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LEADERSHIP STYLE AND ORGANIZATIONAL CLIMATE: A LONGITUDINAL STUDY

by

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ABSTRACT

Leadership Style and Organizational Climate:
A Longitudinal Study

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The essential problem considered in the thesis is the causal relationship between leadership style and organizational climate. Though there have been correlational studies among leadership and climate variables, there has been little if any satisfactory work to verify the presumption that leadership style is causally linked to organizational climate.

The investigation made use of a questionnaire including both leadership style (LBDQ, Initiation of Structure (IS) and Consideration (C)) items and organizational climate items (derived from The human organization, Likert, 1967) which was distributed at two times approximately 120 days apart. The survey also included a suggestion-box questionnaire which was to be used by the company to evaluate many aspects of employee concern. The results of the general survey were to be distributed to all participants and the study was also to evaluate changes in climate that may have resulted from such feedback.

The study was conducted in three departments of a large engineering consulting firm which has a task-force structure. One department was not given the general survey or feedback in order to act as a control group with respect to the check on induced change through feedback.

The first survey was used to check upon the static relationships between style and climate (both a priori and factor analytic) dimensions. Multiple regression analyses were used. The major tool to examine the causal relationship was cross-lagged correlational panels along with dynamic correlations. Also used were multiple regression techniques with Time 1 climate dimensions independent and Time 2 leadership dimensions dependent for paired data only.

The climate item results were also factor analysed for comparison with a priori dimensions as well as comparison with a factor analysis of data from another source (Likert, 1967).

The results provided only weak support of a change in climate resulting from feedback of survey results. There were several instances where significant relationships between climate and leadership were found. For the factor climate dimensions the most significant relationships were as follows:

project leader IS	-	interaction-warmth
	-	goal congruence
project leader C	-	interaction-warmth
	-	performance and control communications
department head IS	-	performance and control communications
	-	goal congruence
department head C	-	interaction-warmth
	-	confidence-participation
	-	goal congruence

Both the cross-lagged correlational panel criteria and regression results pointed to the most significant relationships

between Time 1 climate and Time 2 leadership as follows:

department head IS	- confidence-participation - locus of decision making - presence of informal organization - performance and control communications
department head C	- upward communications - confidence-participation

These results completely contradicted the results expected from the hypotheses on causal linkages and, there was no indication of support for the hypothesis for any combination of style and climate dimensions.

The comparison of factor analyses on study data and Likert data led to conclusions concerning the possible difference in orientation or mental set of employees in one type of organization and managers in another type when climate variables are considered.

The results of the study pointed towards the question of "good" leadership being a function of flexibility and the ability to respond to cues presented by organizational climate variables.

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DEDICATION

This work is dedicated to both my Parents and my wife, Evangeline, all of whose lasting patience has allowed me to indulge my penchant for education.

CHAPTER I

Introduction

This thesis examines the relationships between leadership styles and organizational climates. In order to indicate the relevance of each category of variables to broader aspects of the study of organizations, a brief review of the major developments in the respective subject areas will be undertaken. At the same time, hopefully clarifying statements will be made on what the terms leadership style and organizational climate refer to in the remainder of the thesis. At the end of this chapter the importance of studying the relationships between these variables will be explained along with the general goals of the research.

Leadership Style

"Leadership appears in social science literature with three major meanings: as the attribute of a position, as the characteristic of a person, and as a category of behavior (Katz & Kahn, 1966, p. 301)." Few would disagree that "When people are influenced to engage in organizationally relevant behavior, leadership has occurred (Katz & Kahn, 1966, p. 309)." Influence has a definite power connotation, that is to say, some form of power is required in order to have influence. Five sources of influence as suggested by French and Raven (1959)

are legitimate power, reward power, punishment power, referent power and expert power.

Legitimate power is what would normally be thought of as the attribute of a position. To the extent that all members of an organization exercise some degree of influence, all members are leaders. Normally, in this thesis, the focus of attention will be upon the leadership style of legitimate leaders. This will preclude discussion of an ever growing literature on small group dynamics with its development of leadership concepts (e.g. Bales, 1970; Bowers & Seashore, 1966; Cartwright & Zander, 1968). Though there is great variety in the degree of legitimate power attributable to a position the interest will be in the differences amongst leadership styles, given the same degree of position or legitimate power.

Leadership as a characteristic of persons was once a major research interest. The interest focussed upon the traits and/or personality characteristics of successful leaders. In a comprehensive review of the subject Stogdill (1948) indicated the contradictory nature of different study results and concluded that the "findings provide 'devastating evidence' against the concept of the operation of measurable traits in determining social interactions (p. 65)." Though trait-oriented studies have continued with some shift towards perceived as opposed to objective measures of personality attributes (e.g. Clifford & Cohn, 1964) a major shift in the orientation of leadership studies was developing.

The development of the Leadership Behaviour Description Questionnaire (LBDQ) during the Ohio State University leadership studies (Stogdill & Coons, 1957) was one result of the shift in orientation and has affected a large portion of leadership research up to the present time. Specifically they concentrated on "(1) What does an individual do while he operates as a leader, and (2) How does he go about what he does? (Hemphill & Coons, 1957)." Most will recognize the terms Initiation of Structure (IS) and Consideration (C), which were the two major dimensions of leadership style that flowed from this extensive and well conducted research. One should not forget, however, the following additional dimensions which resulted from the continuing studies of leader behaviour: representation, demand reconciliation, tolerance of uncertainty, persuasiveness, tolerance of freedom, role assumption, production emphasis, predictive accuracy, integration, and superior orientation. As there is some variation, the definition of IS and C as used in this study is shown below:

> Consideration "includes behavior indicating mutual trust, respect, and a certain warmth and rapport between the supervisor and his group. This does not mean that this dimension reflects a superficial 'pat-on-the-back,' 'first name calling' kind of human relations behavior. This dimension appears to emphasize a deeper concern for group members' needs and includes such behavior as allowing subordinates more participation in decision making and encouraging more two-way communication."
>
> Initiation of Structure "includes behavior in which the supervisor organizes and defines group activities and his relation to the group. Thus he defines the

> role he expects each member to assume, assigns tasks, plans ahead, establishes ways of getting things done, and pushes for production. This dimension seems to emphasize overt attempts to achieve organization goals (Fleishman and Harris, 1962, pp. 43-44)."

These two dimensions have been used in a very large number of studies in relation to a multitude of variables, though most often with group satisfaction and/or performance variables. The landmark review by Korman (1966) pointed out "that very little is known of how these variables may predict work group performance and the conditions which affect such predictions. At the current time we cannot even say that they have any predictive significance at all (p. 360)." Before concluding the discussion of IS and C in subsequent studies, a research program along somewhat different lines but with important implications and influence in later IS and C studies will be considered.

The esteem for the least preferred co-worker (LPC) scores of leaders appears to be very useful in predicting productivity of groups. Fiedler (1967) has claimed that this score reflects the degree of task or people orientation on a single scale, though these orientations would be considered (by many) as orthogonal or unrelated (Weissenberg & Kavanagh, 1972) when measured with the LBDQ. More recently Fiedler has been quoted as indicating that "the LPC score reflects a hierarchy of goals (Hunt, 1971, p. 477)." At a recent seminar (October, 1971) at the University of British Columbia, Fiedler was inclined to

back off from a rigid or well specified interpretation of the score because it has never correlated very highly with any other psychological measures. If one assumed that most people had been exposed to similar degrees of inappropriate behaviour by least preferred co-workers the LPC score could reflect a tolerance for inappropriate behaviour which would carry with it consequences for different behaviours in different situations as discussed below.

At the seminar mentioned above, Fiedler noted that in certain situations high LPC score persons could be expected to respond in a "consideration" manner while low LPC score persons could be expected to act in an "initiation of structure" manner. With suitable changes in situation, reverse responses from high and low LPC score persons could be anticipated. If definite evidence of this phenomenon can be presented it could establish a useful linkage between a personal characteristic (LPC) and social action. In a recent study Sashkin (1972) indicates a relationship between LPC and the extent of information sharing behaviour by leaders.

The more important published work of Fiedler (1967) is the development of a contingency model whereby one would be able to predict group performance from knowledge of a leader's LPC score. The predictions vary with three important aspects of the situation which are used to define "favorable" and "unfavorable" situations and the consequent group performance with high or low LPC score leaders. In order of importance the variables

are "leader-member relations," "task structure", and "position power". While the latter two variables are more or less objectively measurable situational variables the first can be considered as a subjective summary dimension of organizational climate. The model would appear to be useful, though the studies by Graen, Orris, and Alvares (1971a) and the subsequent discussions (Fiedler, 1971a; Graen, Orris, & Alvares, 1971b) leave some questions as to its general value. For more current discussion and study of the contingency model Shiflett and Nealy (1972), Fiedler (1971b, 1972a, 1972b), Sashkin (1972), and Csoka and Fiedler (1972) should also be consulted. It should be noted that much of the research of Fiedler and others testing the contingency model has confined itself to specific short range group tasks rather than more general long range or multiple task situations found in working environments where abilities in planning, organizing, and controlling may well be as important to group performance as "leading".

Several aspects of the LPC score research raise important points in the study of organizations. The use of personal characteristics in determining behaviour should not be overlooked. One might ask if tolerance for freedom, or tolerance for ambiguity might provide similar relationship such as LPC scores do with behaviour and with group performance outcomes. More important is the evidence that situational variables such as task structure will have an impact on what relationships will exist between leadership style and outcome

variables such as group performance.

Returning to the development of the use of LBDQ dimensions we can examine the shift in emphasis after the 1966 reviews of leadership studies (e.g. Korman, 1966; Anderson, 1966). Since that time there has been more detailed study of relationships between Initiation of Structure and Consideration (e.g. Lowin et al, 1969; House et al, 1971) as well as more careful study of the chain of influence from leadership style to organizational outcomes such as performance, high morale, or satisfaction. There has also been a recent interest in the orthogonality of the two dimensions (Weissenberg & Kavanagh, 1972; Kavanagh, 1972). The study by Evans (1970) on the effects of style upon path-goal relationships is an example of the trend in the study of causal linkages. In this paper Evans indicates that degrees of leader Initiation of Structure and/or Consideration will have effects upon perceived path-goal instrumentalities. Yukl (1971) points out a dimension called "decision-centralization" as being an important leadership style (or characteristic). This dimension, which refers to the degree of decision power given to subordinates, may well correspond to tolerance of freedom or role assumption from the LBDQ questionnaire. Yukl indicates that decision-centralization will be orthogonal to Initiation of Structure but may be somewhat correlated to Consideration.

The development of "managerial behavior dimensions" by Wofford (1970) has possibly expanded the number of important

dimensions to five by the addition of "managerial behaviors involving the functions of planning, organizing and controlling, as well as leading (p. 12)." The five factors--group achievement and order, personal enhancement, personal interaction, dynamic achievement, and security and maintenance--seem to provide some division of Initiation of Structure and Consideration dimensions rather than just being an addition to them. According to Wofford, the relevance of these dimensions with respect to morale and productivity seems to vary with various organizational climates, but there is likely to be a requirement for more extensive testing before these dimensions can enjoy the wide acceptance accorded the LBDQ ones. The required precision in defining the Wofford dimensions may possibly make them less useful in consulting or management training as they exclude the shorthand prescription. The intervening climate factors may, to a greater extent, have to be accounted for when prescribing ideal leadership action when using these dimensions.

Perhaps the most important recent development in leadership theory has been the work of Robert J. House (1971) in developing a comprehensive path goal theory of leader effectiveness. From a broad class of previous expectancy theory of motivation and his formulation of motivation related to expectancy theory, House derives four general propositions as follows:

1. The motivation functions of a leader are to increase the net positive valences associated with work-goal attainment, increase the net positive valences associated with the path--behavior--to work-goal attainment, and

increase the subordinate's path instrumentality with respect to work-goal attainment for personal outcomes and the behavior required for work-goal attainment. . . .

2. In increasing path instrumentality by clarifying path-goal relationships, the leaders behavior will have positive motivational effects to the extent that it reduces role ambiguity or makes possible the exercise of externally imposed controls. . . .

3. When leader attempts to clarify path-goal relationships are redundant with existing conditions, that is, where path-goal relationships are apparent because of the routine of the tasks or objective system-fixed controls, attempts by the leader to clarify path-goal relationships will result in increased externally imposed control and will be seen by subordinates as redundant. . . .

4. Leader behavior directed at need satisfaction of subordinates will result in increased performance to the extent that such satisfaction increases the net positive valence associated with goal directed effort (p. 323).

House indicates that "specific hypotheses concerning leader consideration, initiating structure, closeness of supervision, hierarchical influence, and authoritarianism can be derived (p. 324)" from these general propositions. He gives eight specific hypotheses as examples, where the effects of Consideration and Initiation of Structure are predicted. These predictions take into account task demands (routine-nonroutine), position power, intrinsic job satisfaction, task-role demands (ambiguous or clear), the state of teamwork norms, and task and/or environment induced frustration or stress. The outcome

expectations concern ego protection and security as well as satisfaction and performance. With the aid of the general propositions and hypotheses the reasons for previously unexplained findings are clarified. In a series of three studies general support for the hypotheses was found by House (1971).

Though the framework and vocabulary are different in the House theory noted above and the Fiedler (1967) contingency model discussed previously, some rather striking parallels or similarities should be noted. The "leader-member relations" dimension of Fiedler which emphasises trust and confidence is certainly comparable to House's dimensions concerning the state of teamwork norms though in the House studies this dimension is not considered most important. Fiedler's "task structure" appears to have been divided into more dimensions by House when he considers task demands, task-role demands, intrinsic job satisfaction, and task induced frustration or stress. The use of a position power factor is common to both their approaches. With a more elaborate consideration of "task-structure" and a more comprehensive and more comprehendable statement of relationships in terms of basic motivation and expectancy theory the House formulations would appear to be eminently superior in explanatory power as well as providing more easily testable hypotheses in further research in the relationships between leadership style and group satisfaction and performance. The findings of Fiedler with respect to relationships between personal attitudes or characteristics and leadership behavior

would also deserve further attention.

In more recent reports House and Rizzo (1972) indicate that role ambiguity and role conflicts are significant intervening or moderating variables between leadership style and group performance or satisfaction. They particularly note the more important nature of role ambiguity in this regard. This evidence would, in a bread sense, provide support for the House theories.

Though this brief review of leadership style has been confined primarily to the development of leadership style as exemplified by the LBDQ dimensions, the importance of this aspect of leadership study has certainly been indicated. Though the emphasis has been upon leadership as a category of behaviour, leadership as an attribute of position or characteristic of a person can not be completely neglected. For more information on broader aspects, the organizational leadership issue of Administrative Science Quarterly (March, 1971), which also contains abstracts of recent ASQ articles relevant to leadership behaviour, or the presentations at the Southern Illinois University Symposium on Development in the Study of Leadership held in April 1971 should be consulted.

Organizational Climate

Before returning to a discussion of the relationship of leadership style to organizational climate a separate review of developments in the study of organizational climate appears in order. The term organizational climate (or environment) has

been used loosely in the literature, without detailed definition, for a very long time. This has been particularly true in case studies or where explanations of changing experimental results were made by attributing the changes to different situational factors associated with similar experiments or studies conducted in different circumstances.

The classic experiment of Lewin, Lippitt and White (1939) on the effects of democratic, laissez-faire, and autocratic social climates is one of the early attempts to manipulate climate as an independent variable. From that time onward a slow growth of various conceptual notions of the term climate were growing.

Argyris (1957) pointed out one major source of disagreement among those considering climate definitions which, to a major extent, still exists. He indicated that the level of analysis of organizational theory would affect one's viewpoint on what were relevant dimensions. He speaks of "formal organizational variables such as policies, practices, and job descriptions . . .", personality variables such as needs, abilities, values, self-concept and defenses . . .", and "informal variables that have arisen out of the participants' continuing struggle to adapt to the formal organization . . . (pp. 501-502)." Sells (1963) developed an "outline of Basic aspects of the Total Stimulus Situation" but emphasized the requirement for objective measures as opposed to perceived measures in apparent disregard for the viewpoint that many determinants of individual behaviour

are related to individual perceptions rather than to actual circumstances.

