Investment Before Taxes	100		*2.223*

33 83. The type of technology found in my department division/ subsidiary can be described as: *(J. D. Thompson)* *1.22181*

1. Long linked technology involving serial interdependence where act Z can be performed only after successful completion of act Y, etc. (e.g., mass production assembly line).
2. Mediating technology when the primary function of the division/subsidiary is to link clients or customers who wish to be interdependent (e.g., commercial banks, insurance firms).
3. Intensive technology: a variety of techniques is drawn upon in order to achieve a change in some specific object (e.g., hospitals, construction industry, military combat teams).

34 84. The techniques of production utilized by the division/ subsidiary in which I am employed is: *(Woodward)* *1.22182*

1. Small batch and unit production
2. Large batch and mass production
3. Process or continuous production

35 85. Number of competitors in the product market of the industry in which my division/subsidiary is engaged: *(Stigler, Ferguson)* *1.22171*

1. None
2. One to nine
3. Ten to eighty
4. Over eighty

36 86. Ease of entry into industry that my division/subsidiary is engaged: *1.22172*

Perfect ease of entry	Easy entry or exit	High barriers to entry or exit	Very high barriers to entry or exit

37 87. Product characteristics of product(s) produced in my division/subsidiary: *1.22173*

Homogeneous (same as competitors product)	Nearly homogeneous	May or may not be substitutes	No substitutes

To be obtained from records of GI: *(Harvey)*

38 88. The number of product changes in last ten years: *1.22121*

1	2	3	4	5
1 to 8	9-19	20-43	44-71	72 and up

39 89. The size of the division/subsidiary is: *1.22122*

1	2	3	4
under 50	50-100	101-300	over 300

40 90. The number of levels of authority within the division/subsidiary: *1.22123*

1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	more than 7

41 91. Ratio of managers and supervisors to total personnel in the division/subsidiary: *1.22124*

1. 2 or fewer per 45 employees
2. 2 to 4 per 45 employees
3. 5 or more per 45 employees

42 92. Number of sub-units in the division/subsidiary: *1.22125*

1. 4 or fewer
2. 5-7
3. 8 or more

APPENDIX E

VERBATIM REMARKS MADE BY RESPONDENTS

Question No. 79.--Comments which you may have concerning significant points or problems which were not asked and should have been:

Respondent Number	
Division B	
001	No questions regarding my appraisal of: (1) my performance, (2) my future with Acme, (3) my feeling toward the company's future.
004	I feel that there should have been questions dealing with a research program in each subsidiary. This could affect [sic] the growth of the company and in turn affect the personnel.
007	I feel that very few employees, if any, have a feeling of corporate unity. Very little info comes down about other divisions and our realative [sic] position in the corporation.
011 (sales Rep.)	Information flow and cooperative organizational decisions should improve within a departmental relationship. For instance--it is very difficult to receive action on a specific short or long range problem/solution suggestions die in the brain of the superior-communications are poor in all levels and is a major problem. Promotional recognition is often nonexistant accept [sic] at very high levels.
017	A combined effort between top and middle level management in regards to communications and joint effort in determining responsibilities with authority in carrying out the objectives of each department is very much in absence [sic].
021	I think the chain of command coming from Acme (Division C) to the other divisions leave a lot to be desired as a matter of fact it STINKS!

023 Employees relationship with the company.

Division C

050 In order for one to get a true picture of Acme Industries I believe the various departments, subsidiaries, etc., should have been studied in a more detailed manner as they relate to one another in achieving the goals of upper management.

053 Communication between your own division, what status.

054 Why is this thing necessary?

068 Payroll problem.

068 DNA

Division A

100 I think that communication is our most significant problem.

105 My main objection to Acme Industries is the "I don't care" or "Pass the Buck" attitude of most people in supervision.

116 A good test.

123 (Dept. Mgr.) Questions about--Management Training Program.
Questions about--Manufacturing Training Program.
Questions about--the environment people work in.
Questions about--social benefits for employees.

Division D

150 Questions pertaining to family, etc., might well have a place since attitudes and actions of individuals are greatly influenced by "family and can ultimately affect his status" and attitudes toward his company.

158 Questions on where we think each division is going in the future.

Main Office

203 (Divisional Manager)	Do I feel that other divisions could be improved. You questioned the importance of technology but not its effectiveness or even the degree of its utilization in other divisions.

Question No. 80.--Comments which you may have concerning the purpose or mechanics of this study:

Respondent Number	
Division B	
001	Question No. 76 (Value Survey)--too many items--range covered was not broad enough. Several repeat items and questions.
006	This is an excellent questionnaire. It reflects a thorough grasp of management problems and leadership situations.
010	If signature on this test had been required, would it have been answered differently?
011	Very glad to see the company institute such a program--we need to push back conservative fears and accept the fact that people are important and we do have problems. Possibly this study will aid in solving some or many of today's problems and hopefully will continue in the constant change of our growing company.
013	I hope to be able to read the finished work. Good luck.
017	This has brought to mind the overall reaction to my position by myself, and has brought out things which should be thought about on an active level, rather than on a more or less subconscious level.
019	The purpose is laudable and has definite possibilities in analysing problems. Some of the questions are ambigious and others seem too general to provide significant information.
023	It was very good in its way of asking questions.
Division C	
050	This study is quite broad but not detailed enough for me to get in depth idea as to the true picture of Acme Industries.

052 I believe you would have gotten more honest answers if your questions were more understandable, plainer language.

053 How could we know what goes on between divisions in another building or city? Also I didn't understand several questions.

054 This is of little value and of questionable consequence. I resent being a white rat for research purposes.

Division A

100 I think this will help improve the operation of this company. By pointing out the areas where the majority agree we are weak. I think in the end it will show what made this company grow.

105 I believe those reports are good for a company, so most problems can be brought out. I believe Acme has many problems in the front office.

109 Don't understand how it can be of any value.

116 Very good.

123 It is to me very refreshing that a company like Acme Industries has given the opportunity to someone to make this study. First to benefit the researcher. Second the top management has an open mind for problems which are presently occupying with the Corporation and using the results to improve, and I'm sure, to the benefit of all concerned.

Division D

150 None--an excellent individual and corporate analysis.

153 I am connected with the new plant (Division D) and do not have much to do with the other departments.

154 I feel that the company should have some means of giving the employees of different divisions the activity that is going on in these

different divisions. What I am trying to say is now that the company is getting larger the activities of each division should be brought out into the open. Such as the progress, manufacture, etc. This would help in the motivation of an employee because a larger company employees tend to fall out of contact with top management.

158 Very good study. Quite thought provoking.

Main Office

205 I believe this is a real good test as to how a man's mind runs especially showing what his preferences are and direction he would take.

Question No. 81a.--(Answer this question only if you want to.) Go back to the grids on pages 14 and 15 which asks about relationships between units of Acme Industries. Select one relationship which you believe to be the most unsatisfactory.

Respondent Number	
Division B	
003	Production--Q.C. The lack of thorough training of Q.C. personnel on equipment operations.
006	Re: Relationship between the plant manager's office and quality control. There is a strict division in responsibilities. (I.e., Technicians vs production personnel.) There have been divided loyalties because of command and communications channels.
013	Quality control and production has always had friction. The areas of responsibility are overlapping yet there is a lack of coordination.
017 (Dept. Mgr.)	Plant Manager/Production. We have responsibility but not the proper authority or tools to work with.
019	Acme Industries vs Comptroller's office.
023	Lack of communication.
025	I believe the Billing Department and Customer Service Department under the Plant Managers office needs more direction. I believe sincere effort is made generally, but outside factors sometimes rule the Customer Service Department and Billing Department sometimes shows wither lack of interest or directional organization.
029 (Sales Rep.)	Sales--Quality Control.
Division C	
050	Executive Acme Division B Sales Department in relation to Customer Billing, Re: Data Processing. Improper documentation and communications for Customer's Photo Finishing

Prices and Discounts between the two has caused unwarranted customer complaints about Billing, also has caused untimely (maybe somewhat costly) program changes.

064 President's office and Division C
President does not feel he has the time to spend with the individual people, or we are seen by him through our supervisor.

069 The relationship between the Division C and the district centers does not change because the people of higher positions are not interested enough in their subordinates. As long as things get done, they want nothing to do with the problems at the district centers. When a situation gets bad enough someone is dispatched to the location to "crack the whip." The feeling between the two stations is bad but nobody wants to admit it.

072 Not enough employees in my department for the amount of work expected for the day.

077 I'm not sure about the relationship at other locations but I feel here the relationship is very good from top to bottom.

Division A

100 Production and Quality control. A lack of communication including specification (exact).

104 Acme A and Main Office, Acme Ind.

116 Acme has good relationship.

123 People in these areas seem to be self centered and/or not capable.

Division D

150 Engineering has always had its difficulties. There is a general lack of appreciation for engineering within the company (all levels) since you can always consider engineering an overhead or burden to the company.

The company's upper management reviews engineering and usually categorizes it in this

way. In a money conscious company, only production appears to contribute, when actually it is a completely integrated team effort. The reason--general lack of sophistication within the industry--a condition which is changing.

153 Engineering and manufacturing--Acme is just beginning to have a true engineering and research department. These benefits have not gotten down into manufacturing in many instances.

154 As I mentioned earlier the direct personal relationship between different divisions should be brought out into the open. One main reason is so a question or even this could be answered properly.

155 The relationship between the new acquired division and the new plant (Division D) was only rated as slightly better than average--reason new division has only been a part of our corporation for a short time.

158 Not enough information is known about other divisions.

Question No. 81b.--What suggestions do you have to improve this relationship?

Respondent Number	
Division B	
006	1. A change in organizational structure (this will be effected January 26, 1970). 2. Improved orientation of personnel involved so that both sides of the problem are apparent. 3. Education of quality control personnel so that they become aware that improved production is the key to greater profits and that quality control operations must be geared up to production.
007	There is a definite need for communication between divisions at all levels. Especially lower levels, to build morale. I hope to propose an employee magazine when the financial void left by the new glass plant is filled. (Written under item No. 79.)
013	Define areas of responsibilities and have Quality Control supervisor and Production supervisor work together towards a common goal.
017 (Dept. Mgr.)	That the Plant Manager take a view of production on a whole not as being primarily dependent on one department at the expense of others.
019	A supervisor in charge of computer services to each division.
023	Weekly meetings.
025	Customer Service Department must be treated more like a full department with sufficient personnel and planning. Billing Department must have greater communication with Sales and tighter control over drivers. Cooperation is generally very good but weak areas do appear to be creating serious problems.

Division C

064 (Administrator) In a position like mine, I feel I should be able to express my ideas outwardly to him. He could find some time to come by and give or listen to what may be new developments to his company.

069 (Level 2) My suggestion to improve this is for executives to come down in their level of thought and think about their subordinates as human beings and not just to get the work out. They fail to remember the people beneath them having feelings to [sic] and many times are doing their level best already. This "I don't care how you do it but just get it done" bit gets old to people after awhile. A little human understanding in this company is needed.

Division A

100 More communication and understanding.

105 Acme needs a vast important improvement [sic] in the data control systems. Top men.

116 Acme will go to the top in its field.

123 Bring people together more often in training and discussion. Create a good training program by capable instructors.

Division D

150 More communications thru staff meetings--discussion and invited participation by upper management in all phases of company operation.

Allow the engineers (or staff) to be appraised of company progress, situations, status of change. This is an age old problem faced by most companies, for which the solutions are readily apparent. Communications and information are the only answer. Communications and opportunity for opinion are trouble spots within the company but the general conditions are improving.

153 Time is required. Additional expansion--people in Manufacturing of a higher caliber (education, ability, mentality) are necessary for the proper relationship between technology (engineering) and Manufacturing.

154 No suggestion at this time--as (I) feel relationships will get stronger as our new plant is launched in July. Then the needs of the two divisions will become integrated in a more regulatory fashion.