Interest in climate dimensions grew more quickly after 1964 when Forehand and Gilmer (1964) brought various conceptual notions together in a comprehensive review indicating the nature of dimensions that would be useful and how they could be developed. Their definition of organizational climate was sufficiently broad to include most meanings attributed to it by various writers. They referred "to the set of characteristics that describe an organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over time, and (c) influence the behavior of people in the organization (p. 363)." Forehand and Gilmer (1964) also discussed three mechanisms by which organizational climate could be expected to affect behaviour. The discussion has been rather nicely encapsulated by Campbell et al (1970)in the following quotation:

1. Definition of stimuli. Environmental characteristics such as the structure of an organization, the implicit theories held by its management, or the economic condition of the industry have considerable influence on the relevant stimuli which impinge on an individual in his work role. For example, a shrinking market may elicit managerial skills associated with holding cost down, preventing waste, and increasing market share rather than those concerned with increasing production and developing new products.

2. Constraints upon freedom. Certain attributes of the situation may actually prevent certain behaviors from occurring. The structure of the organization may place a number of restraints on management communication or the degree of

autonomy. Such structurally imposed constraints may be either deleterious or facilitative relative to performance effectiveness.

3. Reward and punishment. Besides influencing what sorts of stimuli will be perceived and what types of responses are permitted, the environment can also specify the reinforcement contingencies for various managerial behaviors. It seems intuitively obvious that the situation should help determine the behavior-reward contingencies in an organization. For example, a manager in a very autonomous organization would make much broader decisions without consulting his superior than a comparable manager in a very nonautonomous organization. The situation is one in which a great deal of independent action is rewarded. Supposedly, a lack of independent action would be punished in some fashion (p. 387).

By the time of the Harvard conference on organizational climate (Tagiuri & Litwin, 1968) the preference for more precise and narrower definitions was evident. As Tagiuri (1968) pointed out, there are still common and stubborn difficulties standing in the way of a general consensus of opinion: "a. distinguishing between the objective and subjective environment;" has been the most serious problem and affects most other issues. "b. distinguishing between the person and the situation;" causes much disagreement. For example, n Achievement and similar "personal" characteristics are difficult to separate from continuing environmental factors which affect these characteristics. "c. determining which aspects of the environment need to be specified;" brings forward problems of relevancy to general situations and the practical problems of having to limit the number of variables one is to consider. "d. identifying the structures and dynamics of the environment (p. 13)" is

the last of the problems elicited by Taguiri (1968). As with many interactive dimension fields, "chicken and egg" disputes are likely to arise.

Taguiri (1968) starts from an initial definition of organizational climate as follows: "Climate is the relatively enduring quality of the total environment that (a) is experienced by the occupants, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics (or attributes) of the environment (p. 25)." He then develops the following definition for organizational climate which places more emphasis on aspects that will affect attitudes and motivation.

> Organizational climate is a relatively enduring quality of the internal environment of an organization that (a) is experienced by its members, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics (or attributes) of the organization (p. 27).

Needless to say, others find requirements to go beyond the bounds of this definition.

Sells (1968), on the other hand, proposes a comprehensive listing of social system components illustrating that many could be determinates of, as well as being climate dimensions. These components are considered as objectively measurable items though one might have difficulty in some cases separating out various judgemental biases on some dimensions listed. Surprisingly, in this listing and others like it, no concern is given to dimensions that would be considered

important by marketing or finance observers. Marketing observers might well consider such aspects as the marketing segment dealt with or the marketing channels used to be determinants of organizational climate.[1] Finance observers might take note of various financial ratios, earnings (cash flow), cost of capital, or degree of price competition (or various non-price forms of competition) in the industry as determinants of organizational climate.

As may have been seen, a diverse multitude of variables fall into the "situation" category. In order to discuss them it may be useful to categorize them under the following four headings as used by Campbell et al (1970): "(1) structural properties, (2) environmental characteristics, (3) organizational climate, and (4) formal role characteristics (p. 412)."

Under structural properties variables we could find size, flat or tall, organizational shape (Forhand & Gilmer, 1964), centralized versus decentralized organization, span of control, and line versus staff (Porter & Lawler, 1965). Sample items listed by Sells (1968) under the heading organization are differentiation, autonomy, modes of control, and role structure. Under most of the above items a variety of sub-classifications would be possible (Sells, 1968). There would be a value in determining a widely acceptable set of structural variables and corresponding dimensional units. The attractive feature of most of these variables is the ease with which an outside observer can objectively assess or measure them. The

unattractive feature is the causal remoteness from interesting outcome variables. Few studies demonstrate simple or direct relationships between structural variables such as size and productivity or morale.

For examples of environmental characteristics we have items listed by Sells (1968) under the heading physical environment such as equipment employed, natural resources, remoteness of site, mobility permitted, and et cetera. Under this category one might also wish to include variables concerning degree of price or other forms of competition in an industry, marketing methods or constraints, and financial strategy or constraints. Once again these items are relatively easy to evaluate objectively though more problems may arise in providing useful dimensional units as well as in determining relative importance and relevance of these variables. In cross-cultural studies the items listed by Sells (1968) under the social-cultural environment heading such as language, territorial organization, justice, religion, and sex may well be important variables to consider.

Under formal role characteristics or demands we can again refer to Sells (1968) and find dimensions such as incorporation of formal authority, remoteness of goals, success uncertainty, ethical values, functions involved, types of equipment, use of technology, and products and services involved. The usefulness of these dimensions has been demonstrated by Woodward (1965) and also by Lawrence and Lorsch (1967) where

the strong implication is made that optimum structural characteristics (and management behaviour) in manufacturing is highly dependent upon the production system employed (i.e. unit production, mass production, or continuous process production). A recent study by Mohr (1971) attempted to find relationships between organizational technology and organizational structure.

The dimensions that will be discussed under organizational climate as we will use the term henceforth will generally meet the definitional requirements as indicated by Tagiuri (1968) (see above). As opposed to other situational variables discussed, the focus of these variables is on the nature of perceptions of individuals within an organization.

Litwin and Stringer (1966) developed a questionnaire which was intended to measure member's perceptions. Though the questionnaire as developed does not provide clean orthogonal dimensions, the dimensions and definitions as condensed by Campbell et al (1970) are indicated below:

1. Structure. Perceptions of the extent of organizational constraints, rules, regulations and 'red tape'

2. Individual responsibility. Feelings of autonomy, of 'being one's own boss'

3. Rewards. Feelings related to being confident of adequate and appropriate rewards--pay, praise, special dispensations--for doing the job well

4. Risk and risk taking. Perceptions of the degree of challenge and risk in the work situation

5. Warmth and support. Feelings of general good fellowship and helpfulness prevailing in the work settings

6. Tolerance and conflict. Degree of confidence that the climate can tolerate differing opinions (p. 390).

In follow up work on the questionnaire above, Litwin and Stringer (1968) report 9 dimensions as indicated below:

1. Structure--the feeling that employees have about the constraints in the group, how many rules, regulations, procedures there are; is there an emphasis on "red tape" and going through channels, or is there a loose and informal atmosphere.

2. Responsibility--the feeling of being your own boss; not having to double-check all your decisions; when you have a job to do, knowing that it is your job.

3. Reward--the feeling of being rewarded for a job well done; emphasizing positive rewards rather than punishments; the perceived fairness of the pay and promotion policies.

4. Risk--the sense of riskiness and challenge in the job and in the organization; is there an emphasis on taking calculated risks, or is playing it safe the best way to operate.

5. Warmth--the feeling of general good fellowship that prevails in the work group atmosphere; the emphasis on being well-liked; the prevalence of friendly and informal social groups.

6. Support--the perceived helpfulness of the managers and other employees in the group; emphasis on mutual support from above and below.

7. Standards--the perceived importance of implicit and explicit goals and performance standards; the emphasis on doing a good job; the challenge represented in personal and group goals.

8. Conflict--the feeling that managers and other workers want to hear different opinions; the emphasis placed on getting problems out in the open, rather than smoothing them over or ignoring them.

9. Identity--the feeling that you belong to a company and you are a valuable member of a working team; the importance placed on this kind of spirit (pp. 81-82).

In contrast, a factor analytic development of dimensions by Schneider and Bartlett (1968) produced the following dimensions:

1. Managerial support. Similar to the factor of consideration found in the Ohio State studies. It refers to managers taking an active interest in the progress of their agents, backing them up with the home office, and maintaining a spirit of friendly cooperation.

2. Managerial structure. Refers to the manager requiring agents to adhere to budgets, be knowledgeable regarding sales material, and produce new customers. It tends to be a "sales-or-else" factor.

3. Concern for new employees. Most of the items are typified by a concern for the selection orientation, and training of a new agent.

4. Intra-agency conflict. Refers to the presence of ingroups or outgroups within an agency and the undercutting of managerial authority by the agents.

5. Agent independence. These items describe agents who tend to run their own business and do not pay much attention to management.

6. General satisfaction. Refers to the degree to which the agency sponsors periodic social get-togethers and the agents express satisfaction with various management and agency activities (Campbell et al, 1970, p. 391).

One difficulty in deriving climate dimensions is making a choice between searching for broad dimensions which are common to all organizations or including dimensions which have relevance to only limited numbers of organizations of the type being studied. Campbell et al (1970) felt that all studies to

that time had only given five or six common factors and were only able to agree upon four general factors which recurred regularly. Their synthesis of these factors is given below:

1. Individual autonomy. This is perhaps the clearest composite and includes the individual responsibility, agent independence, and rules orientation factors found by Litwin and Stringer, Schneider and Bartlett, and Kahn et al., respectively, and Taguiri's factor dealing with opportunities for exercising individual initiative. The keystone of this dimension is the freedom of the individual to be his own boss and reserve considerable decision-making power for himself. He does not have to be constantly accountable to higher management.

2. The degree of structure imposed upon the position. Litwin and Stringer's structure; Schneider and Bartlett's managerial structure; Taguiri's first factor dealing with direction, objectives, etc.; and Kahn et al.'s closeness of supervision seem similar enough to be lumped under this label. The principal element is the degree to which the objectives of, and methods for, the job are established and communicated to the individual by superiors.

3. Reward orientation. Another meaningful grouping includes Litwin and Stringer's reward factor; Schneider and Bartlett's general satisfaction factor, which seems to convey reward overtones; Kahn et al.'s promotion-achievement orientation; and Taguiri's being with a profit-minded and sales-oriented company. These factors do not hang together quite as well as the previous two groups and seem to vary a great deal in breadth. However, the reward element appears to be present in all.

4. Consideration warmth and support. This dimension lacks the clarity of the previous three. Managerial support from the Schneider and Bartlett study and nurturance of subordinates from Kahn et al. seem quite similar. Litwin and Stringer's warmth and support also seems to belong here since apparently this is a characteristic attributable to supervisory practices. Taguiri's mention of

> working with a superior who is highly competitive and competent does not fit quite so easily, but nevertheless seems to refer to the support and stimulation received from one's superior. However, the human relations referent is not as clear as in the factors derived from the other studies (p. 393).

The importance of future agreement on what aspects of organizational climate will be of most value both theoretically and practically can hardly be understated. As is indicated by Campbell et al (1970, p. 385), other types of variables have only been able (at best) to account for one-half of the variability in managerial effectiveness. They also point out that what empirical evidence we have suggests significant environmental effects and that there appears to be a consensus on the importance of situational variables.

The revised theoretical personal action model of Porter and Lawler (1968, p. 165) does not allow explicitly for changes in organizational climate dimensions but it is not difficult to imagine relationships between some climate dimensions and such factors as role perceptions, perceived effort-reward probability, or intrinsic rewards. Vroom (1964, p. 26) with a different model for personal action includes an item for "situational variables: past" but this is not connected in a relational manner to other parts of the model. Suitably chosen organizational climate dimensions might well be able to summarize "situational variables: past" and be used to explain changes in results from one study to another. The advisability of using agreed upon climate dimensions and measuring techniques

on all other studies of personal action or interaction models would possibly lead to satisfactory resolution of difficulties caused by apparent variations in study results and lead to more complete models which would take explicit account of climate (and other situational) dimensions.

Thus far the discussion of leadership style and organizational climate has treated each of these dimension fields as quite separate and distinct. What of the relationships and interactions?

There has certainly been recognition of organizational climate dimensions as important moderating variables between leadership style and group performance or satisfaction. The theory building of Lawler and Porter (1968) and Vroom (1964) has implicitly recognized the need to consider situational variables in personal interaction models. The studies of Fiedler (1967), Wofford (1971), and House (1971), give evidence of the importance of combining the knowledge of climate with that of leadership style. There would appear to be a general consensus on the importance of the interrelationships of climate and style when considering either set of variables in conjunction with many other variables.

Causal Relationships between Leadership style and Organizational Climate

But, what of the causal relationships between leadership style and organizational climate? The general presumption is

made by many people that leadership style is a major determinant of organizational climate. For example, Litwin and Stringer (1968) state, early on in their monograph, and without references, that "research findings indicate the manager is one of the major determinants of climate (p. 6)." There have been a number of studies which demonstrated correlations between leadership style and dimensions which could be considered as climate dimensions (e.g. Anderson, 1966), but the direction of causality has been presumed with little substantive evidence.

One of the very few studies which attempted to verify a deterministic relationship from leadership style to organizational climate is that conducted by Litwin and Stringer (1968, Ch. 6). As will be indicated below the results could be discounted because of the procedures used.

Briefly, three simulated organizations were created where the only experimental differences were the leadership styles of the presidents. The presidents were instructed to maintain a rigid pattern of behaviour throughout the working periods of the simulated companies. One might ask, by analogy, the effect upon an experiment to measure social ease or tension in a formal dinner party situation where the host appeared wearing a propeller-topped beanie. The outcomes could vary substantially from one situation where the host was unaware upon entering that he was wearing a beanie and another where the host was advised that the beanie was not to be removed under any circumstances of social or other pressures. There were

repeated complaints by one experimental group (p. 140), that the job task was biased to a great extent both in the demands for innovation (p. 144) and the rule against the creation of inventories (p. 143), that may well have been justified. The studies of Fiedler (1967) or House and Rizzo (1972) would indicate that appropriate leadership style may well depend on the nature of the task. In view of studies which note the importance of expectations upon responses to leadership style (Scontrino, 1972; Kavanagh, 1972) one might also question the ability of the presidents to act consistently with this forced role at all times or if much of the results reflect responses to violations of expectations rather than to leadership behaviour per se.

The most important ingredient missing in the study was any possibility for natural interaction. There was no possibility in the experimental design that <u>any</u> situational, climate or other variable <u>could have an impact upon leadership style</u>. The artificial nature of the simulation is magnified when one realizes that each president was a member of the research staff and was possibly more concerned with creating the expected outcomes and maintaining a specified style, rather than generating the best performance from their groups.

If the above evidence of a causal relationship can be discounted and there is little if any other scientific evidence of a causal linkage it becomes apparent that the presumed relationships should be demonstrated. In the words of Litwin

(1968) the "analysis of behavioral accomplishment cannot be pursued within the confines of experiments which are based on the control and isolation of variables. At the sacrifice of experimental control, organismic adaptation must be studied in situations representative of the natural habitat (p. 46)." The goal of this thesis, therefore, is to study the causal relationships between leadership style and organizational climate in a representative habitat. More specifically, the research concentrates upon leadership style of legitimate leaders as described by the LBDQ dimensions of Consideration and Initiation of Structure and their causal relationships to organizational climate as perceived by group members in a natural environment.