158 Weekly publication by each division compiled in a bi-weekly "paper."

APPENDIX F

A DESCRIPTION OF COMPUTER PROGRAMS EMPLOYED IN THIS RESEARCH

A DESCRIPTION OF THE MULTIVARIATE ANALYSIS METHODS EMPLOYED IN THIS RESEARCH

Several methods of multivariate analysis were selected and employed to analyze the data. The distinctive capability of multivariate analysis is that the multiple variables are considered in combination as a system.

The various methods of multivariate analysis were employed in this study--each for a different purpose: Factor Analysis, Multiple Regression Analysis, and Discriminant Analysis. Each method is briefly discussed in the following paragraphs. A summary of the various methods employed is shown in Table 3.1.

A basic concept useful in considering many variables together is the test space concept. If M (363) measurements have been made on N (113) individuals, each individual can be represented as a point in the M-dimensional space. Each point (individual) has a unique location.

The procedures of multivariate analysis are concerned with the problem of reducing the original test space to the minimum number of dimensions needed to describe relevant information contained in the original observations.

Factor Analysis.--The primary purposes of this analysis were:

1. To reduce the test space of 363 dimensions to a factor space of fewer dimensions and still preserve the common variance of the original scores of the variables. This was the basis, in conjunction with the results of LAWS, upon which the criteria for the development of the subscales was formed.
2. To obtain factor scores that are more even, more normally distributed than the scores of the variables.
3. To eliminate most of the error variance in the scores by preserving only the common factors.
4. To examine the factor structure of the various measures.

The factor analysis routine performed was a principle axes solution followed by the Quartimax and Varimax rotational solutions from the observed data.

The object of the quartimax method is to maximize the inequalities of loadings. Its ultimate aim is to reduce the complexity by simplification of the description of each row or variable, of the factor matrix.

The Varimax method is a modification of the Quartimax method. The Varimax method simplifies the columns or factors rather than the rows or variables.[1]

Multiple Regression Analysis.--The multiple regression (least squares) program was used to estimate the relationships between each dependent subscale and the set of sixty-one independent subscales. The routine can be termed a linear regression program from the standpoint that the term "linear" refers to the capability that only problems which are linear in the coefficients may be calculated. Problems which are non-linear in the variables cannot be calculated.

Statistics calculated for individual variables included means, sums, standard deviations, sums of squares, and sums of squared deviations from the means.

Statistics calculated as measures between each dependent subscale and the set of sixty-three subscales included:

1. Analysis of variance table
2. Multiple correlation coefficient
3. Standard error of estimate
4. Least squares (regression) coefficients
5. Beta weights

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[1]Further details are included in Technical Report No. 34.1 (modified), Computer Institute of Social Science Research, Michigan State University, dated May, 1969.

6. Standard errors of the beta weights
7. F statistics and t statistics
8. Highest order partial coefficient correlation coefficients between dependent variable and each independent variable.

The weights of the different predictor subscales were scaled to indicate the relative contributions of the variables to the prediction of the criterion, and a coefficient of multiple correlation is available as an indication of the prediction's accuracy.

The square of this coefficient represents, as a decreased fraction, the proportion of variance on the criterion that is predictible from, or explained by, the linear combination of the m-1 predictors.

Discriminant Analysis: Discriminant analysis is a procedure for estimating the position of an individual on a line that best separates classes or groups. The estimated position is obtained as a linear function of the individuals' test scores. Since one "best" line may not exhaust the predictive power of the test battery in distinguishing among the classes, additional discriminant functions, all mutually orthogonal, may be fitted (orthogonal in the sense that discriminant scores and uncorrelated) the maximum number of discriminants is indicated by the lesser of the two numbers g-1 and m.

Although it is possible to treat the classification problem directly in the m-dimensional test space by methods

described in this appendix, the multiple-discriminant analysis has the advantage that it often leads to a dramatic reduction in the predictor space's dimensionality without a substantial loss of information.

In other words, the approach is to locate a line in the M space for which the separation of the groups is optimized when the individual points of the different groups are projected on it. The ratio of the among-groups to the within-groups sums of squared deviations is maximized.

This program determines linear combinations of the variables, called discriminant functions, which maximizes the ratio of between group variability to pooled within-group variability. This method operates on a set of variates measured on individuals in several groups. This program implements the method titled "Constellation and Distance Analysis" when first published by C. R. Rao and later called "Multiple Discriminant Analysis" when presented independently by Bryan and Lubin.

Details may be found in Technical Report No. 33, Computer Institute of Social Science Research, Michigan State University, dated July 5, 1968. Other references include:

J. G. Bryan, "The Generalized Discriminant Function: Mathematical Foundation and Computational Routine," Harvard Education Review, 21: 2, (1951), 90-95.

C. R. Rao, Advanced Statistical Methods in Biometric Research, Chapter IX, John Wiley and Sons, (1952).

A DESCRIPTION OF COMPUTER PROGRAMS: PERCOUNT, IDCORR, VALUTEST, AND DAP1

PERCOUNT.--PERCOUNT provided frequency distribution tables of the requested variables, including number and per cent of total in each cell, cumulative number and cumulative per cent, total number of observations used, means, standard deviations, and number of unused observations for each variable.

Further details may be found in Technical Report No. 18, Computer Institute for Social Science Research, Michigan State University, dated May 6, 1968.

Incomplete Data Correlation Program (IDCORR).--The Incomplete Data Correlation Program (IDCORR) computes arithmetic means, standard deviations, frequencies and Pearson product-moment correlation coefficients for data on cards or magnetic tape. A standard correlation coefficient is computed for complete data (i.e., no missing values for any observations). In the case of incomplete data, a correction technique was employed where the program will base computations on the data furnished, adjusting the frequencies in the computational formulae to compensate for the missing data. That is, the mean and standard deviation for each variable are based only on observations including measurement of that variable,

and correlations are computed only from observations which include measurements on both of the relevant variables.

Further details may be found in Technical Report No. 4, Computer Institute for Social Science Research, dated June 28, 1968.

VALUTEST.--Valutest is a type overlay system containing a series of routines written expressly for use with data from Rokeach's Value Survey. One of the routines, CHEKSUMS, offers a method of checking data cards for respondent, coding, and keypunching errors. It was run on all data cards so that errors may be detected and corrected before submitting data for the statistical analysis routines. The routine locates errors by adding up the sum of the N ranking scores for each subject for each ranking scale, then checking whether this sum is correct.

Other routines in this system include ROUTINES ONEWAY and TWOWAY. ONEWAY provides comparisons of the median value rankings of several groups, as defined by an independent variable. It is analogous to a one-way analysis of variance. ROUTINE TWOWAY compares the value rankings of groups simultaneously defined by two independent variables. It is analogous to a two-way analysis of variance.

Further details may be found in the program description and user's manual for VALUTEST by Charles C. Hollen, Department of Psychology, Michigan State University, dated January 17, 1969.

Data Plot and Statistics for Variables (DAP1).--The purpose of this routine was to form histograms for each variable along with computations of the mean, standard deviation, skewness, kurtosis, variance coefficient of variation, lower quartile, median, upper quantile, and range. The histograms are printed out on a standard score abscissa in categories, each of which is a quarter standard deviation wide.

Further discussion of this routine may be found in Technical Report No. 15, Computer Institute for Social Science Research, Michigan State University, dated February 7, 1968.

APPENDIX G

HIERARCHICAL CLUSTERING BASED ON A CRITERION OF LARGEST AVERAGE WITHIN-CLUSTER SIMILARITY

[This discussion is a condensation of a paper by the same title by Leighton A. Price, Computer Institute for Social Science Research, Michigan State University, East Lansing, Michigan, March, 1969.]

The general purpose of hierarchical clustering methods is to realistically summarize and divide complex data into clusters and subclusters. Two specific major objectives underlie hierarchical clustering methods. The first is to construct sets of successively more inclusive clusters. The second is to form these clusters in such a manner that the elements within each cluster are as similar to one another as possible and as dissimilar from all other elements as possible.

Both of these objectives are derived from the broader theoretical objective of identifying types and sub-types. In the purest form, a type is a set of elements in which each member has greater similarity to every other member of that set than to any element outside the set.

A number of other requirements must also be sought at the same time. These are:

1. The data must determine the form of the resulting hierarchical classification, i.e., the number of clusters, the unions of elements with clusters and the unions of clusters with one another.
2. Pairwise element interrelationships should not be misrepresented.

3. Arbitrary classification decisions should be avoided.
4. The hierarchical structure should realistically display the nature of the predominant structure of the relationships in a matrix.

The method used herein was introduced by Leighton A. Price and is called Hierarchical Clustering by Largest Average Within-Cluster Similarity (LAWS). It is related to methods developed by L. L. McQuitty but is unique in that decisions regarding the acceptance or rejection of potential clusters are based upon a criterion of largest average within-cluster similarity, where the element interrelationships for all pairs of elements in a cluster are the data for this average.

Some Features of Hierarchical Clustering by LAWS Method:

1. Element relationships are processed by order of magnitude in the order of decreasing similarity. This is not necessarily true with the reciprocal pairs methods.
2. It focuses upon Within-Cluster Characteristics; its decision rule is based upon regional matrix values; hence, larger clusters are not automatically formed as in all reciprocal pairs and typical analysis methods.

3. Order effects are avoided by eliminating arbitrary decisions in the handling of tied interrelationships. Most other methods are arbitrary in their handling of tied interrelationships.
4. The LAWS Method does not accentuate the importance of values just slightly higher than others as do most similar methods.
5. The LAWS Method may yield overlapping clusters. This advantage is shared only with the reciprocal pairs method.

No attempt was made to standardize the variables nor to "weight" them. "Weighting" is automatically implied when the varying and different variables are left untouched. Variables with a range of one through 100 would carry more weight than continuous variables with a scale of one through five.

The values associated with relationships between all pairs of elements are processed in order of decreasing element similarity. All pairs of elements having a given index value are compared with clusters that may already have been accepted and which are not themselves completely included in some larger cluster. A record is made of all non-included clusters in which one and/or the other element in the pair can be found.

All pairs in the block are processed at this time. The order of processing the pairs is immaterial because of the manner by which the block is processed. Some new cluster possibilities are formed based on overlap information. Whenever more than one possibility occurs, some decisions must be made before clusters may be accepted. These decisions are based upon the objective to accept clusters having the largest average within-cluster similarity. After processing all the pairs in a block, the procedure is repeated for the next block, and so on, until all data have been examined.

Four decision situations may be encountered for each pair in the ordered list. These are:

1. Neither element of the pair appears in any of the clusters that are in the list of final clusters.
2. One element of the pair is included in one or more of the existing clusters and the other is included in none.
3. The pair of elements links previously accepted clusters [one element is in some cluster(s) and the other is in other cluster(s)].
4. Both elements of the pair already appear in some cluster(s).

Situations two or three result in the tentative formation of more than one cluster. This necessitates decision rules to make the choice among the alternatives.

These are:

Rule 1

If neither element of a pair overlaps with any clusters, add the pair to the list of clusters which have been accepted thus far.

Rule 2

If just one element of a pair overlaps with one or more clusters, tentatively form larger clusters. Determine and, if applicable, accept the largest ones having greater average within-cluster similarity. Otherwise, add only the pair to the list of clusters already accepted.

Rule 3

If a pair of elements lends one or more pairs of clusters, tentatively form all the resulting clusters. Determine those clusters having greatest average within-cluster similarity and add them to the list of clusters already accepted.

Rule 4

When a pair of elements is already included in some of the clusters which have already been accepted, proceed to the next pair in the ordered interrelationships.

Rule 5

If the average within-cluster similarity associated with an accepted cluster reflects lower average similarity

than a cluster in which it is included, eliminate the included cluster from the set of accepted clusters.

Rule 6

If the element pairs associated with a block of tied values include all possible pairs for some set(s) of elements, identify all sets which are not subsets of others. Add each of these to the list of accepted clusters if none of its elements are included in the clusters accepted prior to processing the block of pairs.

It is proposed that the LAWS method should do a better job than other methods of producing clusters with higher average within-cluster similarity. As a result, cluster differentiations should be kept sharper over an entire structure.