Plan of the Thesis

The following chapter will cover the design of the study including a description of the setting, circumstances for initiating the study, questionnaire design, study procedures, and hypotheses to be tested. The third chapter gives numerical, graphical and verbal presentation of the results of the study in serial order, that is, roughly in order of analysis rather than being categorized in topic or hypothesis segments. The fourth chapter gives the conclusions derived from the results. In this chapter summaries of results as they relate to each hypothesis are given along with conclusions derived. Supplementary findings and conclusions not directly related to the test of hypotheses are also presented, followed by a discussion

of the more important results of the study. The fifth chapter does not include any new material, but is a summary of the study, results, and conclusions, exclusive of the first chapter review of the literature on leadership style and organizational climate.

footnotes - chapter I

[1] As an example, the use of the door-to-door marketing channel by Avon cosmetics is likely to have pervasive effects on climate dimensions throughout the organization which will distinguish it from other cosmetic firms.

CHAPTER II

Design of the Study

This chapter will cover the design of the study with consideration of reasons for various procedures and the hypotheses that were to be investigated. Before going into details of the hypotheses, a general description of the subject company, the circumstances of the initiation of the study, questionnaire design, and distribution procedure will be given.

Description of the Subject Company

The subject company is, relatively speaking, a very large[1] engineering consulting firm which provides a comprehensive range of engineering services from feasibility studies and estimates through to design, purchasing, contracting, construction supervision, and start-up assistance. Historically the firm has specialized in one area of technology and has gained an international reputation for mill design and construction in this field with projects having been handled on all continents.

The organization of the departmental structure is geared to handling major projects[2] which utilize most departments though, at any one time, there are numerous small projects which may involve relatively few departments. There are five mechanical departments which correspond roughly to functional or technological divisions within the finished projects. An

example would be the steam department which handles all design requirements for steam generation, turbine installation, etc., as well as assuming responsibility for piping stress analysis throughout any project on all steam or other lines requiring such analysis. There are, as well, several other engineering departments which are responsible for their respective technologies irrespective of the mechanical or other area divisions in which they fall. Examples of these would be instrumentation, electrical, or structural departments.

Another group of departments can be characterized as essentially non-engineering departments even though in many instances they are staffed and/or supervised by engineers. These would include the contracts, scheduling, estimating, accounting and purchasing departments, amongst others. There are also a few service departments such as personnel, engineering records, and payroll which are not usually associated directly with project affairs.

The overall structure of the organization could be characterized by J. D. Thompson's (1967, p. 80) definition of a task-force organization. For each major project there is a project engineer who assumes administrative control and responsibility for an entire project. Above him there would normally be a project manager from the senior executive level of the firm who would monitor the project and act as the senior level liaison agent with the client. The project engineer would normally have a very small support staff (six or less, including

secretarial help) with functional leadership being provided by project leaders (or their equivalent) from the departments.

Each department has its own department head and its own geographical operating space. Specifically each department is separated physically from the others by being on separate floors, reserved and partitioned portions of floors, or even separate buildings. With few exceptions the functional aspects of departmental work are carried out within the physical confines of the particular department. One exception recently has been a project in a new technology (for this firm) where numerous project leaders with subordinates from various functional departments have been brought together in one location for the duration of a project. In the past this had been done on occasion with normal projects when the project engineer wished to have more direct control of functional areas (particularly mechanical ones) without interference from department heads, but this had been seen as a limitation upon flexibility and has been discouraged on recent normal projects. Each project leader is thus faced with having to satisfy project requirements as well as those of the department head.

As the situation is now the department heads have a great deal of autonomy. Within budget constraints, they have full control over hiring and firing, staffing for each project, physical arrangements and layout within their department. The department heads, if forced to conform to project requirements by a project engineer against departmental advice, can and do

opt out of responsibility for disregard of their advice. As might be imagined, department heads use a variety of procedures for maintaining control. In a few, all written communication into or out of the department is routed through the department head. At the other extreme one finds department heads using few formal controls, but depending on information from subordinates as to any exceptional circumstances while maintaining a role as general advisor and technical consultant.

There are few formal rules concerning how and what is to be communicated to which department, but a very complex matrix of accepted norms of communication and priorities have evolved which normally preclude requirements for extensive policing by the project engineers and their relatively small staffs. Though somewhat variable in their roles, the project leaders from the respective mechanical areas generally have a strong co-ordinating and communications function for all aspects of work which fall within their domain. The chief function of the project engineer and his staff is that of defining and communicating client and project requirements, general multi-technology co-ordination, resolution of technical or other problems with the client, or resolving conflicting priorities amongst two or more functional departments when they arise.

Although not common to all departments the following description of the organization of departments does hold for the three subject departments in this study and is characteristic for most engineering departments in the firm. Each

department head has at least one assistant manager. As the department heads do a moderate amount of travelling, a recognized temporary replacement is required in order to maintain smooth operation within the department. Other than this function the roles vary substantially from one extreme where virtually all directives and line communications pass through the assistants to the other where his function is primarily that of staff assistant with little line authority. Below them are project leaders who direct the functional aspects of specific projects. Each project leader will have a group of engineers and draughtsmen who report directly to him or for larger groups there is division into sections, each of which is under a section leader. These groupings are relatively stable and can last upwards of two years which could be the duration of work on a specific major project. At the end of a project, personnel are divided and placed into other current or just starting projects or, if timing is suitable, they may continue into a new project as a unit. These groupings are not rigid as personnel, particularly lower level ones, are shifted to meet changing labour demands through arrangements with the department head or are "borrowed" for short periods (one to three days) on an informal basis between project leaders to meet peak load requirements. The checking of drawings, calculations, etc. is usually performed by senior personnel outside of a particular project group, who are often directing work on another project. The department head is usually the ultimate arbiter in any dispute

with respect to design or otherwise between project leaders and checkers, but it is not unknown that the authority of the department head be circumvented entirely by direct appeal, without beat of drum, to the project engineer or client. There are also a few specialized groups in some departments who do not become attached to specific projects but are available on a pooled basis to all projects, and may be available directly to other departments without formal communication links through project leaders or administration within the department. An example of such a group is the stress analysis group of the steam department which is available directly to other mechanical departments for analysis of all steam piping. The clerical and secretarial functions are also generally available to all parts of the department on a pooled basis. As might be expected there are a large number of people with specialized talents and/or experience throughout the company, who are available on an informal consultative basis for all projects (or feasibility studies) irrespective of their current formal role.

Circumstances of Initiation of the Study

Through contact with the personnel manager of the subject firm, the investigator had become aware of a desire to conduct a suggestion-box type questionnaire survey throughout the company. The idea of conducting such a survey had been generated from suggestions in Scott Meyer's (1970) Every Employee a Manager where the utility of such a survey is pointed

out. The use of a similar survey by Truell (1970) had also been a source of ideas. The proposal, in effect, was to have someone independent from the firm assist in preparation of a suitable questionnaire which would answer questions of value about needs or opinions of employees. It was also felt that independent tabulation was required in order to ensure anonymity, honesty, and credibility.

As with the questionnaires previously cited, it was intended to provide direct feedback of all results to all participants in the survey as well as to management. The research possibilities in such a survey were limited to a search for new variables or to a case study.

What did arise as a matter of research interest, however, was the possibility of adding on a research instrument to the initial survey, which could be repeated at a later date to register any changes in organizational climate as a result of the other survey and the feedback of results. Further consideration developed the requirement for feedback of results of the climate questionnaire as well as what we shall call the general questionnaire. Lastly, and most important from a research point of view, was the addition of leadership style items to determine if any climate dimensions were related to leadership style and if the changes in climate that followed were indeed related to changes in leadership style.

Once the general nature of what type of survey to be conducted was known, a proposal was made to the senior executive

of the firm. Approval was granted with the provision that department head approval would be required in all cases before conducting the survey. As this was somewhat of an experiment, the personnel manager also decided to restrict the size of the sample. Arrangements were then made with two department heads to conduct the surveys in their departments. As discussions continued with the department heads on development of the general survey, selection and modification of research instruments continued. After some time it was also considered advisable in light of Becker's (1970) The Parable of the Pill to have a separate control group if a valid evaluation of change in our experimental groups was to be made. Becker's parable emphasised the inconclusiveness of studies conducted without control groups. For this purpose, arrangements were made to have a third engineering department take only the research portion of the surveys with no feedback to be given to that department until after the second survey had been completed.

It should also be mentioned that the investigator was a former employee of the firm and that, in many respects, the investigator was unable to assume an expert referent position for interpretation of results such as would be the case if the investigator had been an experienced consultant or a recognized academic. Partial compensation was made, of course, by being more aware than an independent observer would be of problems, organization, and constraints facing the subject departments while making interpretations. With these factors in mind a

detailed discussion of the survey design can begin.

Survey Questionnaire Design, a Description

The general survey portion was developed over a period of three to four months by the joint efforts of the heads of the two experimental groups, the head of the personnel department and the investigator. In the questionnaire booklet (see Appendix M) the final result may be seen as Parts III and IV of the survey. Part IV was separated to emphasize the interests of the personnel department in matters considered in these questions; that is to say, the department heads did not wish to have to deal with opinion in areas where they had no control. As can be seen, a wide range of topics was considered from detailed items about design standards, problems with other departments, or reference material to broad base open-end items concerning work evaluation, good aspects of the department or company, and requirements for improvement in the department or company. The personnel portion (Part IV) covered a range of topics from the staff news and orientation course through to items concerning the fringe benefits offered by the company.

As may be seen, Part I--Background, provides demographic information on respondents so that a comparison could be made with the sample population as well as providing a means of splitting data into groups of say "high" and "low" age, education, or service in the company.

The research instruments with organizational climate

and leadership style formed Parts II(A) and II(B) of the questionnaire. The choice of organizational climate dimensions forces a commitment to a definition. The definition of Evan (1968, p. 111) that "Organizational climate is a multidimensional perception of the essential attributes or character of an organizational system.", comes closest to what the investigator considered as most suitable for this study. The importance of individual perception as opposed to "objective" measures is highlighted in the following quotation from Evan (1968):

> 3. Perception of organizational climate, whether real or unreal, have behavioural consequences for the focal organization as well as for elements of the organizational set.
> 4. Organizational members performing different roles tend to have different perceptions of the climate, if only because of (a) a lack of role consensus, (b) a lack of uniformity in role socializations, and (c) a diversity in patterns of role-set interactions.
> 5. Members of different organizational sub-units tend to have different perceptions of climate because of different role-set configurations, different sub goals, and a differential commitment to the goals of sub-units compared to the goals of the organization as a whole (p. 113).

The climate dimension items used are taken from amongst those developed by Rensis Likert (1967) and enunciated in his The Human Organization: Its Management and Value. They were developed chiefly as a means of providing feedback to management personnel about the state of affairs within their own organization. For this reason they became useful in providing more feedback to the department heads along with information provided by the general portion of the survey. The items can also

be used as dimensions of organizational climate as has been demonstrated previously (e.g. Golembiewski & Carrigan, 1970a, 1970b).

Not all items or scales from Likert's questionnaire were used.[3] The main criteria for elimination of scales was to eliminate questions which were not meaningful to engineers and/or were not appropriate to the level of employees who would participate in the study. The Likert questionnaire items were designed for and intended to be completed by management personnel. Most of the respondents in this study, however, were expected to be non-supervisory, and, in any event, to be unfamiliar with psychological jargon. For these reasons, as well as in an attempt to shorten the survey, certain items were eliminated or modified.

The inclusion of the performance-characteristics items was done for two reasons. It was believed that the feedback to managers on these items would be useful and relevant, but, perhaps more important, it was believed that almost any study of organizational behaviour should include some information on relative performance of the groups studied, even if, as in this case, it was only on a self-rating basis rather than some more objective basis. The usefulness of the data to future researchers looking for relationships between performance and other variables requires some measurement of performance that can be made only at the time of a study.

The intent was to use the groups of questions in each category on an aggregate basis to arrive at eight dimensions of

organizational climate as follows: 1. Character of leadership processes; 2. Character of motivational forces; 3. Character of communication processes; 4. Character of decision making processes; 6. Character of goal setting; 7. Character of control processes; and 8. Perceived performance characteristics. The instructions were also modified to provide responses on department, company, and the "ideal" climate (see Part II(A) in Appendix M for particulars).

The leadership style questions in Part II(B) were taken from the Leadership Behaviour Description Questionnaire (LBDQ)[4] developed in the well documented studies at Ohio State University (Stogdill & Coons, 1957). Only the items for Initiation of Structure (IS) and Consideration (C) scales were selected for use in this study. Initiation of Structure and Consideration were selected on the basis that both have previously been indicated as dimensions having the most significant correlations with other organizational criteria (Korman, 1968; Evans, 1970). As shown in Part II(B) of Appendix M, items from the two scales were arranged alternately with Initiation of Structure items being the odd-numbered questions while Consideration items were even-numbered questions.

Instructions for using the LBDQ (Stogdill, 1963) indicate that the name of the person being described be written down by the respondent to assure there is no mix-up in results. One of the department heads took exception to using this procedure with respect to project leaders, as he felt that there

would be sensitivity by these persons to being "evaluated." The investigator was confident that there would be little chance of error with regard to results on the department heads, but the usefulness of project leader results was substantially reduced by being unable to use the advised procedure.

Before discussing the results, a description of the procedures for distribution and return of questionnaires will be given as well as a brief discussion of the hypotheses that were to be tested in the study.

Procedure for Distribution and Return of the Questionnaire

The questionnaires as shown in Appendix M were distributed to the experimental group, departments A and B, in the following manner. In each department the employees were brought together in a relatively open floor area. In turn, the head of the department, the head of the personnel department, and the investigator introduced the survey to the employees, giving some explanation of the survey and its value to the company and the employees. The head of the department emphasized his own desire to get the opinions of the employees; the head of the personnel department emphasized the value to the company and employees, and indicated that the results of the survey would be coming back to them, as well as to the department head; and finally, the investigator emphasized the need for a high response rate and gave full assurance of anonymity with respect to individual responses.

The procedure was modified, of course, for our control group (department C). In this case the questionnaire distributed was as shown in Appendix M with the following exceptions. The introduction for the control questionnaire was different (see Appendix B) and pages 10, 11, 12 and 13 which included the general survey were deleted. The introduction of the survey to employees was also modified as they were not going to be seeing the results of the survey. The value of the survey for research purposes was therefore emphasized when it was introduced to the control group.

In all departments the employees were able to pick up a copy of the questionnaire and an addressed and stamped envelope with which the survey could be mailed directly to the investigator at the university without passing through company hands. In each case the employees were asked to do the survey on their own and away from work.[5]

The follow-up surveys were distributed 112 to 130 days later and were the same for all departments. As shown in Appendix B there was a new introduction, and a short set of questions asking about any perceived differences since the last survey, but the research portions (IIA and IIB) were left essentially as they had been on the original survey. The procedure for distributing the follow-up survey was similar to that used before, with addressed and stamped envelopes again being provided. A schedule showing the relative timing of survey distribution, results release, and et cetera is given in Appendix A.

Hypotheses to be tested

As design considerations of the study have not been stated explicitly up to now, it would be useful to consider them briefly before discussing the hypotheses that were to be tested.

There were three subject departments within the firm being used, two as experimental groups and a third as a control. This could be described as a pretest-posttest control group design, but to be more precise it must be conceded that we have what Campbell and Stanley (1963) would refer to as a "nonequivalent control group design." As they indicate, control over internal sources of invalidity such as history, maturation, testing, instrumentation, selection, mortality should be controlled by this type of design. As will be seen, however, selective mortality may cause problems in interpreting results from this study. Some question might also be raised on the instrumentation question as the circumstances for writing pretest and posttest for the control group were somewhat different. As the division into groups was predetermined by the real-world arrangement of departments, difficulties with statistical regression would not be anticipated.

The sources of external invalidity would be much as indicated by Campbell and Stanley (1963). There are possibilities in the design for interaction of testing and the experiment, and effects due to reactive arrangements, though little difficulty was anticipated with interaction of selection of experimental and control groups as selection was made before

any testing associated with the study. With these factors in mind, detailed discussion of the hypotheses to be tested can be made.