APPENDIX H

PROCEDURE UTILIZED FOR DEVELOPMENT OF THIRTEEN SUBSETS AND THEIR LISTING

The reason for the development of the thirteen subsets from the 363 variables was because of the limited capacity of the computer and its programs, to analyze all 363 items at one time.

The rules used for forming these original thirteen subsets were:

1. The maximum number of items in each subset had to be ninety-two due to the capacity constraint of the factor analysis and Incomplete Data Correlation computer programs.
2. Some of the same items must be in every subset. These were: (a) the division location (Item 1), (b) the biographical data (Items 3, 4, 5, and 6).
3. An attempt was made to keep items together which were believed to form the same subscales--in other words, those items which appeared to have the same "face validity."
4. Every item was included in two or more subsets. (The only exception to this were the four environmental factors which were filled in by one respondent only.)

The specific procedure utilized by the writer in forming the subsets was:

1. The variable listing with the recoded variable number in the left column was composed, See Appendix B.
2. A tentative listing of the subsets by general categories was formulated. See following page.
3. Each subset was coded on a programming sheet. As items were listed on the programming sheet, it was recorded on the variable listing. This was continued until every one of the 363 variables was included in two or more subsets.

The Listing of the Thirteen Subsets

Subset No. 1		Number of Variables
2.1	Organization Effectiveness (3420-3490)	8
1.211	Personal Values (4060-4760)	36
1.212	Personal Background and Present Location (2251-2256) (1090-1130) (1061-5) (1071-6)	21
1.214	Leadership Style--LPC (2060-2210)	16
1.217	Local-Cosmo (2220-2240)	3
1.2162 (1.22332)	Positive Power 2560 3410	2
1.2215 (1.2232)	Positive Multiplicity, Specificity, Direction and Demand	3
1.22151	Goal Clarity 2270	1
1.22155	Extent-Controllable and Predictable 2330	1
1.22152	Difficulty 2280	1
	Total	92

Subset No. 2		
1.211	Personal Values (Ten)	36
1.212	Personal Background and Present Location	21
1.214	Leadership Styles	
	LPC	16
	Likert	17
	B & S	8
	Technical Management-Environment	12
	Total	92

Subset No. 3		Number of Variables
1.21213	Pass Background and Pass Loc.	15
1.2211	Division Values--Term	36
1.2212	Division Structure	4
1.2213	Division Management Style (Bowers)	8
(1.22141	Function of Department)	(1)
1.2215	Goal Orientation	5
1.2216	Time Orientation	2
1.2217	Competition of Division	3
1.2218	Technology of Division	3
2.1	Organization Effectiveness by Each Individual	13
1.22142	(Function of Division)	(1)
	Rate of Change of Technology	2
	Direction and Demand	1
	Total	92

Subset No. 4		
	Pers. Biog. and Pres. Location	15
	Division Structure	4
	Division Management Style (Bowers)	8
	Goal Orientation	5
	Time Orientation	2
	Competition	3
	Technology of Division	2
	Rate of Δ in Technology	2
	Local-Cosmo	3

	Number of Variables
Dynamic Climate and Processes	
Communication	1
Coordination	2
Goal Setting	2
Interdepartment Relation	43
Total	92

Subset No. 5

Positive Location and Biography	21
Dynamic Climate and Processes (Interdepartment Relation 30)	58
Technology (5341-42)	2
Organization Effectiveness (Individual)	10
Total	92

Subset No. 6

Personal Location and Biography	21
Terminal Values	18
Organizational Factors	
Dynamic Factors (Less Coordination and Goal Setting)	11
Likert Scale	18
Suppliers	12
Rank and File Attitude and Morale	12
Total	92

Subset No. 7	Number of Variables
Personal Location and Biography	21
Organization Effectiveness	12
Rating of	14
Leadership Style (Bowers) 2340-2410	8
Local Cosmo	3
Positive Power	2
Values	18
Competition for Final Product	12
Trust	2
Total	92

Subset No. 8	
Personal Location and Biography	21
Division Technology	2
Dynamic Climate and Processes	6
Inter Division Relation	36
Likert Scale	18
Organization Effectiveness	8
Total	92

Subset No. 9	
Personal Location and Biography	9
Interdepartment Relation	43
Inter Division Relation	36
Technical	2
Δ of Technology	2
Total	92

Subset No. 10	Number of Variables
Personal Location and Biography	21
Values--Instrument Only	18
Rating of Immediate Subordinate	14
Organization Effectiveness	11
LPC	16
Public Policy	12
Total	92
Subset No. 11	
Personal Location and Biography	15
Comm. and Coordination and Integr.	3
External Environment (Partial)	66
Competition	
Supplies	
Rank and File Attitude	
Public Policy	
Union-Management	
Marketing and Sales	
Organization Effectiveness	8
Total	92
Subset No. 12	
Personal Location and Biography	21
Technology	2
Motivation	1
External Environment	48

		Number of Variables
Availability of Financial Resources	(12)	
Marketing and Sales	(6)	
U.S. Economy	(6)	
Level of Skill Possessing	(6)	
Training Program	(6)	
Rank and File Attitude	(12)	
Component Structure	(4)	
Organization Effectiveness	8	
Comments	8	
Total		92

Subset No. 13

Personal Location and Biography	21
Technology	12
Availability of Financial Resources	12
Personal Values	36
Goal Orientation	5
Technology	2
Time Orientation	2
Rate of Change of Technology	2
Total	92

APPENDIX I

A LISTING OF THE SIXTY-THREE SUBSCALES AND THE SCORES

TABLE I-1.--The sixty-three subscales and the overall scores of the mini-conglomerate.

Sub-scale Number	Title (Variable Numbers in Parentheses)	Mean	SD	Range
1	Organizational Effectiveness (Subjective) (281,282,283,284,285,286,287)	2.289	.628	1.0 to 3.86
2	Organizational Effectiveness (Quantitative) (350,351)	576.5	45.3	237.5 to 915.3
3	Least Preferred CoworkerI (124,125,217, 132,133,137)	4.728	1.53	1.0 to 7.83
4	Least Preferred Coworker II (130,131,134, 135,138)	4.041	1.227	1.2 to 8.000
5	Division A (1)	1.336	.472	1.0 to 2.0
6	Division B (2)	1.265	.442	1.0 to 2.0
7	Division D (3,144)	1.105	.29	1.0 to 2.0
8	Division C (4,143)	1.279	.434	1.0 to 2.0
9	Main Office (5,10,11)	1.042	.141	1.0 to 1.67
10	Foremen (1st level) (6,145)	1.302	.385	1.0 to 2.0
11	Secretary/clerk/sex (2d level) (7,14)	1.257	.394	1.0 to 2.0
12	3d Level (8)	1.136	.339	1.0 to 2.0
13	4th Level (9)			
14	Length of Service (12,142)	3.398	.710	1.0 to 4.5
15	Education (13,141,311,312)	7.950	2.327	2.5 to 12.25
16	Age (15)	2.491	.991	1.0 to 5.0
17	Bowers, Likert--Dynamics (157,158,159,160, 161,162,163,164,261,262,263,264,265,266, 270,271,272,273,278,165,166,167,179,170, 174,177,178,259,260,288,289,268,275,277, 168,172,175,173)	3.358		
18	Technology (16,18)	3.89	.595	2.0 to 5.0

19	Environment (not enough information) (17, 19,21,23,31,33,35,41,43,45,47,53,55,57, 59,77,79,81,83,65,67,69,71,73,75,89,91, 93,95,97,99)	1.323	.412	2.43	to	5.0
20	Competition, Suppliers, Rank and File, Finances (28,30,32,34,40,42,44,46,48,52, 54,56,58,60,62,76,78,80,82,88,90,92,98)	3.843				
*21	Rank and File (52,54,56,58,60,62,76,78,80, 82)	3.758	.588	1.9	to	5.0
22	Public Policy (64,66,68,70,72,74)	3.026	.637	1.17	to	5.0
23	Per cent Ideal Performance by Company	86.482				
24	Departmental and Divisional Relationships (180,183,186,189,192,195,198,200,203, 206,208,211,214,217,223,225,228,231, 234,236,239,241,243,246,248,251,253, 255,220,257)	2.912	.651	1.5	to	6.0
25	Departmental Relationships (not enough information or not required) (182,185, 188,191,194,197,199,202,205,207,210,213, 216,219,222)	1.24	.293	1.0	to	2.0
26	Divisional Relationships (not enough information or not required) (224,227, 230,233,235,238,240,242,245,247,250,252, 254,256,258)	1.418	.327	1.0	to	2.0
27	Structural Design (360,361,363,358)	2.5	.145	1.5	to	3.5
28	Comfortable Life (290)	9.36	6.146	1.0	to	50.0
29	Exciting Life and Imaginative (291,317)	11.379	4.145	2.5	to	18.0
30	Sense of Accomplishment (292)	6.207	4.348	1.0	to	17.0
31	World of Peace (293)	8.234	5.066	1.0	to	18.0
32	World of Beauty (294)	13.73	3.667	2.0	to	18.0
33	Equality, Forgiving, Loving, Helpful (295, 314,321,315)	10.54	3.212	2.25	to	16.75
34	Family Security (296,300)	6.514	2.858	1.5	to	15.0
35	Freedom (297)	7.117	3.948	1.0	to	18.0

TABLE I-1.--Continued.

Sub-scale Number	Title (Variable Numbers in Parentheses)	Mean	SD	Range
36	Inner Harmony, Responsible, Self-Control (299,324,325)	8.676	2.905	1.67 to 15.67
37	Mature Love (301)	12.685	4.603	1.0 to 18.0
38	Pleasure (302)	13.432	3.616	2.0 to 18.0
39	Salvation, Honest (303,316)	8.325	3.967	1.0 to 16.5
40	Self-Respect, Social Responsibility, True Friendship (304,305,306)	9.588	2.801	2.67 to 16.0
41	Wisdom, Logical (307,320)	9.033	3.652	1.0 to 18.0
42	Ambitious (308)	5.136	4.012	1.0 to 18.0
43	Broadminded (309)	8.654	4.829	1.0 to 18.0
44	Capable (310)	6.354	3.586	1.0 to 16.0
45	Courageous (313)	9.546	4.818	1.0 to 18.0
46	Independent (318)	10.173	5.069	1.0 to 18.0
47	Intellectual (319)	10.473	5.053	1.0 to 18.0
48	Obedient, Polite (322,323)	12.336	3.259	2.5 to 17.5
*49	Responsible, Self-Control (324,325)	8.059	3.47	1.5 to 17.5
50	Technology of Production, Small Batch (354)	1.6	.103	1.0 to 2.0
51	Technology of Production, Large Batch, Number of Competitors, Ratio of Managers/Total (355,356,362)	2.02	.094	1.42 to 2.67
**52	Number of Product Changes (357)	1.5	.094	1.0 to 2.0
53	Local-Cosmo (140)	3.963	.995	1.0 to 5.0
54	Sales Department (146)	1.104	.295	1.0 to 2.0
55	QC Department (147)	1.038	.185	1.0 to 2.0
56	Personnel/Maintenance/Guard Departments (148)	1.094	.283	1.0 to 2.0

57	Rate of Change in Technology (151)	3.189	.960	1.0	to	5.0
58	Length of Time: Feedback on Success (152)	1.856	.787	1.0	to	5.0
59	Length of Time: Feedback on Success (Not Possible) (153)	1.093	.283	1.0	to	2.0
60	Multiplicity, Specificity, Job Control (154,155,156)	2.617	.810	1.0	to	5.3
61	Direction and Demand from Superiors (176)	3.185	.743	1.0	to	5.0
62	Position Power (Authority) (179)	2.667	1.078	1.0	to	5.0
63	Goal Setting in Division (171)	2.830	1.265	1.0	to	5.0

*Contained in another Subscale.

**"Ease of Entry Into the Industry" was originally Subscale 52. When it was found to be a linear combination of Subscale 51 during the Multiple Regression Analysis, it was necessarily eliminated. The elimination of this Subscale caused all Subscale numbers higher than 52 to be reduced by one.