The central hypotheses to be tested concern the relationships between organizational climate and leadership style. To be specific, it was expected that,

> H 1. There are high positive relationships between organizational climate dimensions for department heads and leadership styles of department heads.

In terms of the two leadership style dimensions considered, it was expected that both Considerations and Initiation of Structure are positively related to each of the eight a priori climate dimensions. Further to the above hypothesis it was also expected that,

> H 1A. There are high positive relationships between organizational climate dimensions and the leadership styles of "project leaders". However, these relationships will not be as great as the relationships of hypothesis 1.

The foregoing hypotheses would concur with ideas related to combined "task" and "people" orientation implied by such concepts as the managerial grid (Mouton & Blake, 1969) where both task (Initiation of Structure) and people (Consideration) leadership orientations are expected to have pervasive effects on the climate and productivity of groups.

Similar hypotheses concerning the effect of project engineer leadership style on company organizational climate had also been considered. These would revolve around the assumption that many of the impressions of company climate resulted from contracts made along project lines. With the limitation to only three departments, however, valid leadership style scores of project engineers by project leaders within departments would not be possible.

With respect to the experimental design, which was much like a pretest-posttest control as discussed earlier (p. 43), it was expected that,

> H 2. There will be a positive change in organizational climate resulting from the feedback to a group of the results from a suggestion-box type questionnaire.

By the same token, changes in leadership style were expected. With relationship to H 1 and H 1A, it was further expected that,

> H 3. There is a high positive relationship between the leadership style of department heads in one time period and the organizational climate of departments in a following time period.

In essence the directionality of influence was to be tested in the event that a high correlation between the two variables existed.

The foregoing are the important hypotheses that were to be tested though, of course, relationships and findings bearing on other propositions were expected to become apparent once the data had been examined and appraised. In the following chapter will be found a presentation of results followed by a chapter presenting conclusions and discussion.

footnotes - chapter II

1 Though not large by comparison with other classes of industrial firms, an engineering firm with more than six or seven hundred employees could be considered very large.

2 40 to 100 million dollar budgets.

3 For those who wish to make a detailed comparison, the following items were deleted from those listed in Appendix II of Likert (1967, p. 197): 1c, 2d, 3d(5), 3f(1), 3f(2), 5e(2), 5g, 7a, 8a, 8b, and 8c. The performance characteristics were taken from table 3-1(Likert, 1967, p. 24). Minor modifications to a very few other items were also made to suit the expected respondents.

4 The particular version referred to is Leadership Behavior description questionnaire - form XII which is the fourth major revision of the questionnaire (Stogdill, 1963).

5 The company was not prepared to accept the cost of having the survey completed on company time.

CHAPTER III

Results

Introduction

This chapter will present the results of the two surveys as they have been described in the preceding chapter. The presentation of results will focus upon the theoretical implications as they relate to the hypotheses to be tested, but, will also include more general aspects particularly with respect to the first survey. The large amount of data and analysis material necessitates some divisions. After study of the cross-lag analysis results, it was decided to carry out a factor analysis of the climate questionnaire and re-analyse the data using factor analysis dimensions for climate rather than the a priori dimensions as would be indicated in the source of the climate questionnaire (Likert, 1967). The results using the a priori divisions will be used in presentation of the first survey results, but the use of factor analysis dimensions for both the first and second survey will follow the discussion of the factor analysis results. Please note that the following presentation of results is one which follows the sequence of development of the analysis rather than being categorical in terms of specific hypotheses. In the conclusions and discussion chapter to follow, reference to supporting or nonsupporting results will be made prior to drawing conclusions. Numerical

results will also be divided between Appendices and the body of the text. In general, results which are required in order to follow the discussion will be found in the text; while material that would be of interest to more serious readers, who may wish to analyse the results from other perspectives, will be included in the Appendices.

In the results and discussion to follow, extensive use is made of statistical tests. Virtually all computations and statistical tests were carried out using computer programs. A brief description of the computer facility and the programs used in this study are included in Appendix C. Though the weakness in some tests is recognized, an extensive discourse on the validity of relying exclusively upon these tests will not be undertaken as the topic is well covered by others (e.g. Morrison & Henkel, 1970). Suffice it to say that the investigator recognizes the possibility of demonstrating that a "statistically significant" result or difference exists when no practical difference may exist (particularly with large samples) and, by the same token, "proof" of sampling from a common population may cause one to reject evidence of a practical difference (particularly with small samples). The final judgement as to the relevance of statistical tests must therefore fall to the investigator taking into consideration the basic presumptions that must be made when any significance tests are performed. Fortunately the TRIP program output gives statistical probability values (e.g. t-prob, F-prob) as well as the t or F statistics

so that the reader will not need to rely exclusively upon the investigator's judgement as to what is "significant" or "non-significant". The use of the asterisk to hide information will thus be avoided, but will be used occasionally to flag more significant figures. In general, in the discussion that follows, "significant" will normally refer to statistical significance at the 0.05 level.

First Survey

The results for all closed-end questions from sections I, III and IV will be found in Appendix M. The results of the open-end questions will be found in Appendix D and E. The response rate for the entire sample on the first survey was 35%. This was divided almost equally in terms of numbers of respondents from each department, but rather unequally in terms of percentage of response from each department.

	dept. A	dept. B	dept. C	total
population	98	49	72	219
responses	27	25	25	77
% response	27.6%	51%	34.7%	35.2%

TABLE I

First survey responses

Though accurate information on the total population was not available, it was generally agreed by the department heads

concerned that the sample was fairly representative. There was a bias in the sample towards having respondents who had higher education levels, higher age levels, and/or longer experience in the company than that of the population sampled from. It was also believed that the sample collected could represent employees with somewhat higher "loyalty" to the organization than that of the population sampled from. This possible bias will be discussed in more detail when conclusions are being made.

For a general report on parts I, III, and IV of the survey, Appendix F should be referred to. This report was given to the department heads a short time (7 days) after the meeting held with the chief executive officer (day 43). The last page of Appendix F shows a sample of some of the more emotional or "in depth" responses to open-ended questions. This sample of responses was given to those who attended the meeting indicated above, in order to convey, in some manner short of distributing actual questionnaires (where handwriting might be recognized), the idea that many of the responses or numbers indicated through the relatively simplistic categorization carried out by the investigator, did not convey the depth of emotion being felt or being communicated by the respondent as he filled in his answers. In other words, it should be noted that substantially more emotional content should be attributed to the open-ended question results than might be attributed by looking quickly at the MVTAB program numerical output and the coding information.

Along with the open and closed-end question results for

their own departments, the department heads were also given the profile and difference graphs shown in Figures 1 to 8 derived from average responses on the climate questionnaire (part II(A)) both for their own departments and for the combined results. The department heads were also given the leadership style scores for their own departments along with the average results for all three departments. The scores on the profile line for any particular question from part II(A) lines up with the bottom of the question number indicated on the left side of the graph. It should be noted that all scores indicated on the graphs or numerically elsewhere, are scores after inverting certain scales or scores so that a higher score was one which would be towards the Likert (1967) concept of type IV organization. The direction of the scales is fairly easy to determine but, for convenience, the scales going from right(1) to left (20) (i.e. the scales inverted for scoring) are marked with an asterisk. The t-test tables following each pair of graphs (Tables II to V) are recognized as being somewhat of an abuse of the use of t-tests but the t-prob values do provide a basis for comparing differences within one department and for comparing one department against the other. In no sense should the t-prob values be taken as significance values. The confidence intervals derived from the HOTEL (Hottelling T^2) routine of TRIP would be needed for this purpose.

When looking at the difference graph or t-test tables, it should be noted that the profiles for ideal(I) for all three

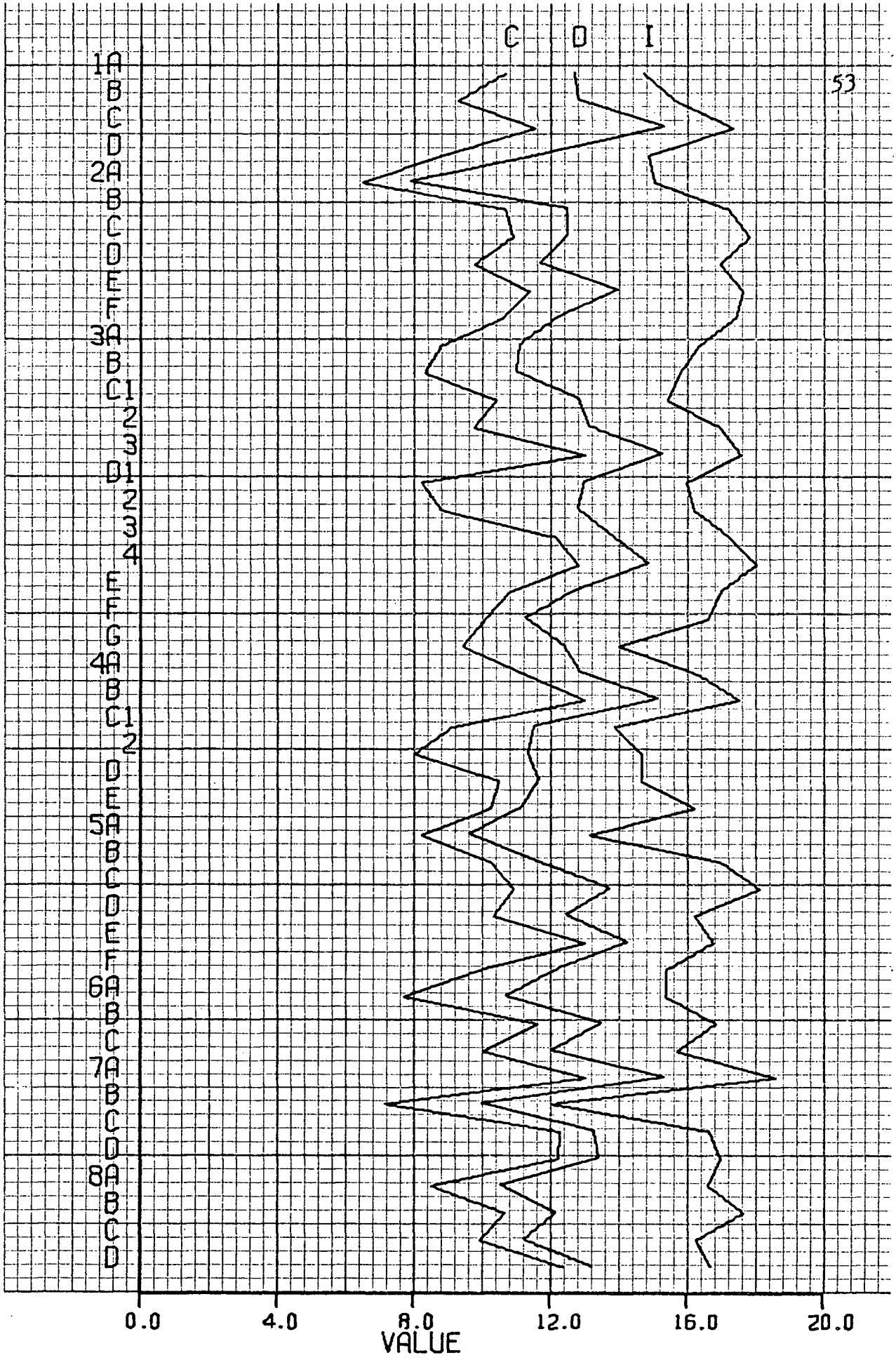


FIG. 1 Average climate item values - Dept. A

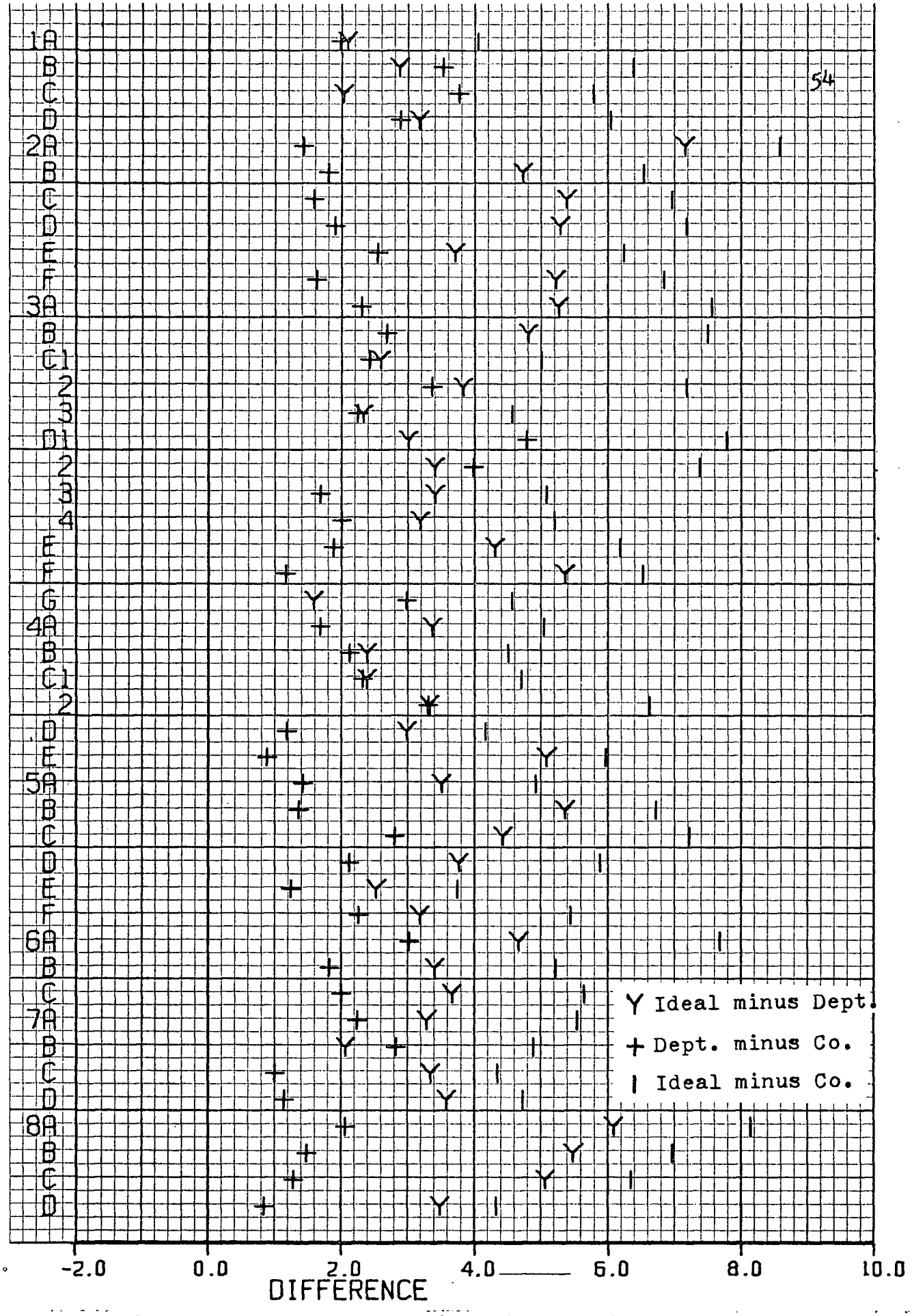


FIG. 2 Average differences in climate values, Dept. A

TABLE IDEAL MINUS COMPAY **DEPT. A **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	5.098	21	0.000		
1BC&TP	VS.	1BC&TP	6.567	20	0.000		
1CDISC	VS.	1CDISC	6.434	21	0.000		
1DGEID	VS.	1DGEIC	6.659	21	0.000		
2AMOTI	VS.	2AMOTI	5.836	17	0.000		
2BUSED	VS.	2BUSED	7.197	18	0.000		
2CATIT	VS.	2CATIT	9.372	19	0.000		
2DRESP	VS.	2DRESP	7.470	20	0.000		
2EATME	VS.	2EATME	9.057	20	0.000		
2FSATF	VS.	2FSATF	9.360	20	0.000		
3ACOMU	VS.	3ACOMU	6.386	21	0.000		
3BORTN	VS.	3BORTN	6.178	19	0.000		
3C1DIN	VS.	3C1DIN	4.320	17	0.001		
3C2DSH	VS.	3C2DSH	6.280	20	0.000		
3C3DAC	VS.	3C3DAC	5.238	20	0.000		
3D1UAD	VS.	3D1UAD	6.319	20	0.000		
3D2URE	VS.	3D2URE	6.268	19	0.000		
3D3UDS	VS.	3D3UDS	6.220	16	0.000		
3D4UAC	VS.	3D4UAC	4.802	19	0.000		
3ESADE	VS.	3ESADE	6.106	21	0.000		
3FSADN	VS.	3FSADN	6.710	21	0.000		
3GFRIE	VS.	3GFRIE	4.638	20	0.000		
4AAINT	VS.	4AAINT	5.407	20	0.000		
4BTEAM	VS.	4BTEAM	4.958	20	0.000		
4C1INF	VS.	4C1INF	5.259	14	0.000		
4C2INB	VS.	4C2INB	5.725	19	0.000		
4DIACT	VS.	4DIACT	4.701	15	0.000		
4EEFST	VS.	4EEFST	5.378	15	0.000		
5ADECL	VS.	5ADECL	3.638	18	0.002		
5BDINF	VS.	5BDINF	6.522	17	0.000		
5CAWAR	VS.	5CAWAR	6.611	21	0.000		
5DTEPR	VS.	5DTEPR	4.472	20	0.000		
5EBLEV	VS.	5EBLEV	3.051	18	0.007		
5FINVO	VS.	5FINVO	6.644	21	0.000		
6AGOLS	VS.	6AGOLS	6.550	20	0.000		
6BGLEV	VS.	6BGLEV	7.899	17	0.000		
6CGACR	VS.	6CGACR	5.134	15	0.000		
7ACONA	VS.	7ACONA	6.078	18	0.000		
7BCONC	VS.	7BCONC	4.121	16	0.001		
7CINFO	VS.	7CINFO	3.746	11	0.003		
7DPUNI	VS.	7DPUNI	4.473	17	0.000		
8APROD	VS.	8APROD	9.365	20	0.000		
8BABSC	VS.	8BABSC	7.950	16	0.000		
8CWAST	VS.	8CWAST	5.363	18	0.000		
8DINSP	VS.	8DINSP	4.430	15	0.001		

TABLE II

Climate item t-tests, Dept. A

TABLE. DEPARTMENT MINUS IDEAL **DEPT. A **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	4.029	22	0.001		
1BC&TP	VS.	1BC&TP	5.245	22	0.000		
1CDISC	VS.	1CDISC	3.364	22	0.003		
1DGEID	VS.	1DGEID	4.529	22	0.000		
2AMOTI	VS.	2AMOTI	6.239	17	0.000		
2BUSED	VS.	2BUSED	5.991	18	0.000		
2CATIT	VS.	2CATIT	6.576	20	0.000		
2DRESP	VS.	2DRESP	7.333	22	0.000		
2EATME	VS.	2EATME	7.729	22	0.000		
2FSATF	VS.	2FSATF	7.895	22	0.000		
3ACOMU	VS.	3ACOMU	6.589	22	0.000		
3BORTN	VS.	3BORTN	5.272	20	0.000		
3C1DIN	VS.	3C1DIN	1.889	13	0.072		
3C2DSH	VS.	3C2DSH	4.988	21	0.000		
3C3CAC	VS.	3C3DAC	3.533	22	0.002		
3D1UAD	VS.	3D1UAD	4.749	22	0.000		
3D2URE	VS.	3D2URE	5.274	21	0.000		
3D3UDS	VS.	3D3UDS	5.497	18	0.000		
3D4UAC	VS.	3D4UAC	3.818	20	0.001		
3ESADE	VS.	3ESADE	6.410	22	0.000		
3FSADN	VS.	3FSADN	6.328	22	0.000		
3GFRIE	VS.	3GFRIE	2.182	21	0.039		
4AAINT	VS.	4AAINT	5.243	21	0.000		
4BTEAM	VS.	4BTEAM	5.183	21	0.000		
4C1INF	VS.	4C1INF	3.971	15	0.001		
4C2INB	VS.	4C2INB	4.520	20	0.000		
4DIACT	VS.	4DIACT	4.172	15	0.001		
4EEFST	VS.	4EEFST	5.054	15	0.000		
5ADECL	VS.	5ADECL	3.549	19	0.002		
5BDINF	VS.	5BDINF	6.152	18	0.000		
5CAWAR	VS.	5CAWAR	6.904	22	0.000		
5DTEPR	VS.	5DTEPR	4.383	20	0.000		
5EBLEV	VS.	5EBLEV	2.795	19	0.011		
5FINVO	VS.	5FINVO	4.597	22	0.000		
6AGOLS	VS.	6AGOLS	5.763	21	0.000		
6BGLEV	VS.	6BGLEV	4.512	18	0.000		
6CGACR	VS.	6CGACR	3.801	16	0.002		
7ACONA	VS.	7ACONA	6.068	18	0.000		
7BCONC	VS.	7BCONC	2.187	16	0.042		
7CINFO	VS.	7CINFO	3.458	11	0.005		
7DPUNI	VS.	7DPUNI	4.627	18	0.000		
8APROD	VS.	8APROD	7.172	21	0.000		
8BABSC	VS.	8BABSC	6.329	18	0.000		
8CWAST	VS.	8CWAST	4.859	20	0.000		
8DINSP	VS.	8DINSP	4.719	17	0.000		

TABLE II - (continued)

TABLE DEPT. MINUS COMPANY **DEPT. A **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	2.913	22	0.008		
1BC&TP	VS.	1BC&TP	3.541	21	0.002		
1CDISC	VS.	1CDISC	4.390	22	0.000		
1DGEID	VS.	1DGEID	5.183	22	0.000		
2AMOTI	VS.	2AMOTI	1.392	18	0.178		
2BUSED	VS.	2BUSED	3.455	20	0.003		
2CATIT	VS.	2CATIT	3.032	20	0.006		
2DRESP	VS.	2DRESP	2.776	21	0.011		
2EATME	VS.	2EATME	4.228	21	0.000		
2FSATF	VS.	2FSATF	2.796	21	0.010		
3ACOMU	VS.	3ACOMU	2.974	22	0.007		
3BDRTN	VS.	3BDRTN	3.396	21	0.003		
3C1DIN	VS.	3C1DIN	3.117	18	0.006		
3C2DSH	VS.	3C2DSH	5.732	21	0.000		
3C3DAC	VS.	3C3DAC	5.530	21	0.000		
3D1UAD	VS.	3D1UAD	6.219	21	0.000		
3D2URE	VS.	3D2URE	4.597	20	0.000		
3D3UDS	VS.	3D3UDS	1.932	17	0.067		
3D4UAC	VS.	3D4UAC	3.298	20	0.004		
3ESADE	VS.	3ESADE	2.961	22	0.007		
3FSADN	VS.	3FSADN	2.459	22	0.021		
3GFRIE	VS.	3GFRIE	3.778	22	0.001		
4AAINT	VS.	4AAINT	2.919	21	0.008		
4BTEAM	VS.	4BTEAM	3.835	21	0.001		
4C1INF	VS.	4C1INF	4.620	16	0.000		
4C2INB	VS.	4C2INB	5.101	20	0.000		
4DIACT	VS.	4DIACT	1.858	18	0.077		
4EEFST	VS.	4EEFST	1.553	16	0.137		
5ADECL	VS.	5ADECL	1.431	20	0.165		
5BDINF	VS.	5BDINF	2.595	19	0.017		
5CAWAR	VS.	5CAWAR	3.701	22	0.001		
5DTEPR	VS.	5DTEPR	2.994	21	0.007		
5EBLEV	VS.	5EBLEV	2.222	19	0.037		
5FINVO	VS.	5FINVO	5.008	22	0.000		
6AGOLS	VS.	6AGOLS	4.162	21	0.000		
6BGLEV	VS.	6BGLEV	2.669	18	0.015		
6CGACR	VS.	6CGACR	3.546	16	0.003		
7ACONA	VS.	7ACONA	3.407	19	0.003		
7BCONC	VS.	7BCONC	4.693	16	0.000		
7CINFO	VS.	7CINFO	1.040	11	0.322		
7DPUNI	VS.	7DPUNI	2.216	17	0.039		
8APROD	VS.	8APROD	4.176	21	0.000		
8BABSC	VS.	8BABSC	2.109	17	0.048		
8CWAST	VS.	8CWAST	3.418	19	0.003		
8DINSP	VS.	8DINSP	1.588	16	0.129		

TABLE II - (continued)