TABLE I-2.--A comparison of subscale scores by divisions in decreasing order of their perceived effectiveness. (Subscale number 1)

Sub-scale Number	D (N = 9)		B (N = 29)		Main Office (N = 10)		C (N = 29)		A (N = 36)	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
1	2.06	.447	2.13	.325	2.17	.235	2.34	.485	2.47	.385
2	576.5	.000	576.5	.000	476.5	25538.0	576.5	.000	576.5	.000
3	4.167	1.778	5.084	1.939	5.66	2.291	4.569	2.056	4.450	2.844
4	4.221	.146	3.83	1.345	3.54	1.848	4.215	1.506	4.164	1.914
5	1.000	.000	1.00	.000	1.200	.177	1.000	.000	2.000	.000
6	1.000	.000	2.00	.000	.100	.100	1.000	.000	1.000	.000
7	2.000	.000	1.00	.000	1.136	.092	1.000	.000	1.04	.01960
8	1.000	.000	1.017	.008	1.134	.036	2.000	.000	1.02	.0073
9	1.000	.000	1.000	.000	1.466	.030	1.001	.00003	1.00167	.00005
10	1.000	.000	1.465	.195	1.152	.021	1.004	.00058	1.5258	.1388
11	1.000	.000	1.193	.131	1.150	.113	1.521	.223	1.187	.1019
12	1.222	.194	1.172	.148	1.000	.000	1.108	.095	1.1466	.1218
13	1.777	.194	1.172	.147	1.000	.000	1.353	.229	1.180	.1414
14	3.166	.312	3.280	.477	3.450	1.247	3.396	.346	3.535	.5289
15	8.588	2.75	7.749	5.743	9.488	5.645	8.045	6.481	7.449	4.549
16	2.111	.611	2.396	.881	3.400	.711	2.034	.748	2.776	1.0069
17	3.770	.074	3.188	.216	3.698	.113	3.400	.261	3.263	.243
18	3.543	.204	3.941	.134	4.161	.538	3.993	.233	3.779	.586
19	1.143	.018	1.361	.084	1.150	.025	1.385	.081	1.333	.093
20	3.833	.330	3.886	.189	3.951	.416	3.855	.0609	3.771	.155
21	3.744	.598	3.84	.179	4.033	.408	3.783	.267	3.598	.463
22	3.210	.216	3.040	.142	2.560	.655	3.0669	.237	3.066	.715
23	84.804	45.19	87.806	33.466	85.548	191.821	87.714	102.518	85.101	142.543
24	2.762	.412	2.968	.390	2.369	.222	2.909	.608	3.05667	.30350
25	1.230	.055	1.089	.023	1.051	.004	1.339	.115	1.343	.103
26	1.304	.084	1.53	.145	1.152	.023	1.332	.059	1.496	.108
27	2.500	.000	2.50	.000	2.500	.263	2.500	.000	2.500	.000
28	13.777	205.44	8.861	25.4	10.900	24.322	9.895	25.598	7.805	19.305
29	9.055	18.777	11.375	14.61	10.110	13.343	12.306	22.550	11.569	15.416
30	8.666	37.000	5.538	12.550	5.200	29.066	6.145	16.122	6.444	19.911
31	8.333	27.250	9.146	24.321	9.400	30.488	6.732	20.943	8.361	29.608

32	14.222	14.694	14.750	9.706	14.600	11.377	13.128	16.252	13.055	14.453
33	12.194	10.980	11.208	9.476	10.621	22.245	8.863	8.864	10.923	6.856
34	5.111	3.423	6.121	9.244	6.600	1.822	7.207	8.669	6.597	9.740
35	5.777	14.444	6.659	12.237	9.200	24.622	7.245	13.045	7.138	18.580
36	9.185	3.969	7.701	9.161	9.104	6.307	8.690	8.712	9.204	9.222
37	14.555	14.027	13.092	21.101	10.900	23.211	12.920	21.068	12.194	23.246
38	13.777	11.944	12.980	13.470	15.200	3.733	13.566	14.531	13.111	14.901
39	7.500	16.937	8.252	12.616	8.506	11.922	8.597	21.223	8.319	16.559
40	10.26	8.000	9.089	8.471	8.499	12.099	9.674	5.487	10.055	8.339
41	7.888	3.048	8.845	11.055	7.770	14.973	9.414	9.857	9.513	20.606
42	4.444	13.277	5.763	16.825	4.314	3.145	6.280	21.623	4.111	14.558
43	8.000	8.25	10.195	26.061	8.265	10.191	9.057	28.143	7.361	23.437
44	5.666	15.75	6.219	12.883	5.435	11.436	7.701	12.826	5.805	12.218
45	9.666	19.5	10.260	26.937	8.155	13.573	10.674	22.893	8.416	23.792
46	10.111	35.111	9.523	27.765	10.117	20.765	10.764	24.181	10.250	27.392
47	8.777	31.194	10.632	22.731	9.747	28.508	10.740	23.761	10.750	29.735
48	12.388	17.611	12.615	13.014	12.433	6.081	11.425	11.000	12.805	8.503
49	9.111	2.548	6.84	12.88	8.655	7.662	8.070	11.994	8.597	14.512
50	1.600	.000	1.600	.000	1.600	.133	1.600	.000	1.600	.000
51	2.02	.000	2.02	.000	2.02	.10	2.02	.000	2.02	.000
52	1.50	.000	1.50	.000	1.50	.10	1.50	.000	1.50	.000
53	4.11	.32	3.55	1.07	3.79	.96	4.34	.50	3.99	1.22
54	1.00	.00	1.31	.214	1.26	.14	1.00	.000	1.003	.000
55	1.00	.000	1.07	.064	1.02	.00	1.00	.00	1.06	.05
56	1.00	.00	1.10	.09	1.05	.002	1.00	.000	1.19	.39
57	3.56	.47	3.11	.92	2.80	.56	3.61	.84	2.92	.91
58	2.51	.75	1.99	.62	2.19	.37	1.79	.34	1.54	.62
59	1.33	.22	1.00	.00	1.10	.09	1.18	.14	1.03	.03
60	2.33	.67	2.73	.62	2.19	.51	2.62	.79	2.70	.52
61	3.44	.47	3.04	.38	3.22	.36	3.28	.75	3.15	.56
62	2.63	.87	2.49	1.06	2.00	1.80	3.29	1.20	2.50	.62
63	2.79	.84	2.51	1.07	3.67	1.06	2.55	1.49	3.10	2.05

APPENDIX J

PROCEDURE FOR DETERMINATION OF LEVEL OF SIGNIFICANCE IN FACTOR ANALYSIS

In answer to the question as to what are the chances for random factor loadings, there seems to be no obvious answer. The sampling distribution of statistics arising in factor analysis has been largely neglected. Holzinger and Harmon developed approximation procedures. The principal results are presented in Harmon's Modern Factor Analysis in table form (Table B). Their basic assumption is that individual correlations may be replaced by the mean (ν) of the set. Additional assumptions which led to the approximations tabled were out of consideration of computational labor. For each successive approximation, the sampling error formulas become smaller. Knowing that the sampling errors are probably under-estimated Harmon recommends that a more stringent level of significance should be required. The standard error of a factor coefficient for a population N of 110 where .30 is the average value in the correlation matrix is .125. For a significance level of .05, $\pm$ .25 or higher should be considered to significant correlation.[1]

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[1]Harry Harmon, Modern Factor Analysis (2nd ed.; Chicago: University of Chicago Press, 1967).

APPENDIX K

DETAILED RESULTS OF THE FACTOR ANALYSIS, CLUSTER ANALYSIS, AND CORRELATION MATRIX OF THE SIXTY-THREE SUBSCALES

TABLE K-1.--Rotated factor loadings of Varimax Rotation Analysis (sixty-four subscales).

Variable	Loading								
	1	2	3	4	5	6	7	8	Comm.
1	.0080	-.0262	-.6614*	-.0009	-.0351	-.1286	.0498	.0760	.4642
2	.0482	.0398	.0060	.0111	.6630*	.0675	-.1250	.1396	.4834
3	-.0642	.0232	-.3578*	-.0890	-.0135	.3103	.0365	-.3477	.3593
4	.0744	-.0120	.4403*	-.0673	.1201	-.1921	.0695	.2717	.3338
5	.3159	-.0679	-.1147	-.5316*	-.1157	-.1444	-.1011	.4209	.6218
6	.2792	.3569	-.1251	.0763	.2089	.1616	-.2109	-.3769*	.4831
7	-.4578*	-.1337	.2016	-.0223	-.0512	.0214	-.0890	-.0708	.2846
8	-.3181	-.1312	.0882	.5422*	.0069	.0471	.3162	.1815	.5554
9	-.1195	-.1464	.1050	-.2058	-.0190	-.1115	.1128	-.5024*	.3670
10	.5289*	.3333	.0854	-.3182	-.0070	-.1816	-.2580	.2410	.6570
11	.2098	-.1329	-.1586	.5888*	-.0044	.1406	.4360	.1817	.6763
12	.0298	-.1467	-.2016	.0060	-.0374	-.0487	-.1249	-.3346*	.1944
13	-.6306*	-.0101	.1161	-.0935	.0248	.0427	-.1532	.1368	.4646
14	-.0167	-.0193	.2321	-.4229*	.0625	.1070	.1437	.0988	.2791
15	-.6261*	.3002	-.1616	-.1938	.1154	.0071	-.0633	-.1395	.5826
16	.1098	.0351	.1884	-.5089*	-.0222	-.0699	.0454	-.2226	.3648
17	-.0424	-.0334	.7197*	.0149	-.0978	.0646	-.0218	-.0645	.5394
18	-.0572	.0519	-.1134	.0025	.1127	.3591*	.0363	-.0492	.1642
19	.2107	-.1076	-.1908	.3460*	-.0274	.0212	.1391	.3307	.3420
20	-.0245	.0965	.1109	-.0915	-.0839	.8175*	.1228	-.1433	.7416
21	-.1742	.0620	.1114	-.1386	.0468	.6846*	.1458	-.2589	.6249
22	.0436	.3283	.1211	.0865	-.1213	.3389*	.0786	.1270	.2836
23	.1335	.0121	.1703	-.0338	-.0634	.6920*	.0025	.0949	.5400
24	.2173	.1207	-.4174*	.1844	.1579	-.0956	.1005	.1824	.3475
25	.0695	-.3429	-.0994	.2214	-.0195	.0493	-.0608	.4818*	.4200
26	.3128*	-.0920	-.2268	.0775	.0843	.1863	-.0593	.1621	.2354
27	-.0286	.0862	.0197	-.0729	.0295	-.5194*	.2431	-.0846	.3508
28	-.3958	.0384	.0589	-.1643	.0093	.0660	.4961*	-.1230	.4543
29	.3526	.1348	-.0037	.1732	.0101	.0963	.6408*	.0430	.5943
30	.1283	-.2003	.0367	.0174	-.0897	.1252	.5152*	-.0575	.3507
31	.0135	.2204	.1715	-.0817	.1397	-.0575	-.4563*	-.2422	.3746
32	-.1783	.1684	-.0462	.0564	.2219	-.0630	-.2838*	-.1976	.2383
33	-.1100	.2266	.0524	-.2023	.0073	.0899	-.6987*	-.0384	.6049