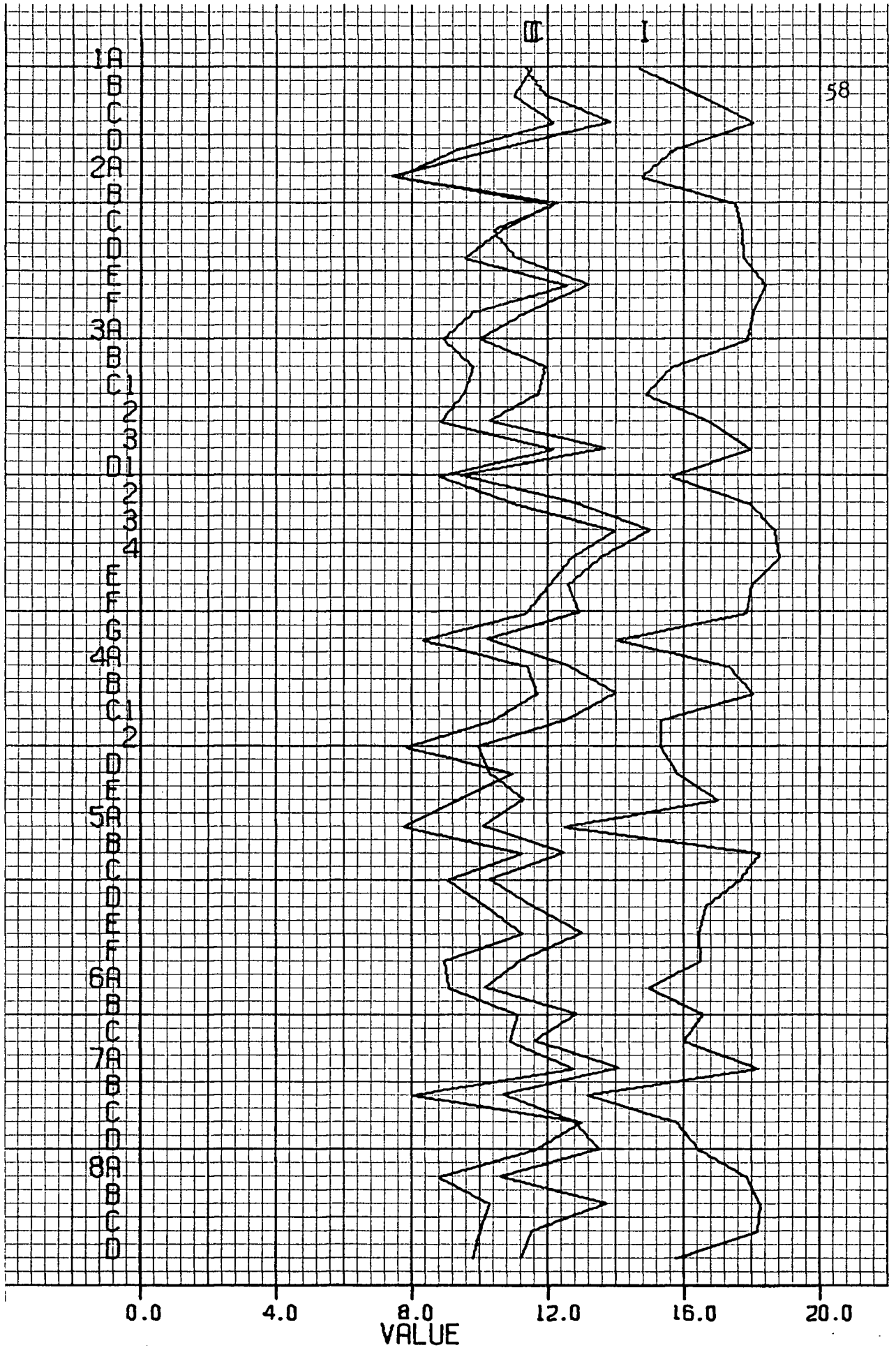


FIG. 3 Average climate item values - Dept. B

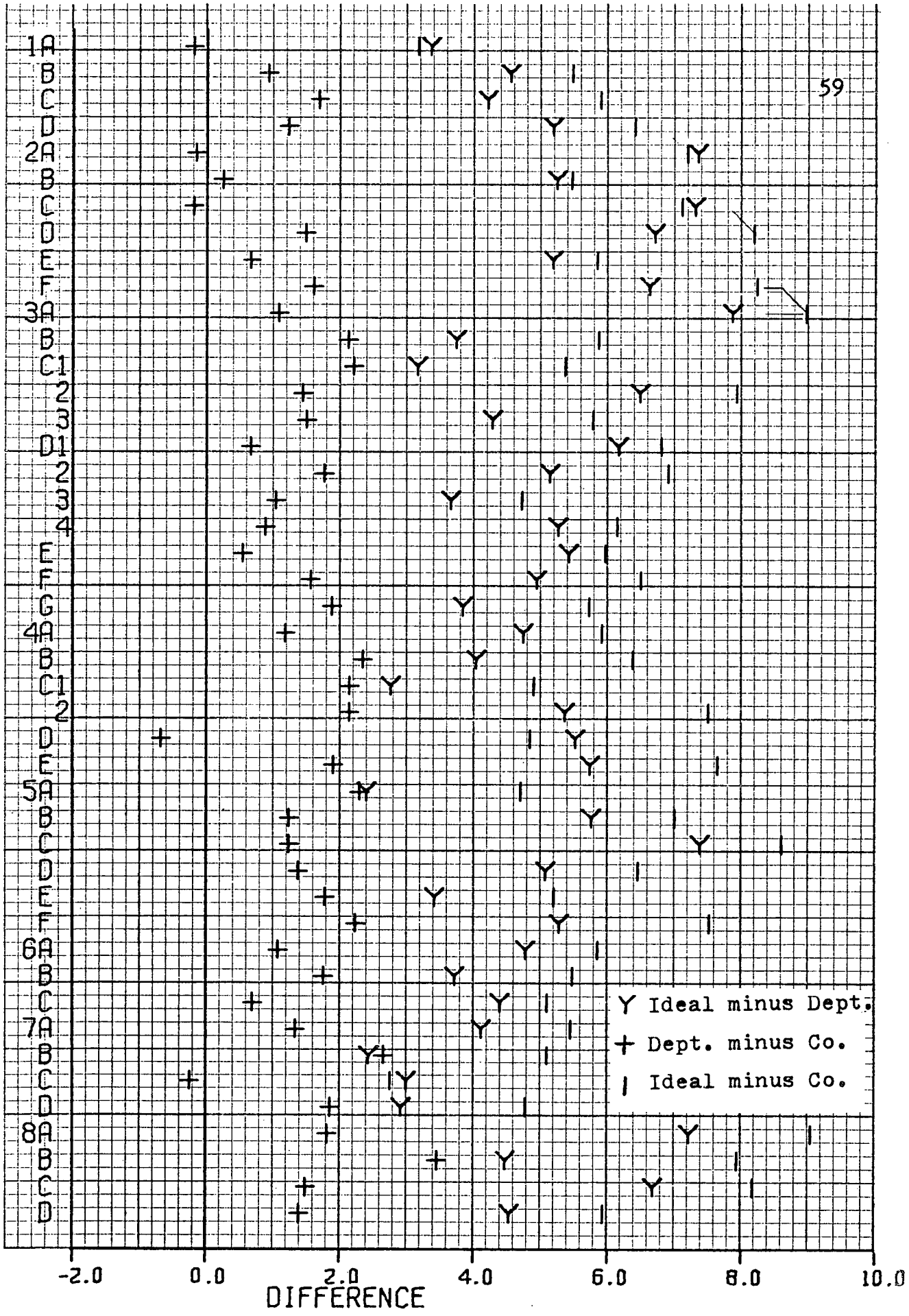


FIG. 4 Average differences in climate values, Dept. B

TABLE IDEAL MINUS COMPAY **DEPT. B **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	5.040	22	0.000		
1BC&TP	VS.	1BC&TP	7.145	22	0.000		
1CDISC	VS.	1CDISC	6.600	22	0.000		
1DGEID	VS.	1DGEID	6.895	21	0.000		
2AMOTI	VS.	2AMOTI	4.158	17	0.001		
2BUSED	VS.	2BUSED	3.649	14	0.003		
2CATIT	VS.	2CATIT	10.331	19	0.000		
2DRESP	VS.	2DRESP	10.788	21	0.000		
2EATME	VS.	2EATME	8.859	21	0.000		
2FSATF	VS.	2FSATF	9.021	20	0.000		
3ACOMU	VS.	3ACOMU	8.412	22	0.000		
3BORTN	VS.	3BORTN	4.041	22	0.001		
3C1DIN	VS.	3C1DIN	4.261	20	0.000		
3C2DSH	VS.	3C2DSH	8.866	22	0.000		
3C3DAC	VS.	3C3DAC	7.402	20	0.000		
3D1UAD	VS.	3D1UAD	4.308	20	0.000		
3D2URE	VS.	3D2URE	6.214	21	0.000		
3D3UDS	VS.	3D3UDS	5.429	19	0.000		
3D4UAC	VS.	3D4UAC	7.189	16	0.000		
3ESADE	VS.	3ESADE	8.312	19	0.000		
3FSADN	VS.	3FSADN	6.561	19	0.000		
3GFRIE	VS.	3GFRIE	6.315	20	0.000		
4AAINT	VS.	4AAINT	11.520	20	0.000		
4BTEAM	VS.	4BTEAM	9.109	19	0.000		
4C1INF	VS.	4C1INF	3.862	15	0.002		
4C2INB	VS.	4C2INB	7.249	20	0.000		
4DIACT	VS.	4DIACT	5.433	16	0.000		
4EEFST	VS.	4EEFST	7.509	17	0.000		
5ADECL	VS.	5ADECL	3.080	19	0.006		
5BDINF	VS.	5BDINF	8.562	18	0.000		
5CAWAR	VS.	5CAWAR	9.163	21	0.000		
5DTEPR	VS.	5DTEPR	9.111	18	0.000		
5EBLEV	VS.	5EBLEV	5.107	16	0.000		
5FINVO	VS.	5FINVO	8.127	21	0.000		
6AGOLS	VS.	6AGOLS	7.960	21	0.000		
6BGLEV	VS.	6BGLEV	4.714	17	0.000		
6CGACR	VS.	6CGACR	3.578	17	0.002		
7ACONA	VS.	7ACONA	7.827	18	0.000		
7BCONC	VS.	7BCONC	3.678	19	0.002		
7CINFO	VS.	7CINFO	1.997	15	0.062		
7DPUNI	VS.	7DPUNI	4.796	17	0.000		
8APROD	VS.	8APROD	9.185	20	0.000		
8BABSC	VS.	8BABSC	7.358	19	0.000		
8CWAST	VS.	8CWAST	8.723	22	0.000		
8DINSP	VS.	8DINSP	4.061	16	0.001		

TABLE III

Climate item t-tests, Dépt. B

TABLE. IDEAL MINUS DEPARTMENT **DEPT. B **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	4.982	23	0.000		
1BC&TP	VS.	1BC&TP	6.474	23	0.000		
1CDISC	VS.	1CDISC	5.462	23	0.000		
1DGEID	VS.	1DGEID	5.775	23	0.000		
2AMOTI	VS.	2AMOTI	4.995	19	0.000		
2BUSED	VS.	2BUSED	4.017	15	0.001		
2CATIT	VS.	2CATIT	11.625	20	0.000		
2DRESP	VS.	2DRESP	10.895	23	0.000		
2EATME	VS.	2EATME	9.651	21	0.000		
2FSATF	VS.	2FSATF	11.085	21	0.000		
3ACOMU	VS.	3ACOMU	7.305	22	0.000		
3BDRTN	VS.	3BDRTN	2.946	22	0.007		
3C1DIN	VS.	3C1DIN	2.861	21	0.009		
3C2DSH	VS.	3C2DSH	7.127	23	0.000		
3C3DAC	VS.	3C3DAC	6.928	21	0.000		
3D1UAD	VS.	3D1UAD	6.057	21	0.000		
3D2URE	VS.	3D2URE	4.977	21	0.000		
3D3UDS	VS.	3D3UDS	4.842	19	0.000		
3D4UAC	VS.	3D4UAC	5.485	20	0.000		
3ESADE	VS.	3ESADE	10.047	20	0.000		
3FSADN	VS.	3FSADN	7.246	18	0.000		
3GFRIE	VS.	3GFRIE	4.568	23	0.000		
4AAINT	VS.	4AAINT	9.330	20	0.000		
4BTEAM	VS.	4BTEAM	5.638	20	0.000		
4C1INF	VS.	4C1INF	2.615	15	0.019		
4C2INB	VS.	4C2INB	5.674	21	0.000		
4DIACT	VS.	4DIACT	7.242	17	0.000		
4EEFST	VS.	4EEFST	6.107	17	0.000		
5ADECL	VS.	5ADECL	1.032	20	0.315		
5BDINF	VS.	5BDINF	8.354	20	0.000		
5CAWAR	VS.	5CAWAR	7.894	22	0.000		
5DTEPR	VS.	5DTEPR	5.409	19	0.000		
5EBLEV	VS.	5EBLEV	3.433	18	0.003		
5FINVO	VS.	5FINVO	7.250	22	0.000		
6AGOLS	VS.	6AGOLS	5.352	21	0.000		
6BGLEV	VS.	6BGLEV	3.699	18	0.002		
6CGACR	VS.	6CGACR	2.886	17	0.010		
7ACONA	VS.	7ACONA	7.099	18	0.000		
7BCONC	VS.	7BCONC	1.208	18	0.242		
7CINFO	VS.	7CINFO	2.121	16	0.048		
7DPUNI	VS.	7DPUNI	3.522	18	0.002		
8APROD	VS.	8APROD	8.203	22	0.000		
8BABSC	VS.	8BABSC	5.620	21	0.000		
8CWAST	VS.	8CWAST	7.076	22	0.000		
8DINSP	VS.	8DINSP	3.410	19	0.003		

TABLE III - (continued)

TABLE DEPT. MINUS COMPANY **DEPT. B **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	-0.472	23	0.646		
1BC&TP	VS.	1BC&TP	1.245	23	0.224		
1CDISC	VS.	1CDISC	2.656	23	0.014		
1DGEID	VS.	1DGEID	1.523	22	0.138		
2AMOTI	VS.	2AMOTI	-0.663	18	0.522		
2BUSED	VS.	2BUSED	-0.158	15	0.850		
2CATIT	VS.	2CATIT	-0.157	20	0.850		
2DRESP	VS.	2DRESP	1.199	22	0.242		
2EATME	VS.	2EATME	0.896	23	0.383		
2FSATF	VS.	2FSATF	2.024	21	0.053		
3ACOMU	VS.	3ACOMU	1.480	23	0.149		
3BDRTN	VS.	3BDRTN	2.065	23	0.048		
3C1DIN	VS.	3C1DIN	2.834	21	0.010		
3C2DSH	VS.	3C2DSH	1.925	23	0.064		
3C3DAC	VS.	3C3DAC	2.370	22	0.026		
3D1UAD	VS.	3D1UAD	0.547	22	0.596		
3D2URE	VS.	3D2URE	2.739	23	0.011		
3D3UDS	VS.	3D3UDS	1.579	20	0.127		
3D4UAC	VS.	3D4UAC	0.559	17	0.590		
3ESADE	VS.	3ESADE	0.614	22	0.552		
3FSADN	VS.	3FSADN	2.112	20	0.045		
3GFRIE	VS.	3GFRIE	3.579	21	0.002		
4AAINT	VS.	4AAINT	1.799	21	0.083		
4BTEAM	VS.	4BTEAM	3.302	23	0.003		
4C1INF	VS.	4C1INF	2.332	16	0.032		
4C2INB	VS.	4C2INB	2.299	22	0.030		
4DIACT	VS.	4DIACT	-0.735	17	0.479		
4EEFST	VS.	4EEFST	2.191	18	0.040		
5ADECL	VS.	5ADECL	2.678	21	0.014		
5BDINF	VS.	5BDINF	2.020	20	0.054		
5CAWAR	VS.	5CAWAR	1.670	22	0.106		
5DTEPR	VS.	5DTEPR	2.705	21	0.013		
5EBLEV	VS.	5EBLEV	3.275	17	0.004		
5FINVO	VS.	5FINVO	2.871	22	0.009		
6AGOLS	VS.	6AGOLS	1.370	22	0.181		
6BGLEV	VS.	6BGLEV	2.157	13	0.043		
6CGACR	VS.	6CGACR	1.121	19	0.276		
7ACONA	VS.	7ACONA	2.358	19	0.028		
7BCONC	VS.	7BCONC	3.089	19	0.006		
7CINFO	VS.	7CINFO	-0.550	15	0.596		
7DPUNI	VS.	7DPUNI	4.167	18	0.001		
8APROD	VS.	8APROD	2.929	22	0.008		
8BABSC	VS.	8BABSC	5.200	20	0.000		
8CWAST	VS.	8CWAST	2.393	24	0.024		
8DINSP	VS.	8DINSP	1.062	19	0.302		

TABLE III - (continued)