34	-.0244	-.0979	-.0613	.0916	-.0495	-.0264	-.0533	.3235*	.1330
35	.1108	.0793	.1862	.0567	.2801	-.1952	-.0545	-.3302*	.2851
36	.1158	-.8176*	.0466	.0082	.0574	-.0385	-.0466	-.0004	.6911
37	-.4682*	.2305	-.0597	.0772	-.0774	-.1521	-.3385	.0558	.4287
38	-.1853	.2115	-.2341	-.1901	-.0197	.0604	.3385*	-.0737	.2698
39	-.0747	-.2118	.0778	.1958	.0157	-.0063	-.5071*	.1901	.3884
40	.2234	-.1421	-.0314	-.1102	-.3477*	.1412	.2399	.2312	.3351
41	.5058*	-.3247	.2388	-.0033	-.0856	-.0591	.1365	.0058	.4478
42	-.1121	.2634	-.1496	.1736	.0596	-.0716	.3844*	-.0378	.2923
43	.2344	.1408	-.0468	.4955*	-.0610	-.0720	-.1981	-.3179	.4717
44	-.0141	.1322	.1058	.2159	-.0021	-.0646	.4949*	.0205	.3250
45	.2105	.2030	.1828	.4815*	-.0205	-.1308	.0087	.0722	.3735
46	.1312	.1166	.1878	-.0404	.0631	-.2464	.4569*	-.0171	.3414
47	.2911	-.0763	.1017	-.1861	.0867	.1501	.3626*	.0084	.2971
48	-.3077	-.1110	-.4496*	-.2813	-.1724	.1269	-.3317	.0844	.5512
49	.0728	-.8432*	.0509	-.0000	.0798	-.0246	-.0538	-.0219	.7293
50	.0425	-.0196	-.0711	-.0906	-.5982*	-.3599	.2381	-.0751	.5651
51	-.0412	.0173	.0522	.0294	.8074*	.1205	-.0809	.0168	.6788
52	-.0210	.1379	.1074	.1135	-.7289*	.2105	-.2393	.1394	.6962
53	.0210	-.1379	-.1074	-.1135	.7289*	-.2105	.2393	-.1394	.6962
54	-.0496	-.3222*	.0576	.1105	-.0722	-.0563	.2887	.2431	.2726
55	.1332	-.0211	-.1300	.0490	-.0267	.0818	-.0941	-.6075*	.4228
56	-.0838	.2424*	-.0436	-.1972	.0664	.0629	.0099	.0260	.1157
57	.1973	-.1459	-.2004	-.2463*	.0027	.1772	.1364	.1004	.2211
58	-.4529*	.0791	-.0220	.1026	.0120	.0875	.0029	.1072	.2417
59	-.0931	-.1878	-.0074	.1330	.0247	.1769	.1387	-.4887*	.3516
60	-.2184	-.0558	.0528	.4272*	.0388	-.1053	.1060	.1890	.2956
61	.3203	.1247	-.4262*	.0855	.0041	.0217	.1665	.0375	.3667
62	-.0460	-.3072	.6123*	.0261	-.0954	.1470	.0422	.1096	.4237
63	.1662	-.2581	-.0643	.5862*	.0158	.0736	.1900	.0301	.4847
64	.0580	-.0151	.3252*	-.1257	.1480	-.0307	.0791	-.0021	.1543
Hi Load									
65	-.6306	-.8432	.7197	.5888	.8074	.8175	-.6987	-.6075	
Prop Var									
66	.0564	.0485	.0501	.0532	.0482	.0384	.0657	.0467	
Cum P.V.									
67	.0564	.1048	.1549	.2081	.2563	.3047	.3047	.4171	

The Wrigley-Kiel Criterion has been satisfied.

*Most significant loading.

3	8.	0.	0.	2.	1.	.624	0.000	1	17			
4	61.	0.	0.	2.	1.	.531	0.000	3	4			
5	13.	0.	0.	2.	1.	.522	0.000	11	62			
6	24.	0.	0.	3.	3.	.509	.057	20	21	22		
7	28.	0.	0.	2.	1.	.487	0.000	25	26			
8	19.	0.	0.	3.	3.	.482	.011	1	17	61		
9	14.	0.	0.	2.	1.	.481	0.000	15	41			
0	21.	0.	0.	2.	1.	.469	0.000	11	29			
1	63.	0.	0.	2.	1.	.460	0.000	31	33			
2	18.	0.	0.	2.	1.	.459	0.000	2	51			
3	54.	0.	0.	3.	3.	.427	.006	8	11	62		
4	27.	0.	0.	3.	3.	.410	.003	15	41	47		
5	67.	0.	0.	2.	1.	.407	0.000	6	54			
6	28.	0.	0.	2.	1.	.390	0.000	11	19			
7	38.	0.	0.	2.	1.	.388	0.000	5	10			
8	48.	0.	0.	3.	3.	.383	.003	2	51	52		
9	43.	0.	0.	4.	6.	.364	.022	1	17	60	61	
0	43.	0.	0.	2.	1.	.352	0.000	7	13			
1	29.	0.	0.	3.	3.	.349	.009	11	29	30		
2	22.	0.	0.	2.	1.	.347	0.000	31	40			
3	48.	0.	0.	2.	1.	.337	0.000	35	40			
4	74.	0.	0.	4.	6.	.331	.062	18	20	21	22	
5	71.	0.	0.	2.	1.	.327	0.000	19	24			
6	59.	0.	0.	2.	1.	.321	0.000	37	40			
7	54.	0.	0.	5.	10.	.313	.066	15	36	41	47	49
8	44.	0.	0.	4.	6.	.308	.013	11	19	25	26	
9	58.	0.	0.	4.	6.	.306	.007	11	29	30	44	
0	75.	0.	0.	2.	1.	.304	0.000	32	40			

33	[illegible]																	
34	6.	[illegible]																
35	56.	0.	0.	2.	1.	.285	0.000	14	43									
36	44.	0.	0.	2.	1.	.283	0.000	16	62									
37	60.	0.	0.	2.	1.	.283	0.000	28	30									
38	67.	0.	0.	3.	3.	.282	.007	5	10	57								
39	70.	0.	0.	2.	1.	.273	0.000	54	58									
40	65.	0.	0.	2.	1.	.265	0.000	25	53									
41	80.	0.	0.	2.	1.	.264	0.000	19	34									
42	73.	0.	0.	2.	1.	.254	0.000	17	63									
43	59.	0.	0.	6.	15.	.253	.022	1	7	13	17	60	61					
44	56.	0.	0.	6.	15.	.251	.021	11	16	19	25	26	62					
45	72.	0.	0.	2.	1.	.245	0.000	39	60									
46	81.	0.	0.	2.	1.	.245	0.000	46	63									
47	53.	0.	0.	2.	1.	.245	0.000	29	46									
48	78.	0.	0.	5.	10.	.235	.017	2	35	40	51	52						
49	86.	0.	0.	2.	1.	.233	0.000	5	56									
50	53.	0.	0.	2.	1.	.228	0.000	42	44									
51	84.	0.	0.	2.	1.	.228	0.000	10	59									
52	76.	0.	0.	2.	1.	.225	0.000	13	48									
53	53.	0.	0.	4.	6.	.219	.003	29	42	44	46							
54	58.	0.	0.	8.	28.	.213	.044	8	11	15	36	41	47	49	62			
55	79.	0.	0.	2.	1.	.207	0.000	9	35									
56	69.	0.	0.	8.	28.	.200	.019	11	14	16	19	25	26	43	62			
57	85.	0.	0.	2.	1.	.199	0.000	38	42									
58	60.	0.	0.	11.	55.	.180	.032	8	11	15	29	30	36	41	44	47	49	62
59	61.	0.	0.	8.	28.	.171	.026	1	7	13	17	37	40	60	61			
60	65.	0.	0.	12.	66.	.153	.035	8	11	15	28	29	30	36	41	44	47	49	62
61	63.	0.	0.	10.	45.	.144	.026	1	3	4	7	13	17	37	40	60	61	
62	88.	0.	0.	2.	1.	.141	0.000	33	55									
63	64.	0.	0.	12.	66.	.129	.024	1	3	4	7	13	17	31	33	37	40	60	61
64	[illegible]																	

| | | |

```
                                  .020
                                    1   2   3   4   5   7   8   9  11  12  13  14  15  16  17  19  23  24  25  26
                                   27  28  29  30  31  33  34  35  36  37  39  40  41  43  44  45  46  47  48  49
                                   50  51  52  53  54  56  58  60  61  62  63
37  88,  0,  0,  62, 1891,  .001  .019
                                    1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20
                                   21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40
                                   41  42  43  44  45  46  47  48  49  50  51  52  53  54  55  56  57  58  59  60
                                   62  63
38  88,  0,  0,  63, 1953,  .001  .018
                                    1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20
                                   21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40
                                   41  42  43  44  45  46  47  48  49  50  51  52  53  54  55  56  57  58  59  60
                                   61  62  63
```

the sixty-three subscales.

		VAR. 1	VAR. 2	VAR. 3	VAR. 4	VAR. 5	VAR. 6	VAR. 7	VAR. 8	VAR. 9	VAR. 10
1	VAR. 1	1.0000									
2	VAR. 2	.0307	1.0000								
3	VAR. 3	.1079	.0217	1.0000							
4	VAR. 4	.1614	.1084	.5311	1.0000						
5	VAR. 5	-.1874	0.0000	.1013	.0819	1.0000					
6	VAR. 6	.1692	.1506	-.1474	-.0872	-.4279	1.0000				
7	VAR. 7	.1082	-.0000	.0185	.0212	-.1580	-.2144	1.0000			
8	VAR. 8	-.0314	.0000	.0436	.0375	-.4296	-.3566	-.2272	1.0000		
9	VAR. 9	.0510	-.1602	-.1526	-.1458	-.1164	-.1322	.0019	-.1024	1.0000	
10	VAR. 10	.0179	.0000	.1434	.1349	.3880	.2408	-.2595	-.4833	-.1215	1.0000
11	VAR. 11	-.0882	0.0000	-.0217	-.0820	-.1430	-.1056	-.2221	.4193	-.0838	-.3512
12	VAR. 12	-.1702	.0000	-.0792	.0125	.0052	.0536	.0336	-.0696	-.1177	-.1424
13	VAR. 13	.1134	0.0000	.0483	-.0020	-.1381	-.1228	.3524	.1064	-.1730	-.3251
14	VAR. 14	-.1058	0.0000	-.0195	-.1359	-.1237	.0648	.0995	-.0185	.0016	-.0634
15	VAR. 15	.0515	.0071	.1003	.0729	.1141	.0152	-.1405	-.0141	-.1837	.1448
16	VAR. 16	-.1395	.0671	.0422	-.0276	-.2327	.0451	.0509	.2656	-.3048	-.0743
17	VAR. 17	.6242	-.0743	.1562	.1572	-.0871	-.1979	.2948	.0461	.1986	-.1009
18	VAR. 18	-.0042	.0000	-.1874	-.1034	-.1228	.0868	-.1313	.1030	.1078	-.0328
19	VAR. 19	-.0624	-.0024	.1370	-.0233	.0187	.0569	-.2154	.1220	-.1958	.0422
20	VAR. 20	.0827	-.0887	-.1768	-.0875	-.1082	.0669	-.0120	.0288	.0682	-.1122
21	VAR. 21	.0627	-.0339	-.1586	-.1437	-.1761	.1107	.0328	.0336	.1501	-.1907
22	VAR. 22	-.0157	-.0689	.0898	.0089	.0366	-.0300	.0334	-.0053	-.1918	.0729
23	VAR. 23	.2936	-.0386	.1952	.1211	-.1564	.0747	-.0042	.0712	-.0009	.1513
24	VAR. 24	-.2830	.0869	.0037	-.0819	.0869	.0552	-.1119	-.0191	-.2028	.0860
25	VAR. 25	-.0618	.0000	.1876	.0323	.2020	-.3195	-.0372	.1784	-.1972	-.0397