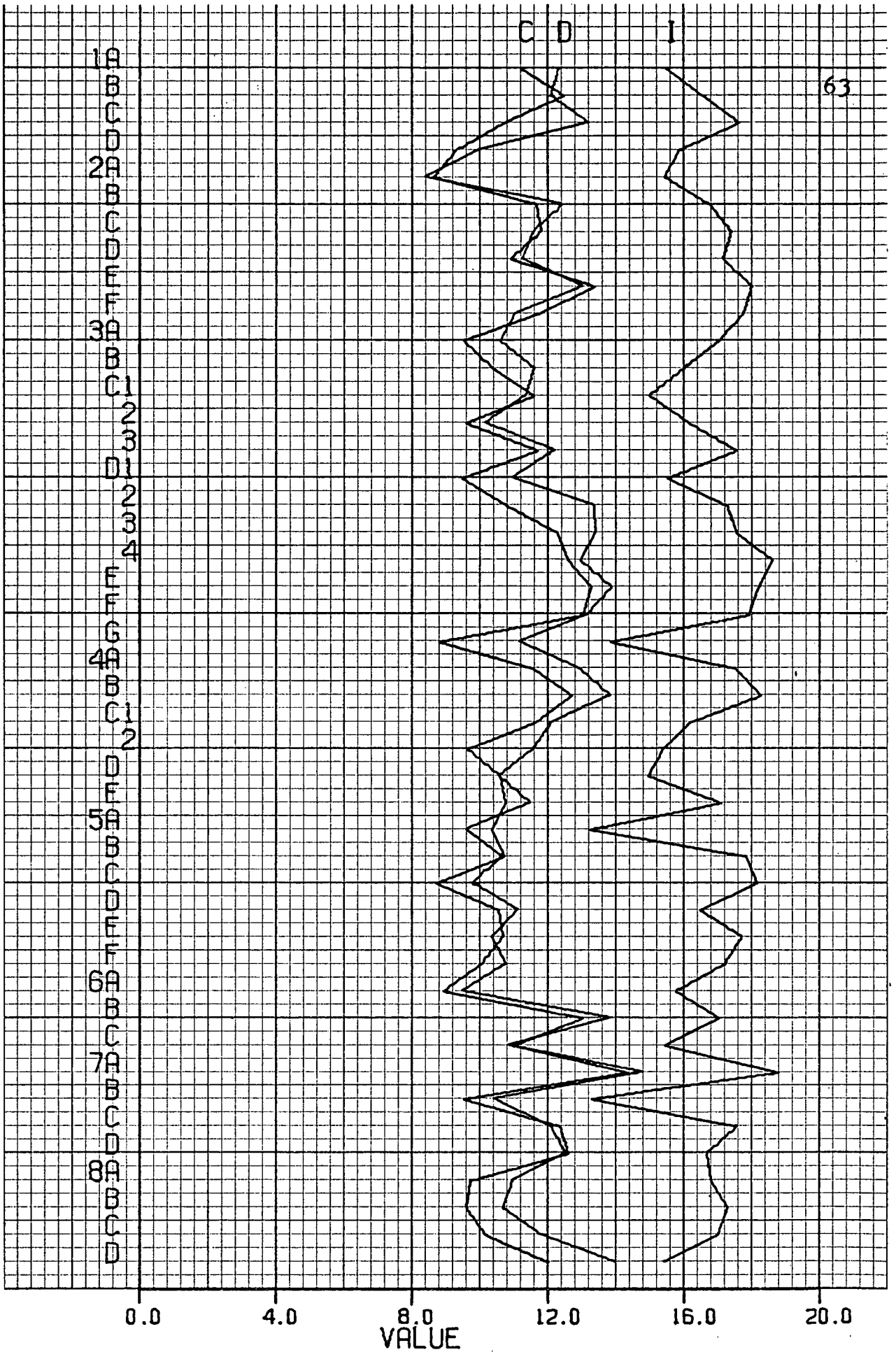


FIG. 5 Average climate item values - Dept. C

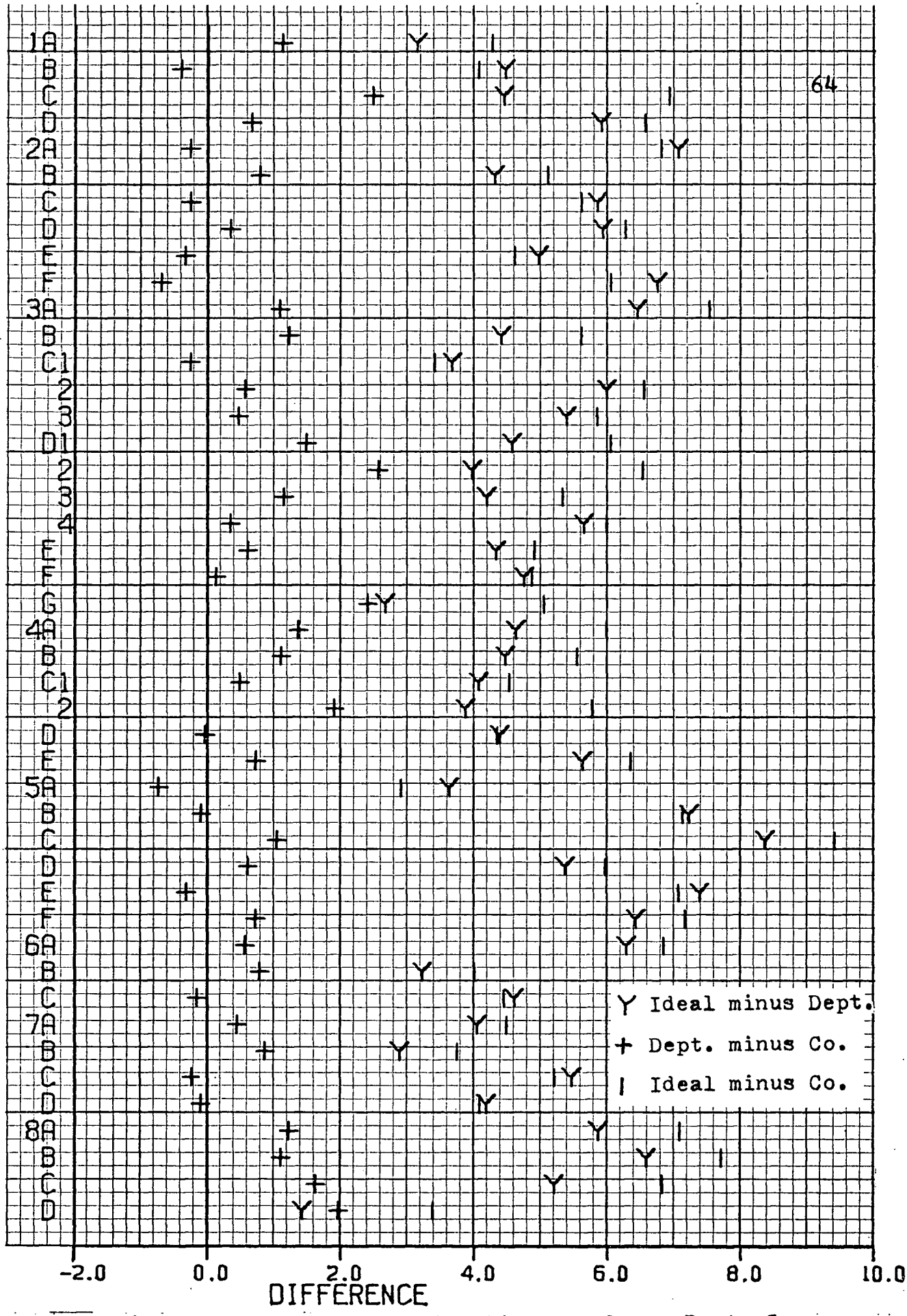


FIG. 6 Average differences in climate values, Dept. C

TABLE IDEAL MINES COMPAY **DEPT. C **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	5.609	18	0.000		
1BC&TP	VS.	1BC&TP	6.042	17	0.000		
1CDISC	VS.	1CDISC	6.408	17	0.000		
1DGEID	VS.	1DGEID	7.217	17	0.000		
2AMOTI	VS.	2AMOTI	6.201	18	0.000		
2BUSED	VS.	2BUSED	4.494	16	0.000		
2CATIT	VS.	2CATIT	6.841	17	0.000		
2DRESP	VS.	2DRESP	6.788	18	0.000		
2EATME	VS.	2EATME	5.303	17	0.000		
2FSATF	VS.	2FSATF	5.467	18	0.000		
3ACOMU	VS.	3ACOMU	7.731	18	0.000		
3BDRTN	VS.	3BDRTN	5.884	17	0.000		
3C1DIN	VS.	3C1DIN	1.809	17	0.085		
3C2DSH	VS.	3C2DSH	7.087	17	0.000		
3C3DAC	VS.	3C3DAC	11.457	17	0.000		
3D1UAD	VS.	3D1UAD	5.795	17	0.000		
3D2URE	VS.	3D2URE	6.175	16	0.000		
3D3UDS	VS.	3D3UDS	7.060	17	0.000		
3D4UAC	VS.	3D4UAC	8.556	18	0.000		
3ESADE	VS.	3ESADE	5.112	18	0.000		
3FSADN	VS.	3FSADN	6.233	17	0.000		
3GFRIE	VS.	3GFRIE	4.203	19	0.001		
4AAINT	VS.	4AAINT	7.614	17	0.000		
4BTEAM	VS.	4BTEAM	6.766	17	0.000		
4C1INF	VS.	4C1INF	5.514	18	0.000		
4C2INB	VS.	4C2INB	6.240	16	0.000		
4DIACT	VS.	4DIACT	3.275	16	0.005		
4EEFST	VS.	4EEFST	6.601	15	0.000		
5ADECL	VS.	5ADECL	2.897	17	0.010		
5BDINF	VS.	5BDINF	7.926	16	0.000		
5CAWAR	VS.	5CAWAR	7.841	17	0.000		
5DTEPR	VS.	5DTEPR	4.736	17	0.000		
5EBLEV	VS.	5EBLEV	7.829	16	0.000		
5FINVO	VS.	5FINVO	7.459	17	0.000		
6AGOLS	VS.	6AGOLS	7.701	17	0.000		
6BGLEV	VS.	6BGLEV	4.829	17	0.000		
6CGACR	VS.	6CGACR	3.036	15	0.008		
7ACONA	VS.	7ACONA	6.889	18	0.000		
7BCONC	VS.	7BCONC	1.863	16	0.078		
7CINFO	VS.	7CINFO	6.150	15	0.000		
7DPUNI	VS.	7DPUNI	3.557	17	0.002		
8APROD	VS.	8APROD	7.978	17	0.000		
8BABSC	VS.	8BABSC	6.681	17	0.000		
8CWAST	VS.	8CWAST	5.017	17	0.000		
8DINSP	VS.	8DINSP	1.495	17	0.150		

TABLE IV

Climate item t-tests, Dept. C

TABLE. IDEAL MINUS DEPARTMENT **DEPT. C **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	4.282	19	0.000		
1BC&TP	VS.	1BC&TP	4.688	18	0.000		
1CDISC	VS.	1CDISC	4.575	19	0.000		
1DGEID	VS.	1DGEID	5.647	18	0.000		
2AMOTI	VS.	2AMOTI	6.460	18	0.000		
2BUSED	VS.	2BUSED	3.886	17	0.001		
2CATIT	VS.	2CATIT	6.882	18	0.000		
2DRESP	VS.	2DRESP	5.274	19	0.000		
2EATME	VS.	2EATME	6.536	17	0.000		
2FSATF	VS.	2FSATF	6.292	18	0.000		
3ACOMU	VS.	3ACOMU	6.106	18	0.000		
3BDRTN	VS.	3BDRTN	4.665	17	0.000		
3C1DIN	VS.	3C1DIN	2.707	17	0.014		
3C2DSH	VS.	3C2DSH	4.985	17	0.000		
3C3DAC	VS.	3C3DAC	6.462	16	0.000		
3D1UAD	VS.	3D1UAD	4.650	17	0.000		
3D2URE	VS.	3D2URE	4.413	16	0.000		
3D3UDS	VS.	3D3UDS	7.901	17	0.000		
3D4UAC	VS.	3D4UAC	6.836	18	0.000		
3ESADE	VS.	3ESADE	4.825	18	0.000		
3FSADN	VS.	3FSADN	5.569	17	0.000		
3GFRIE	VS.	3GFRIE	3.212	18	0.005		
4AAINT	VS.	4AAINT	5.762	17	0.000		
4BTEAM	VS.	4BTEAM	5.375	17	0.000		
4C1INF	VS.	4C1INF	3.810	18	0.001		
4C2INB	VS.	4C2INB	4.413	16	0.000		
4DIACT	VS.	4DIACT	3.674	16	0.002		
4EEFST	VS.	4EEFST	5.774	15	0.000		
5ADECL	VS.	5ADECL	2.796	17	0.012		
5BDINF	VS.	5BDINF	9.286	16	0.000		
5CAWAR	VS.	5CAWAR	7.770	17	0.000		
5DTEPR	VS.	5DTEPR	4.781	17	0.000		
5EBLEV	VS.	5EBLEV	5.441	16	0.000		
5FINVO	VS.	5FINVO	6.279	17	0.000		
6AGOLS	VS.	6AGOLS	5.151	17	0.000		
6BGLEV	VS.	6BGLEV	4.630	17	0.000		
6CGACR	VS.	6CGACR	2.664	15	0.017		
7ACONA	VS.	7ACONA	5.882	18	0.000		
7BCONC	VS.	7BCONC	1.514	16	0.146		
7CINFO	VS.	7CINFO	6.901	15	0.000		
7DPUNI	VS.	7DPUNI	3.303	17	0.004		
8APROD	VS.	8APROD	5.471	17	0.000		
8BABSC	VS.	8BABSC	7.067	17	0.000		
8CWAST	VS.	8CWAST	3.506	17	0.003		
8DINSP	VS.	8DINSP	0.674	17	0.516		

TABLE IV - (continued)

TABLE DEPT. MINUS COMPANY **DEPT. C **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1ACCTS	VS.	1ACCTB	1.849	19	0.077		
1BCCTP	VS.	1BCCTP	-0.691	19	0.505		
1CDISC	VS.	1CDISC	3.643	13	0.002		
1DCFID	VS.	1DCFID	0.440	19	0.668		
2AMGTI	VS.	2AMGTI	-0.527	19	0.610		
2BUSED	VS.	2BUSED	0.661	17	0.524		
2CATIT	VS.	2CATIT	-0.524	18	0.612		
2DRESP	VS.	2DRESP	-0.424	19	0.678		
2EATNE	VS.	2EATNE	-0.754	19	0.466		
2FSATF	VS.	2FSATF	-1.121	19	0.276		
3ACCMU	VS.	3ACCMU	1.258	19	0.222		
3BDRTN	VS.	3BDRTN	1.468	19	0.155		
3C1DIN	VS.	3C1DIN	-0.554	19	0.592		
3C2DSH	VS.	3C2DSH	-0.040	19	0.920		
3C3DAC	VS.	3C3DAC	0.198	17	0.825		
3D1UAD	VS.	3D1UAD	1.640	19	0.114		
3D2URE	VS.	3D2URE	3.963	19	0.001		
3D3UDS	VS.	3D3UDS	1.320	19	0.200		
3D4UAC	VS.	3D4UAC	0.215	19	0.815		
3ESADE	VS.	3ESADE	1.165	18	0.259		
3FSADN	VS.	3FSADN	0.422	18	0.680		
3GFRIE	VS.	3GFRIE	2.288	18	0.033		
4AAINT	VS.	4AAINT	1.056	18	0.306		
4BTEAM	VS.	4BTEAM	1.530	19	0.139		
4C1INF	VS.	4C1INF	0.256	19	0.788		
4C2INB	VS.	4C2INB	3.240	18	0.005		
4DIACT	VS.	4DIACT	-0.979	17	0.897		
4EEFST	VS.	4EEFST	0.839	17	0.418		
5ADECL	VS.	5ADECL	-1.076	19	0.296		
5BDINF	VS.	5BDINF	-0.060	18	0.951		
5CAWAR	VS.	5CAWAR	1.578	19	0.128		
5DTEPR	VS.	5DTEPR	0.988	19	0.338		
5EBLEV	VS.	5EBLEV	-0.057	19	0.910		
5FINVO	VS.	5FINVO	0.860	19	0.405		
6AGOLS	VS.	6AGOLS	0.988	19	0.338		
6BGLEV	VS.	6BGLEV	1.439	19	0.163		
6CGACR	VS.	6CGACR	-0.093	17	0.888		
7ACCNA	VS.	7ACCNA	0.606	19	0.558		
7BCONC	VS.	7BCONC	1.467	18	0.151		
7CINFO	VS.	7CINFO	-0.476	17	0.644		
7DPUNI	VS.	7DPUNI	-0.159	18	0.849		
8APROD	VS.	8APROD	1.599	19	0.123		
8BASSC	VS.	8BASSC	1.322	18	0.200		
8CWAST	VS.	8CWAST	2.256	19	0.034		
8DINSP	VS.	8DINSP	2.100	19	0.047		

TABLE IV - (continued)

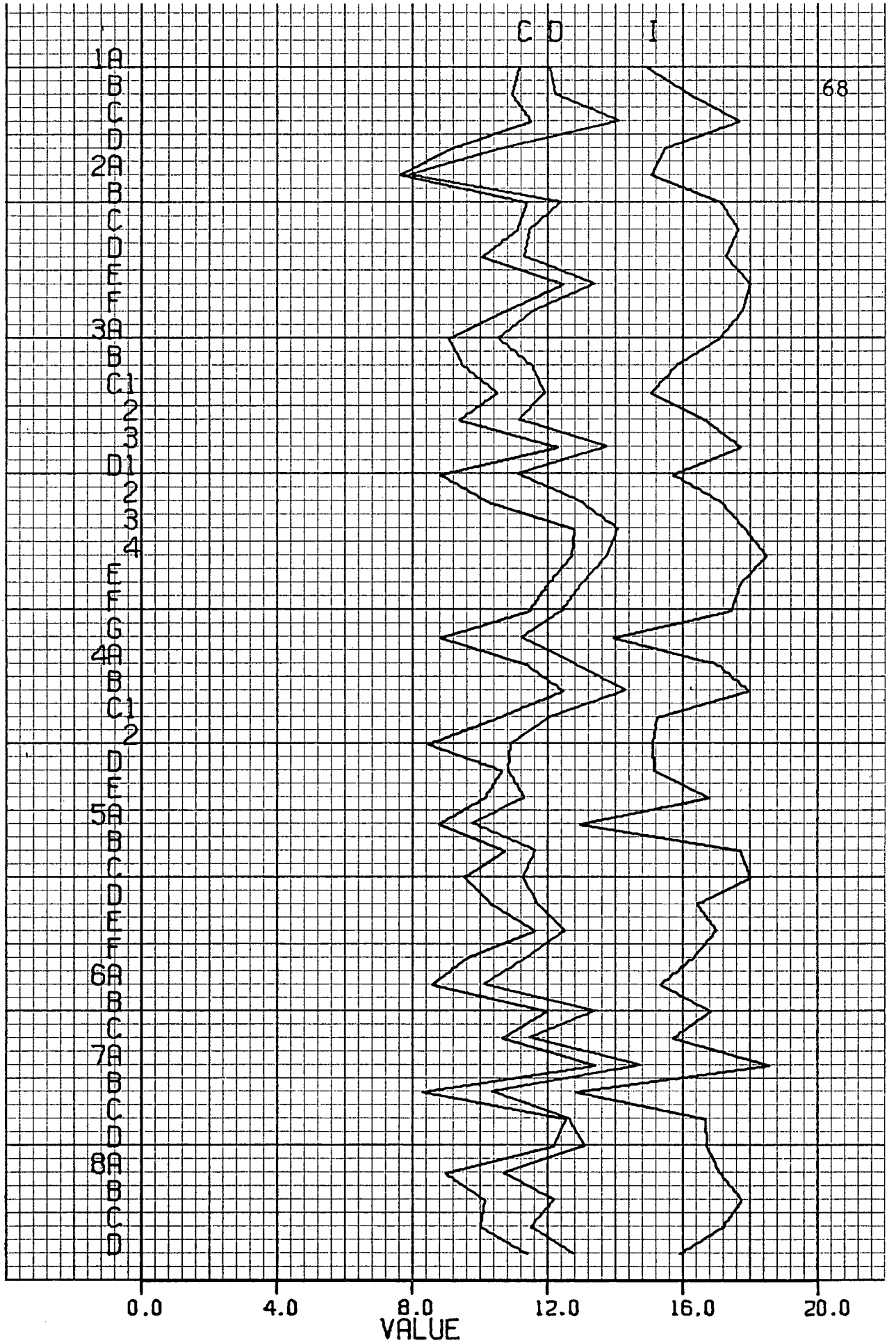


FIG. 7 Average climate item values - All Depts.