		VAR. 5	VAR. 6	VAR. 7	VAR. 8	VAR. 9	VAR. 10
26	VAR. 26	-.1272	.0285	-.0441	-.0482	.1140	.1951
27	VAR. 27	-.0476	-.1147	.1529	.1851	.0646	-.0346
28	VAR. 28	.0451	-.0325	-.0905	.0457	-.1639	-.0323
29	VAR. 29	-.0140	-.0481	.0010	.0256	.0139	-.0072
30	VAR. 30	.1202	-.1836	-.1097	.0644	.0048	-.1060
31	VAR. 31	.0443	.1182	-.1527	-.0119	.0300	.1116
32	VAR. 32	-.0642	.1088	.0871	-.0460	-.1536	.1780
33	VAR. 33	.1050	.2019	-.0367	-.0979	.1233	.1296
34	VAR. 34	.0544	-.0116	.0559	.0066	.0327	-.0904
35	VAR. 35	-.0374	.0337	-.0080	.0191	-.0021	-.0426
36	VAR. 36	.0062	-.0153	.0759	.0212	.0901	-.1928
37	VAR. 37	-.0609	-.0145	.0103	-.0815	-.0855	.0267
38	VAR. 38	-.1825	0.0000	.0455	-.0706	-.0281	-.0584
39	VAR. 39	.0414	-.0251	.0294	.0176	-.0276	.0004
40	VAR. 40	.0262	.0475	-.0912	-.0959	-.1671	.1292
41	VAR. 41	.0440	-.0820	.1756	.0769	.0371	-.0629
42	VAR. 42	-.0178	0.0000	-.0643	-.0451	-.1783	.0901
43	VAR. 43	.0185	.0138	-.0342	-.1061	-.1818	.1661
44	VAR. 44	.0397	-.1298	-.0152	.0448	-.1383	-.0463
45	VAR. 45	.0813	.0138	.1931	.0218	-.1622	.0839
46	VAR. 46	-.0077	.0656	-.0005	.1650	.0312	-.0554
47	VAR. 47	.0153	0.0000	-.0629	.0407	-.0221	.0210
48	VAR. 48	-.1813	-.1123	-.0884	-.1238	.1105	.0353
49	VAR. 49	-.0090	.0383	.0706	.0945	.0824	-.1803
50	VAR. 50	-.0624	-.3873	.0787	-.0354	.0727	-.1167

		VAR. 5	VAR. 6	VAR. 7	VAR. 8	VAR. 9	VAR. 10
26	VAR. 26	-.1446	-.1648	-.2315	.1317		
27	VAR. 27	-.0557	-.0753	.1470	.0329		
28	VAR. 28	.2018	.0491	.0874	-.2010		
29	VAR. 29	-.2080	.1403	-.0537	-.0356		
30	VAR. 30	.1301	-.0044	.0288	-.0814		
31	VAR. 31	.0714	-.1877	.0550	.1592		
32	VAR. 32	.0641	-.0592	.0482	.0178		
33	VAR. 33	.1794	-.3149	-.0529	.1125		
34	VAR. 34	-.1748	.1721	.0027	.0217		
35	VAR. 35	-.0514	-.0052	.2061	-.0268		
36	VAR. 36	.0432	.0250	.0577	-.1021		
37	VAR. 37	.1487	.0312	-.1293	.0057		
38	VAR. 38	.0299	.0317	.1187	-.1756		
39	VAR. 39	-.0019	.0379	.0032	.0437		
40	VAR. 40	-.0374	.0084	.1726	-.0149		
41	VAR. 41	-.1552	.0677	-.0591	.1425		
42	VAR. 42	-.0460	.1468	-.0436	-.0205		
43	VAR. 43	-.0902	.0610	-.0444	-.0231		
44	VAR. 44	-.0407	.1909	-.0194	-.0610		
45	VAR. 45	-.0795	.1513	-.0897	.0895		
46	VAR. 46	-.0356	.0740	-.0077	-.0432		
47	VAR. 47	-.0954	.0491	.0001	.0730		
48	VAR. 48	.0327	-.1738	.0059	-.0502		
49	VAR. 49	.0646	.0288	.0510	-.1406		
50	VAR. 50	-.1748	.0451	.0827	.0522		

	VAR. 1 1	VAR. 2 2	VAR. 3 3	VAR. 4 4	VAR. 5 5	VAR. 6 6	VAR. 7 7	VAR. 8 8	VAR. 9 9	VAR. 10 10
1 VAR. 51	.0498	.4593	-.0104	.1146	-.0690	.1389	.1018	-.0635	-.0064	-.0408
2 VAR. 52	.0007	.3536	.0203	.0264	-.0996	.1065	-.1426	.0304	.1133	-.0196
3 VAR. 53	-.0853	.0669	.0008	.0569	.0063	-.2611	.0424	.2467	-.0479	-.1298
4 VAR. 54	.0399	-.0000	-.1241	-.0906	-.1798	.4067	-.1231	-.2149	.1715	-.2266
5 VAR. 55	-.1071	-.0000	-.0137	-.0383	.0610	.0981	-.0718	-.1253	-.0203	-.0303
6 VAR. 56	-.0077	-.0000	-.0957	-.1038	.2326	.0190	-.1167	-.2038	-.0259	-.1088
7 VAR. 57	-.0709	0.0000	.2088	.0891	.1910	.0516	-.0975	-.2634	.1219	.2652
8 VAR. 58	.0304	-.0000	-.1176	-.0891	-.2880	.1062	.2358	-.0219	.1568	-.3242
9 VAR. 59	.0134	-.0000	-.1703	-.0017	.1504	.1916	-.2097	-.2077	.0238	.2278
0 VAR. 60	.2352	-.0550	.2088	.0915	-.0625	-.0601	.1284	.0104	.1384	-.0634
1 VAR. 61	.3816	-.0170	.1477	.2692	-.0168	-.1180	.0764	.0719	-.0023	-.0073
2 VAR. 62	-.1965	-.0617	.1008	.0302	-.1622	-.1239	-.0718	.3389	-.1202	-.2709
3 VAR. 63	.2179	.1141	-.0139	.0543	.1768	-.1147	.0317	-.0964	.1795	.0365

		VAR. 14	VAR. 15	VAR. 16	VAR. 17	VAR. 18	VAR. 19	VAR. 20
11	VAR. 11	1.0000						
12	VAR. 12	.2129	1.0000					
13	VAR. 13	-.3350	-.2322	1.0000				
14	VAR. 14	.1949	-.0494	-.0312	1.0000			
15	VAR. 15	.3155	-.0630	-.2285	-.0292	1.0000		
16	VAR. 16	.2785	-.0692	-.0025	.2607	.0604	1.0000	
17	VAR. 17	-.1651	-.1234	.1823	-.0975	.0173	-.2530	1.0000
18	VAR. 18	.0134	-.1058	.0552	.0599	-.0301	.0008	-.0018
19	VAR. 19	.3897	-.1044	-.2160	.1104	.0914	.1814	-.1605
20	VAR. 20	.0258	-.0138	.0304	-.1480	-.0706	.0315	.0019
21	VAR. 21	-.0551	-.0019	.1486	-.1029	-.1873	-.0496	.0421
22	VAR. 22	.0110	.0912	-.0541	-.0068	.0870	.0391	.0083
23	VAR. 23	.0369	-.0966	-.1304	-.1517	.1466	-.0619	.2608
24	VAR. 24	.2315	.0335	-.1601	.1112	.0204	.1709	-.4171
25	VAR. 25	.2311	-.0052	.0414	.0713	.1637	.0852	-.0224
26	VAR. 26	.1590	.0615	-.0793	.0045	.2416	-.0771	-.2424
27	VAR. 27	0.0000	0.0000	0.0000	.0753	-.0869	-.0616	.0056
28	VAR. 28	.0034	-.0122	.1377	-.1590	-.2591	.0494	.0759
29	VAR. 29	.4687	-.0518	-.2696	-.0797	.2734	-.0493	-.1252
30	VAR. 30	.2442	.0520	-.1774	.0338	.1171	.0407	.0516
31	VAR. 31	-.2877	.0590	.0803	.0673	-.1405	-.1026	.0069
32	VAR. 32	-.2008	.0338	.0955	-.0483	-.1260	.0273	-.0183
33	VAR. 33	-.4056	.0096	.2630	.1038	-.1192	-.1216	.1120
34	VAR. 34	.1922	-.1856	-.0848	-.0264	.0698	.0852	.0311
35	VAR. 35	-.1052	.0818	-.0358	-.0629	-.0036	-.1117	.0246

		VAR. 15	VAR. 16	VAR. 17	VAR. 18	VAR. 19	VAR. 20
36 VAR. 36	.0447	.1273	-.1194	-.0360	.3523	.1344	.0729	.0258	.1133	-.0751
37 VAR. 37	-.2490	.1067	.2799	.0125	-.3530	.2495	.0242	-.0981	-.1386	-.0698
38 VAR. 38	.1332	-.0358	.0232	.0311	-.2052	-.2150	-.0680	.1754	-.1070	.0429
39 VAR. 39	-.0036	-.0286	.0975	.1661	.0213	.0989	.0268	-.0104	.0001	-.1027
40 VAR. 40	-.1272	.1001	.1145	-.0711	-.2125	-.0900	-.0618	.0534	-.1547	-.0660
41 VAR. 41	.0364	-.0115	-.1146	-.1530	.4802	-.0971	-.0061	-.0911	.0369	-.0450
42 VAR. 42	.1193	.0793	-.1510	.0741	-.0889	.0316	-.0290	.1185	.1453	-.0396
43 VAR. 43	.1595	.0546	-.1069	.2842	.1369	.1331	-.1047	-.1189	.0345	-.0365
44 VAR. 44	.2504	-.0127	-.0901	-.0078	.0235	.0821	-.0152	.0821	.1208	.0200
45 VAR. 45	.2465	.0086	-.1952	.1212	.2996	.1698	.0479	.0148	.0671	-.1447
46 VAR. 46	.0711	-.0322	-.1512	-.0365	.1834	-.0359	.0891	-.1265	.0411	-.1027
47 VAR. 47	.1668	-.2033	.0007	-.2248	.3439	-.0834	-.1882	-.0139	-.1134	.1388
48 VAR. 48	-.2044	.1141	.2240	-.0730	-.2340	-.0288	-.0831	.0776	-.0126	-.0107
49 VAR. 49	.0436	.2030	-.0983	-.0236	.3186	.1440	.0849	.0178	.1419	-.0557
50 VAR. 50	0.0000	.0000	.0000	.0121	.1310	-.0347	-.0516	-.1094	-.0164	-.0812
51 VAR. 51	.0006	.0004	.0006	-.0038	-.1715	.0024	.0158	.0365	-.0025	-.0485
52 VAR. 52	-.0000	-.0000	0.0000	-.0331	-.0505	-.0475	-.1395	.0530	-.0898	-.1278
53 VAR. 53	.2642	-.0790	.0368	-.0560	.2226	-.0894	.1092	-.1313	.1282	-.0739
54 VAR. 54	-.0509	.3012	-.1378	-.0325	-.0266	-.2267	-.0405	.0033	.0696	.0699
55 VAR. 55	-.1087	-.0827	.1016	-.1382	-.1256	.0150	-.0899	.0676	-.0360	.1040
56 VAR. 56	.1066	-.1081	-.0876	.0368	.1347	-.0614	-.0278	.0397	.0182	.0719
57 VAR. 57	.1149	-.0077	-.3494	.0775	.1487	-.1274	-.0403	-.0366	-.0016	-.0166
58 VAR. 58	.0613	.1387	-.0204	.1785	-.0936	.0061	.0165	-.0585	-.0306	.1089
59 VAR. 59	-.2631	.1304	-.1122	-.0724	-.0541	-.1432	.0276	.0732	-.1885	.0888
60 VAR. 60	-.2469	.0161	.2330	-.1597	-.1887	-.2085	.3352	.0128	-.0406	.0054

	11 VAR. 11	12 VAR. 12	13 VAR. 13	14 VAR. 14	15 VAR. 15	16 VAR. 16	17 VAR. 17	18 VAR. 18	19 VAR. 19	20 VAR. 20
1 VAR. 61	.0095	-.1954	.1222	-.0648	.0386	-.0718	.4396	-.0541	-.0202	.0992
2 VAR. 62	.5218	.0184	-.0796	.2556	.2343	.2829	-.1223	.0207	.2087	.0277
3 VAR. 63	-.0198	-.0681	-.0921	-.0785	-.0023	-.1280	.2533	-.1322	.0962	.0653

		21 VAR. 21	22 VAR. 22	23 VAR. 23	24 VAR. 24	25 VAR. 25	26 VAR. 26	27 VAR. 27	28 VAR. 28	29 VAR. 29	30 VAR. 30
21	VAR. 21	1.0000									
22	VAR. 22	.3105	1.0000								
23	VAR. 23	.0792	.1332	1.0000							
24	VAR. 24	-.1816	.0635	-.0511	1.0000						
25	VAR. 25	-.1572	.0277	-.0482	.0475	1.0000					
26	VAR. 26	.0336	-.0232	-.0493	-.0176	.4863	1.0000				
27	VAR. 27	-.1113	.0333	-.0940	-.0021	-.0339	-.0056	1.0000			
28	VAR. 28	.2177	-.0170	-.0811	-.1161	-.1688	-.1594	.1242	1.0000		
29	VAR. 29	.0197	.1180	.0593	.1555	-.0076	.0862	.1012	.0805	1.0000	
30	VAR. 30	.1002	.0185	.0050	.1125	.0795	.0773	.1053	.2830	.3329	1.0000
31	VAR. 31	.0292	.0434	.1276	-.0682	-.1857	-.0774	.0602	-.2406	-.2751	-.1990
32	VAR. 32	-.0102	-.0211	.1654	.0321	-.1662	-.0848	-.0749	-.0574	-.1642	-.3258
33	VAR. 33	.0519	.0772	-.0668	-.1908	-.1349	-.0327	-.1306	-.3066	-.4697	-.3826
34	VAR. 34	-.1055	-.0005	-.1692	.0686	.1005	-.1103	-.0427	-.0287	-.0819	-.1502
35	VAR. 35	.0341	-.0535	.0756	.0130	-.0678	-.0839	.1008	-.0765	-.0591	-.1741
36	VAR. 36	-.0939	-.1277	.0235	-.0558	.1363	.0418	-.0246	-.1005	-.0929	.0719
37	VAR. 37	-.0268	.0161	-.0307	-.0581	.0480	-.0298	.0961	.0169	-.3087	-.2811
38	VAR. 38	.0687	.1027	.0183	.0272	-.0600	.0716	.0084	.1690	.1377	-.0411
39	VAR. 39	-.1327	-.1453	.0449	-.0155	.2206	.0533	-.1750	-.2592	-.3614	-.1461
40	VAR. 40	-.0101	-.0715	.1123	.0296	-.0665	.0522	.0761	.0124	-.0869	-.2454
41	VAR. 41	-.0984	-.0897	.1348	.0982	.1508	.1073	-.0313	-.1216	.1776	.1203
42	VAR. 42	-.0315	.0736	-.0048	.0833	-.0458	.0553	.0799	.1478	.2280	.1229
43	VAR. 43	-.0661	-.0924	.0003	.0589	-.0496	.0870	-.0414	-.1967	.0656	-.0656
44	VAR. 44	-.0043	.1518	.1157	.1075	-.0659	-.0074	.1532	.2751	.3050	.2330
45	VAR. 45	-.2084	.2129	.1065	.0152	.1327	.0340	.0000	-.1116	.1020	-.0024

		21 VAR. 21	22 VAR. 22	23 VAR. 23	24 VAR. 24	25 VAR. 25	26 VAR. 26	27 VAR. 27	28 VAR. 28	29 VAR. 29	30 VAR. 30
6	VAR. 46	-.0744	.0299	-.0643	-.0228	-.1469	-.1139	.0903	.1421	.2444	.1527
7	VAR. 47	.1406	-.0830	.1504	-.0181	-.0068	.1509	-.0393	.0492	.2786	.1234
8	VAR. 48	.0166	-.0800	-.1596	-.0028	.1146	.1004	-.0913	-.0049	-.3490	-.1924
9	VAR. 49	-.0452	-.1705	.0415	-.0864	.1403	.0170	-.0704	-.0437	-.1345	.1369
0	VAR. 50	-.1410	-.0353	.0139	-.0451	-.0076	-.0557	.2962	.0391	.0725	.0632
1	VAR. 51	.1051	.0018	-.0663	.0721	-.0113	.0628	.1070	.0288	-.0101	-.0097
2	VAR. 52	-.0048	-.1757	-.0712	.0947	-.0209	.0302	.1622	.0689	.0681	.0649
3	VAR. 53	-.0110	-.0600	.0060	-.0239	.2644	.1664	.0307	.0528	.1796	.1153
4	VAR. 54	.1128	.0106	-.0842	-.0846	-.1109	.0965	-.0052	.0101	-.0393	-.0739
5	VAR. 55	.1002	.1008	-.0369	.0912	-.1518	.0335	-.0033	.0887	-.0516	.0087
6	VAR. 56	-.0177	-.0086	-.0878	.0508	.0150	.0130	-.0049	-.0449	.1109	.0470
7	VAR. 57	-.0301	-.0722	.1226	.0598	.0083	.0650	.0636	-.0512	.1685	.0446
8	VAR. 58	.2118	.0378	.0111	-.0087	-.0455	-.0182	.0194	.1407	.0363	.2385
9	VAR. 59	.1083	-.1053	.0882	.0119	-.1373	-.0630	-.0000	.0772	-.1600	.0634
0	VAR. 60	.1108	-.0229	.1432	-.2851	.0090	-.0850	-.0320	.1273	-.2217	-.0866
1	VAR. 61	.0911	.0735	.1774	-.2124	.0134	-.0191	-.0411	.1221	.0432	.0466
2	VAR. 62	-.0063	.0492	-.0218	.2306	.2469	.1863	.0566	-.0410	.2641	.2271
3	VAR. 63	.1152	.0513	.0078	-.0353	.0185	.0043	.1568	-.0020	.0001	.0436

	31 VAR, 31	32 VAR, 32	33 VAR, 33	34 VAR, 34	35 VAR, 35	36 VAR, 36	37 VAR, 37	38 VAR, 38	39 VAR, 39	40 VAR, 40
1 VAR, 31	1,0000									
2 VAR, 32	,1085	1,0000								
3 VAR, 33	,4597	,2113	1,0000							
4 VAR, 34	-,2933	-,1027	,0558	1,0000						
5 VAR, 35	,1190	,1090	-,0037	-,0888	1,0000					
6 VAR, 36	-,1358	-,0519	-,2135	,0672	-,0031	1,0000				
7 VAR, 37	,1701	,1378	,1841	-,0178	-,0608	-,1696	1,0000			
8 VAR, 38	-,2639	,0531	-,1720	-,1419	-,0419	-,2140	-,0438	1,0000		
9 VAR, 39	,1305	-,0548	,1262	,0098	-,0613	,0736	,1228	-,2567	1,0000	
0 VAR, 40	,3469	,3039	,1593	,0981	,3361	-,0346	,3211	,0293	,1679	1,0000
1 VAR, 41	-,1730	-,2304	-,2512	-,0683	,0931	,2395	-,3145	-,1899	-,0085	-,1597
2 VAR, 42	-,1154	-,0344	-,3368	-,1478	,0094	-,1161	,0123	,1991	-,2004	-,0149
3 VAR, 43	,0985	,2076	,0862	-,1389	,1507	-,1595	-,0176	-,1100	,0152	,0811
4 VAR, 44	-,1216	-,1299	-,4084	-,0039	,0014	-,0072	-,0704	,0373	-,1982	,0917
5 VAR, 45	-,0995	-,0540	-,1263	,0517	,1707	-,1143	-,0336	-,0014	,0164	-,0094
6 VAR, 46	-,1751	-,1800	-,3272	-,0486	,1882	-,0759	-,1075	,0065	-,2155	-,1835
7 VAR, 47	,0190	-,1508	-,2287	-,1572	-,0381	-,0363	-,3243	,0639	-,1850	-,0870
8 VAR, 48	-,0617	,1107	,1310	,0796	-,2350	-,0294	,2145	,0935	,1478	,0317
9 VAR, 49	-,1328	-,0625	-,2276	,0721	-,0263	,9015	-,1387	-,2137	,1252	-,1037
0 VAR, 50	-,0949	-,0656	-,0936	-,0060	-,1566	-,0159	,0336	,0475	-,1320	-,1472
1 VAR, 51	,1082	,0640	,0119	-,0311	,2245	,0279	-,0407	-,0329	,0521	,2172
2 VAR, 52	-,0000	,1283	-,1318	-,0823	,1430	,0863	-,1328	,0390	-,0652	,1958
3 VAR, 53	-,1224	-,1187	-,1992	,0304	-,2536	,1933	-,1068	-,0474	-,0355	-,0558
4 VAR, 54	,0258	,0577	-,0050	-,1086	,1748	-,0123	-,0554	,0575	-,1023	,0474
5 VAR, 55	,0988	,1114	,1406	-,1063	-,0163	-,1413	,0882	,0391	-,0702	,0741

		31 VAR, 31	32 VAR, 32	33 VAR, 33	34 VAR, 34	35 VAR, 35	36 VAR, 36	37 VAR. 37	38 VAR, 38	39 VAR, 39	40 VAR, 40
6	VAR, 56	-,1868	-,0987	,0359	,1120	-,0298	,1325	-,2713	,0228	-,1651	-,2074
7	VAR, 57	,0561	-,0610	-,1127	-,0316	,0392	,1164	-,1284	,1299	-,0572	-,0782
8	VAR, 58	-,0107	,0283	-,0418	-,0791	,0263	,0506	-,0264	,1112	-,2647	,0090
9	VAR, 59	,1413	-,1243	,0981	-,0258	,0205	-,0905	,0211	-,0455	-,0660	-,1038
0	VAR, 60	,0686	,0842	,0689	-,0332	-,0533	,0698	,1357	-,0550	,2446	,1392
1	VAR, 61	,0317	-,1626	,0030	-,0135	,0505	,0030	,0214	-,0993	,1200	-,0510
2	VAR, 62	-,0460	-,0999	-,2534	,0043	,0123	,1592	-,1458	-,0608	,0598	-,0321
3	VAR, 63	,1453	,0359	-,0035	-,0138	,1581	,0538	-,0362	-,1469	-,1204	,0197

	41 VAR. 41	42 VAR. 42	43 VAR. 43	44 VAR. 44	45 VAR. 45	46 VAR. 46	47 VAR. 47	48 VAR. 48	49 VAR. 49	50 VAR. 50
1 VAR. 41	1.0000									
2 VAR. 42	-.2787	1.0000								
3 VAR. 43	.0566	-.0292	1.0000							
4 VAR. 44	.0146	.2280	.0110	1.0000						
5 VAR. 45	.0776	.0603	.0798	.0921	1.0000					
6 VAR. 46	.0542	.1973	-.0909	.1087	.0274	1.0000				
7 VAR. 47	.4053	-.1118	-.1309	.0818	-.0826	.1026	1.0000			
8 VAR. 48	-.2938	-.0836	-.1854	-.3303	-.2357	-.4272	-.1760	1.0000		
9 VAR. 49	.1631	-.1649	-.1686	-.0240	-.1088	-.0443	-.0452	-.0043	1.0000	
0 VAR. 50	.1481	.0385	-.0036	.0575	.0214	.0813	.0714	.0237	-.0347	1.0000
1 VAR. 51	-.1506	.0132	-.0365	.0019	-.0192	-.0142	-.0460	-.0896	.0451	-.8793
2 VAR. 52	.0515	.0821	-.0779	.0262	-.0293	.1021	.1678	-.1155	.1152	.0000
3 VAR. 53	.1138	.0616	.0326	.2121	-.0625	.0018	.2087	-.0513	.1350	.1726
4 VAR. 54	-.0130	.0511	.1935	-.0743	-.0182	.0328	-.1652	.1645	.0226	.0058
5 VAR. 55	-.0342	-.1537	-.0707	.0193	-.0933	.0475	.0461	-.0138	-.1458	.0037
6 VAR. 56	.0322	.0238	-.0973	-.0742	-.2098	.0851	.0088	.0408	.0631	.0055
7 VAR. 57	.1670	-.1522	.1264	.0019	-.0728	-.0470	.0937	-.1064	.1248	-.0358
8 VAR. 58	.0653	-.0340	.1231	-.1168	-.0316	-.0414	.1285	-.0446	.0875	-.0655
9 VAR. 59	.0977	-.1913	-.0918	-.0507	-.1897	-.0616	.1140	.1115	-.0304	.0000
0 VAR. 60	-.0257	-.0327	-.0922	-.0508	-.0382	-.0508	-.1128	-.0444	.1176	-.0920
1 VAR. 61	.0953	-.1159	-.0915	.0645	.0139	.0766	-.0143	-.1401	.0022	.0000
2 VAR. 62	.1922	-.0371	.2715	.1442	.1473	-.0322	.0546	-.2673	.1442	.0319
3 VAR. 63	.0084	-.0120	-.0720	.0008	-.0153	.2448	-.0484	-.1884	.0554	-.0407

	51 VAR. 51	52 VAR. 52	53 VAR. 53	54 VAR. 54	55 VAR. 55	56 VAR. 56	57 VAR. 57	58 VAR. 58	59 VAR. 59	60 VAR. 60
1 VAR. 51	1.0000									
2 VAR. 52	.3347	1.0000								
3 VAR. 53	-.1493	.0473	1.0000							
4 VAR. 54	.0013	.0318	-.2019	1.0000						
5 VAR. 55	.0008	.0204	-.0907	-.0674	1.0000					
6 VAR. 56	.0012	.0299	-.0231	-.1098	-.0639	1.0000				
7 VAR. 57	.0585	-.0000	-.0037	.0783	-.0535	-.0034	1.0000			
8 VAR. 58	.0763	.0598	.0040	.2729	-.0116	.0272	-.0220	1.0000		
9 VAR. 59	-.0003	-.0000	-.2064	.1049	.0608	.0796	.1394	-.0016	1.0000	
10 VAR. 60	.0594	-.0778	.0111	.0207	.0927	-.1880	-.0614	-.0228	.0040	1.0000
11 VAR. 61	-.0415	-.1267	.1513	-.0424	.0164	-.0705	.0617	.1229	-.0643	.1662
12 VAR. 62	-.0003	.0436	.1628	-.0204	-.1198	.0273	.0758	.1149	-.1441	-.0734
13 VAR. 63	.1091	.0372	.0041	-.0680	-.0030	.1005	-.1578	.0584	-.0165	.0702

	VAR. 61	VAR. 62	VAR. 63
1 VAR. 61	1.0000		
2 VAR. 62	.0308	1.0000	
3 VAR. 63	.1858	-.0051	1.0000

TABLE K-4.--A descriptive extract of the rotated eight factor loadings of the Varimax Rotation Analysis of the sixty-four subscales.

	Factor Loadings	
Factor 1 consisted of the following subscales:		
(-)	Division D (Controllers)	(7)
(+)	1st Level (Foremen)	(10)
(-)	4th Level	(13)
(-)	Education	(15)
(+)	Did not have enough information to make even an evaluation of the divisional relationships or relationships not required	(26)
(-)	Mature Love	(37)
(+)	Wisdom-Logical	(41)
(-)	Rate of Change in Technology	(57)
Factor 2 consisted of the following subscales:		
(-)	Inner Harmony - Responsible - Self-Control	(36)
(-)	Responsible - Self-Control	(49)
(-)	Local Cosmo	(53)
(+)	Q C Department	(54)
Factor 3 consisted of the following subscales:		
(+)	Organizational Effectiveness (Subjective)	(1)
(+)	LPC I	(3)
(+)	LPC II	(4)
(+)	Bowers - Likert - "Dynamics"	(17)
(+)	Department and Divisional Relationships	(24)
(-)	Obedient - Politeness	(48)
(-)	Multiplicity - Specificity of Job	(60)
(-)	Direction and demand from Superior	(61)
(+)	Goal Setting in Division	(63)

TABLE K-4.--Continued.

Factor Loadings		
Factor 4 Loading consisted of the following subscales:		
(-)	Division A	(5)
(+)	Division C	(8)
(+)	2nd Level	(11)
(-)	Length of Service	(14)
(-)	Age	(16)
(+)	Environment (not enough information)	(19)
(+)	Broadminded	(43)
(+)	Courageous	(45)
(-)	Personnel/Maint./Guard Departments	(56)
(+)	Length of Time Feedback (not possible to evaluate)	(59)
(+)	Position Power and Authority	(62)
Factor 5 Loading consisted of the following subscales:		
(+)	Organizational Effectiveness (Objective)	(2)
(-)	Self-Respect - Social Responsibility - True Friendship	(40)
(-)	Technology of Production - Small Batch	(50)
(+)	Technology of Production - Large Batch	(51)
(-)	Number of Product Changes	(52)
(+)	Local - Cosmo	(53)
Factor 6 Loadings consisted of the following subscales:		
(+)	Technology	(18)
(+)	Competition - Suppliers - Rank and File - Finances	(20)
(+)	Rank and File	(21)
(+)	Public Policy	(22)
(+)	Finances - Availability	(23)
(-)	Structure Design	(27)

TABLE K-4.--Continued.

Factor Loadings		
Factor 7 Loadings consisted of the following subscales:		
(+)	Comfortable Life	(28)
(+)	Exciting Life and Imaginative	(29)
(+)	Sense of Accomplishment	(30)
(-)	World of Peace	(31)
(-)	World of Beauty	(32)
(-)	Equality - Forgiving - Loving - Helpful	(33)
(+)	Pleasure	(38)
(-)	Salvation - Honest	(39)
(+)	Ambitious	(42)
(+)	Capable	(44)
(+)	Independent	(46)
(+)	Intellectual	(47)
Factor 8 Loadings consisted of the following subscales:		
(-)	Division B	(6)
(-)	Main Office	(9)
(-)	3rd Level	(12)
(+)	Department Relationships (not enough information)	(25)
(+)	Family Security	(34)
(-)	Freedom	(35)
(-)	Sales Department	(55)
(-)	Length of Time Feedback for "Success"	(59)

TABLE K-5.--A summary of the "Cluster" analysis of the 63 subscales on file 16.

Factor	Cluster																
A. "Clusters" Formed by the Largest Average Within Cluster Similarity Method ("Cluster" Analysis). (File 16)																	
2	9	16	17	35	51	52	63										
8	11	13	15	19	25	26	28	29	30	37	41	43	44	46	47	53	57
	62	63															
4	17	23	27	50	61												
3	13	15	16	31	33	37	38	48	57	60							
1	11	24	59	60													
B. The Ten Factor-Groups Which Met the Criteria of Factor and "Cluster" Communality. (File 16)																	
1	13[a]	15	26	37	41	57											
3	4	17[a]	61[a]														
3	1	24	60														
4	5	14	16														
4	8	11	19	43	62[a]												
5	2	51	52														
6	23	27															
7	28	29	30[a]	44	46	47											
7	31	33	38														
8	9	35															
C. "Clusters" Formed by the "Cluster" Analysis of the 63 Subscales. (File 17)[b]																	
1	3	4	7	13	17	37	40	60	61								
2	35	40	51	52													
29	42	44	46														
8	11	15	28	29	30	36	41	44	47	49	62						
11	14	16	19	25	26	43	62										

5	6	10	54	57			
13	48						

D. The Eight Factor-Groups Which Met the Criteria of Factor and "Cluster" Communality of the 63 Subscales. (File 17)

3	1	3	4	17[c]	60	61[c]	
5	2	40	51	52			
7	28	29	30[c]	44	47		
4	8	11	14	16	19	43	62[c]
8	9	35					
1	15	41					
1	10	57					
7	31	33					

[a]Indicates those subscales which were also found to be, according to the Multiple Regression Analysis, maximal predictors of organizational effectiveness.

[b]File 17 differs slightly from File 16. The following subscales were reflected (reversed) in File 17: 15, 57, 3, 61, 1, 14, 16, 40, 59. The purpose was to have all subscales within each factor to read consistently in the same direction.

[c]Indicates those subscales found to be, according to the Multiple Regression Method, the maximal predictors of organizational effectiveness (subjective).

APPENDIX L

ANALYSIS OF VARIANCE TABLES OF MULTIPLE REGRESSION ROUTINES

TABLE L-1.--Analysis of variance for overall regression.

	Sum of Squares	Degrees of Freedom	Mean Square	F	Sig.
Regression (about mean)	24.32752867	9	2.70305874	13.7667	0.0005
Error	20.22377221	103	0.19634730		
Total (about mean)	44.55130088	112			

Observations	Multiple Correlation Coefficients				S Standard Error of Estimate
	R^2	R	$\overline{R}^2$	$\overline{R}$	
113	0.5461	0.7390	0.5064	0.7116	0.44311094

Var.	Regression Coefficients	Std. Errors of Coefficients	Beta Weights	Std. Errors of Beta Weights	TB	FB	Sig.	Partial Corr. Coefs.	R^2 Deletes
0	7.31138087	0.53760283			13.6000	184.9591	0.0005		
6	-0.37367327	0.09967084	-0.26280	0.07010	-3.7491	14.0555	0.0005	-0.34652	0.48411
13	-0.28121245	0.10287900	-0.19248	0.07042	-2.7334	7.4716	0.007	-0.26007	0.51313
17	-0.40224851	0.05986286	-0.48979	0.07289	-6.7195	45.1517	0.0005	-0.55206	0.34706
30	-0.03532684	0.01036239	-0.24462	0.07176	-3.4091	11.6222	0.001	-0.31843	0.49483
34	-0.05348022	0.01526989	-0.24339	0.06949	-3.5023	12.2663	0.001	-0.32622	0.49200
43	-0.02124918	0.00944271	-0.16341	0.07262	-2.2503	5.0640	0.027	-0.21647	0.52374
61	-0.15912927	0.06230176	-0.18817	0.07367	-2.5542	6.5238	0.012	-0.24406	0.51730
62	0.12577263	0.04246383	0.21595	0.07291	2.9619	8.7727	0.004	0.28016	0.50739
63	-0.07689705	0.03418000	-0.15497	0.06888	-2.2498	5.0615	0.027	-0.21642	0.52375

TABLE L-2.--Analysis of Variance of the Overall Multiple Regression with Dependent Subscale 1 (LSADD).

	Sum of Squares	Degree of Freedom	Mean Square	F	Signifi-cance
Regression (About Mean)	33.94	61	0.56	2.67	<0.00
Error	10.62	51	0.21		
Total (About Mean)					

Observations	Multiple Correlation Coefficients			
	R^2	R	$\bar{R}^2$	$\bar{R}$
113	0.76	0.87	0.48	0.69

Standard Error of Estimate = 0.46

TABLE L-3.--Analysis Variance of Overall Regression with Dependent Subscale 2 (LSADD).

	Sum of Squares	Degree of Freedom	Mean Square	F	Significance
Regression (About Mean)	150948.73	61	2474.57	1.60	0.04
Error	78893.27	51	1546.93		
Total	229842.00	112			

Observations	Multiple Correlation Coefficients			
	R^2	R	$\bar{R}^2$	$\bar{R}$
113	0.66	0.81	0.25	0.50

Standard Error of Estimate = 39.33

Fiedler's description of leaders who have high and low Least Preferred Coworker scores is:

> In very general terms, (and with qualifications the high-LPC (or high Aso) leader tells us in effect that the person with whom he is least able to work on a common task might still be reasonably nice, intellegent, competent, etc. It is as if he were saying that he is distinguishing between the person and the way he works.
>
> The low-LPC leader who describes his least preferred co-worker in a very negative, rejecting manner says in effect that the person with whom he cannot work is uncooperative, unintellegent, incompetent, etc. The implicit personality theory of the high LPC person thus separates work performance and personality, while the implicit personality theory of the low-LPC person links an individual's poor performance on a joint task with undesirable personality characteristics.[1]

General tendencies of each type of leader according to Fiedler are that the High-LPC leaders tend to be more concerned with establishing good interpersonal relations--describes as somewhat more considerate, tend to be lower in anxiety, get along better with each other, and are more satisfied to be in the group. Low-LPC leaders tend to be more concerned with the task, "more task than relationship-oriented" and more punitive toward poor coworkers. They are seen as more efficient and goal oriented in their leadership behavior.

Fiedler cautions in interpretations of the LPC scores:

---

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

Relaxed, pleasant group climates call out quite different types of behaviors in high- and low-LPC leaders from what do group climates which are tense, stressful, or which present difficult leadership situations. Rather than visualizing the personality attributes reflected by LPC scores as correlates of particular leadership behavior, we must interpret LPC quite differently to account for all the data which have been employed.

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