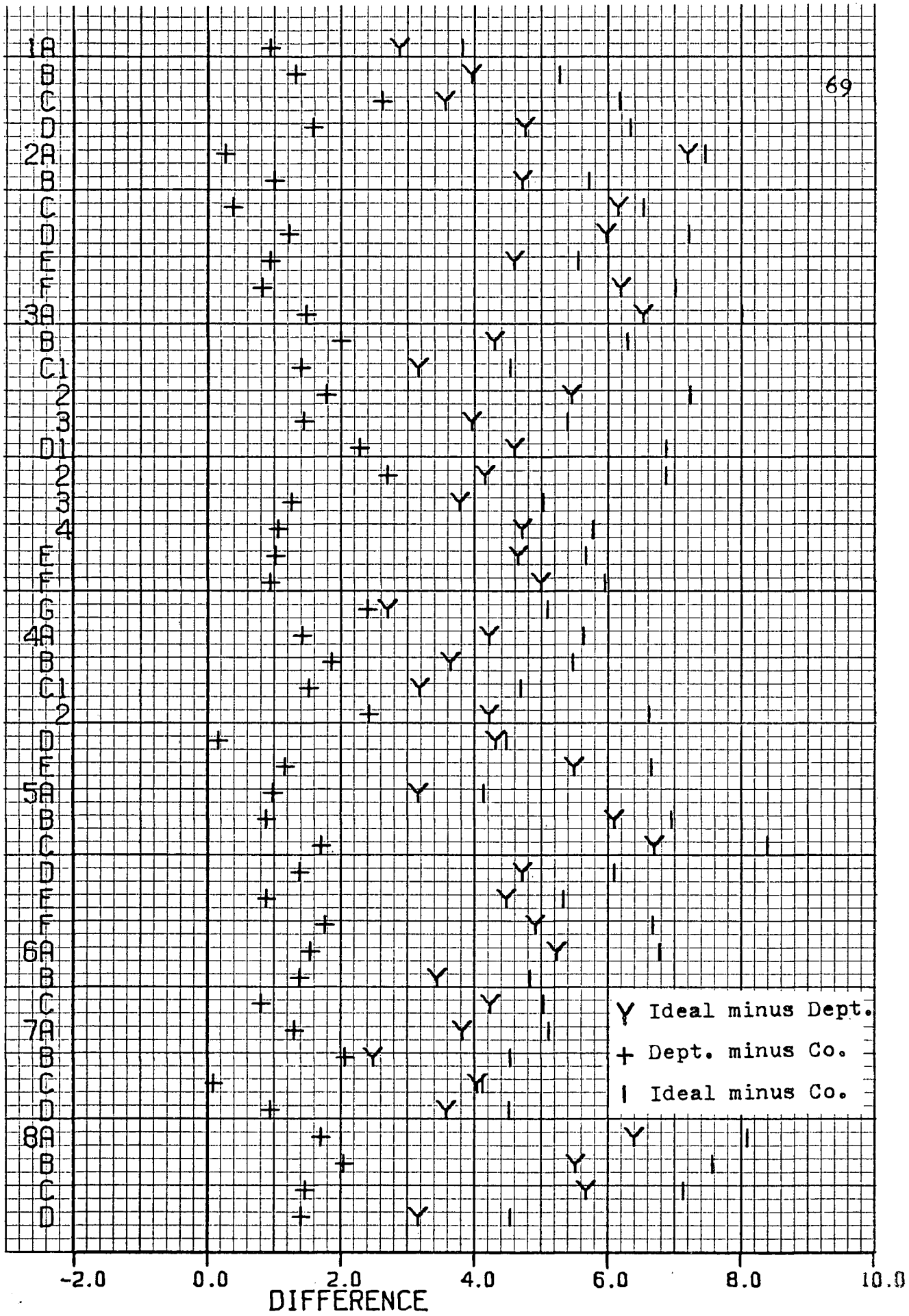


FIG. 8 Average differences in climate values - All Depts.

TABLE IDEAL MINUS COMPAY **DEPT. A+B+C **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TP	VS.	1AC&TB	9.056	63	0.000		
1BC&TP	VS.	1BC&TP	11.444	61	0.000		
1CDISC	VS.	1CDISC	11.041	62	0.000		
1DGEID	VS.	1DGEID	12.033	61	0.000		
2AMOTI	VS.	2AMOTI	9.007	54	0.000		
2BUSED	VS.	2BUSED	8.733	50	0.000		
2CATIT	VS.	2CATIT	15.126	57	0.0		
2DRESP	VS.	2DRESP	14.176	61	0.000		
2EATME	VS.	2EATME	13.217	60	0.000		
2FSATF	VS.	2FSATF	13.321	60	0.000		
3ACOMU	VS.	3ACOMU	12.946	63	0.000		
3BORTN	VS.	3BORTN	8.549	60	0.000		
3C1DIN	VS.	3C1DIN	5.750	56	0.000		
3C2DSH	VS.	3C2DSH	12.685	61	0.000		
3C3DAC	VS.	3C3DAC	12.406	59	0.000		
3D1UAD	VS.	3D1UAD	9.130	59	0.000		
3D2URE	VS.	3D2URE	10.871	58	0.000		
3D3UDS	VS.	3D3UDS	10.729	54	0.000		
3D4UAC	VS.	3D4UAC	11.279	55	0.000		
3ESADE	VS.	3ESADE	10.920	60	0.000		
3FSADN	VS.	3FSADN	11.204	59	0.000		
3GFRIE	VS.	3GFRIE	8.620	61	0.000		
4AAINT	VS.	4AAINT	12.944	59	0.000		
4BTEAM	VS.	4BTEAM	11.483	58	0.000		
4C1INF	VS.	4C1INF	8.223	49	0.000		
4C2INB	VS.	4C2INB	11.028	57	0.000		
4DIACT	VS.	4DIACT	7.487	49	0.000		
4EEFST	VS.	4EEFST	11.355	49	0.000		
5ADECL	VS.	5ADECL	5.621	56	0.000		
5BDINF	VS.	5BDINF	13.277	53	0.000		
5CAWAR	VS.	5CAWAR	13.443	61	0.000		
5DTEPR	VS.	5DTEPR	9.518	57	0.000		
5EBLEV	VS.	5EBLEV	8.273	52	0.000		
5FINVO	VS.	5FINVO	12.708	61	0.000		
6AGOLS	VS.	6AGOLS	12.547	60	0.000		
6BGLEV	VS.	6BGLEV	9.358	53	0.000		
6CGACR	VS.	6CGACR	6.663	49	0.000		
7ACONA	VS.	7ACONA	11.867	56	0.000		
7BCONC	VS.	7BCONC	5.478	53	0.000		
7CINFO	VS.	7CINFO	5.945	43	0.000		
7DPUNI	VS.	7DPUNI	7.406	53	0.000		
8APROD	VS.	8APROD	15.462	59	0.0		
8BABSC	VS.	8BABSC	12.607	54	0.000		
8CWAST	VS.	8CWAST	10.942	59	0.000		
8DINSP	VS.	8DINSP	4.878	50	0.000		

TABLE V

Climate item t-tests, Combined results

TABLE. IDEAL MINUS DEPARTMENT **DEPT. A+B+C **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	7.686	66	0.000		
1BC&TP	VS.	1BC&TP	9.234	65	0.000		
1CDISC	VS.	1CDISC	7.518	66	0.000		
1DGEID	VS.	1DGEID	8.790	65	0.000		
2AMOTI	VS.	2AMOTI	10.054	56	0.000		
2BUSED	VS.	2BUSED	7.880	52	0.000		
2CATIT	VS.	2CATIT	13.814	60	0.000		
2DRESP	VS.	2DRESP	12.517	66	0.000		
2EATME	VS.	2EATME	12.983	62	0.000		
2FSATF	VS.	2FSATF	13.408	63	0.000		
3ACOMU	VS.	3ACOMU	11.504	64	0.000		
3BORTN	VS.	3BORTN	6.775	61	0.000		
3C1DIN	VS.	3C1DIN	4.382	58	0.000		
3C2DSH	VS.	3C2DSH	9.780	63	0.000		
3C3DAC	VS.	3C3DAC	8.853	61	0.000		
3D1UAD	VS.	3D1UAD	8.650	62	0.000		
3D2URE	VS.	3D2URE	8.428	60	0.000		
3D3UDS	VS.	3D3UDS	10.157	56	0.000		
3D4UAC	VS.	3D4UAC	8.984	60	0.000		
3ESADE	VS.	3ESADE	11.633	62	0.000		
3FSADN	VS.	3FSADN	10.945	59	0.000		
3GFRIE	VS.	3GFRIE	5.713	64	0.000		
4AAINT	VS.	4AAINT	10.755	60	0.000		
4BTEAM	VS.	4BTEAM	9.086	60	0.000		
4C1INF	VS.	4C1INF	5.736	50	0.000		
4C2INB	VS.	4C2INB	8.455	59	0.000		
4DIACT	VS.	4DIACT	7.756	50	0.000		
4EEFST	VS.	4EEFST	9.955	49	0.000		
5ADECL	VS.	5ADECL	3.841	58	0.000		
5BDINF	VS.	5BDINF	13.201	56	0.000		
5CAWAR	VS.	5CAWAR	12.221	63	0.000		
5DTEPR	VS.	5DTEPR	8.468	58	0.000		
5EBLEV	VS.	5EBLEV	6.441	55	0.000		
5FINVO	VS.	5FINVO	10.163	63	0.000		
6AGOLS	VS.	6AGOLS	9.326	61	0.000		
6BGLEV	VS.	6BGLEV	7.500	55	0.000		
6CGACR	VS.	6CGACR	5.331	50	0.000		
7ACONA	VS.	7ACONA	10.818	56	0.000		
7BCONC	VS.	7BCONC	2.634	52	0.011		
7CINFO	VS.	7CINFO	5.872	44	0.000		
7DPUNI	VS.	7DPUNI	6.245	55	0.000		
8APROD	VS.	8APROD	12.141	62	0.000		
8BABSC	VS.	8BABSC	10.760	58	0.000		
8CWAST	VS.	8CWAST	8.715	61	0.000		
8DINSP	VS.	8DINSP	4.066	55	0.000		

TABLE V - (continued)

TABLE DEPT. MINUS COMPANY **DEPT. A+B+C **

NAME		NAME	T-VALUE	D.F.	TPROB.	FPROB.	FORMULA
1AC&TB	VS.	1AC&TB	2.438	66	0.017		
1BC&TP	VS.	1BC&TP	2.586	65	0.012		
1CDISC	VS.	1CDISC	6.074	65	0.000		
1DCEID	VS.	1DCEID	3.112	65	0.003		
2AMGTI	VS.	2AMGTI	0.227	57	0.806		
2BUSED	VS.	2BUSED	2.004	54	0.048		
2CATIT	VS.	2CATIT	1.290	60	0.199		
2DRESP	VS.	2DRESP	1.948	64	0.053		
2EATME	VS.	2EATME	2.262	65	0.026		
2FSATF	VS.	2FSATF	1.640	63	0.102		
3ACOMU	VS.	3ACOMU	3.260	66	0.002		
3BDRTN	VS.	3BDRTN	3.974	65	0.000		
3C1DIN	VS.	3C1DIN	2.859	60	0.006		
3C2DSH	VS.	3C2DSH	3.185	65	0.002		
3C3DAC	VS.	3C3DAC	3.958	62	0.000		
3D1UAD	VS.	3D1UAD	4.011	64	0.000		
3D2URE	VS.	3D2URE	6.431	64	0.000		
3D3UDS	VS.	3D3UDS	2.830	58	0.006		
3D4UAC	VS.	3D4UAC	2.118	58	0.036		
3ESADE	VS.	3ESADE	2.764	64	0.007		
3FSADN	VS.	3FSADN	2.991	62	0.004		
3GFRIE	VS.	3GFRIE	5.578	63	0.000		
4AAINT	VS.	4AAINT	3.334	62	0.002		
4BTEAM	VS.	4BTEAM	4.877	65	0.000		
4C1INF	VS.	4C1INF	3.283	53	0.002		
4C2INB	VS.	4C2INB	5.754	62	0.000		
4DIACT	VS.	4DIACT	0.551	54	0.590		
4EEFST	VS.	4EEFST	2.686	53	0.009		
5ADECL	VS.	5ADECL	1.808	62	0.072		
5BDINF	VS.	5BDINF	2.557	59	0.013		
5CAWAR	VS.	5CAWAR	4.012	65	0.000		
5DTEPR	VS.	5DTEPR	3.916	63	0.000		
5EBLEV	VS.	5EBLEV	2.750	57	0.008		
5FINVO	VS.	5FINVO	4.173	65	0.000		
6AGOLS	VS.	6AGOLS	3.527	64	0.001		
6BGLEV	VS.	6BGLEV	3.622	57	0.001		
6CGACR	VS.	6CGACR	2.463	54	0.016		
7ACONA	VS.	7ACONA	3.681	59	0.001		
7BCONC	VS.	7BCONC	5.023	55	0.000		
7CINFO	VS.	7CINFO	-0.000	45	0.951		
7DPUNI	VS.	7DPUNI	2.797	55	0.007		
8APROD	VS.	8APROD	4.832	64	0.000		
8BABSC	VS.	8BABSC	4.731	57	0.000		
8CWAST	VS.	8CWAST	4.558	64	0.000		
8DINSP	VS.	8DINSP	2.639	56	0.010		

TABLE V - (continued)

are almost identical over the entire range of questions. The only exceptions are as follows: 4C(1), 3D(2)&(3), 7C, 8A-D. The first four items would incidate some moderate divergence as to what would constitute ideal quality or quantity of upward communication as well as superior's awareness of his influence or the extent to which there should be an informal organization. These differences were not large especially when compared to others between department(D) and company(C) profiles. The above results thus indicated rather consistent views among the departments as to what would be considered an ideal climate. The differences between ideal and company climate are consistently significant in all departments across the full range of questions. The anomoly for 8D in department C would not appear to be out of order when one considers the large number of t-tests being conducted.

The differences between I and D scores are consistently large over the range of climate items for all three departments. The higher t-probs in department B would indicate a greater degree of satisfaction with regard to the level of decision-making (Q5A) or degree of concentration of authority (Q7B). The low t-value for 8D in department C could express a degree of satisfaction with checking and/or policing policies.

From observation of the profiles it is apparent that there are substantial differences between the departments on a variety of climate items. By direct comparison of profiles on a light-table further observations were made. The C profile

for department C would appear to be generally higher than that of either department A or B. The C profile for department B was roughly on the same average level as that of department A but was substantially higher or lower on many items. The D profile for department A, on the other hand, was consistently higher than for departments B or C, while both the D and C profiles for department C tended to fall within boundaries set by the D and C profiles of department A.

Observation of the D minus C t-values and t-probs highlights these differences between departments. For department A there are only seven t-probs above 0.05 (out of 45) while for department B only 21 are below 0.05 and, for department C, seven are below. For department C there are nine t-probs above 0.75 while in department B there are only two.

The combined-results graph (Fig. 7) and t-prob table (Table V) indicate that only two or three items would be found which were the same for both D and C. These were the presence or extent of an informal organization(Q7C), underlying motivations tapped(Q2A), and influence of department heads(Q4D).

For the leadership style scores on the first survey the reader will need to look forward to the second survey results (Table XIII) where they are presented in tabular form for comparison with the second survey results. It should be noted that asterisked items in part II(B) had the scores adjusted to reverse the scales.

The principal theoretical interest, of course, was the

relationship between leadership style and department organizational climate. The correlation matrix for data from the first survey is presented in Table VI. The matrix includes all climate items, the leadership style scores for project leaders (INSTRP and CONSIP) and department heads (INSTUD and CONSID) as well as the organizational climate dimension scores calculated on the a priori scheme. These scores are simple averages, in each case, of all questions numbered one, two, . . . , eight. Following the correlation matrix will be found the means and standard deviations (Table VII) for all of these variables. A matrix of number of paired observations will be found in Appendix G. The variable name for all climate items begins with the item no. from the survey (i.e. 1B, 4C2, 7C).

TABLE VI

Correlation matrix - Climate items, leadership scores, & a priori climate dimensions

** DEPT. A+B+C **

CORRELATION MATRIX VARIABLE	1ACETB	1BCETP	1CDISC	1DGEID	2AMOTI	2BUSED	2CATIT	2DRESP	2FATMF	2FSATF	3ACOMU
1ACETB	1.0000										
1BCETP	0.7264	1.0000									
1CDISC	0.4152	0.4900	1.0000								
1DGEID	0.2503	0.3022	0.5146	1.0000							
2AMOTI	0.3500	0.4300	0.1356	0.0577	1.0000						
2BUSED	0.3821	0.3084	0.3760	0.1858	0.4995	1.0000					
2CATIT	0.2939	0.4129	0.4216	0.2626	0.5079	0.4572	1.0000				
2DRESP	0.3221	0.4633	0.4916	0.4026	0.4394	0.4430	0.5716	1.0000			
2FATMF	0.4361	0.4576	0.4703	0.4562	0.1165	0.2135	0.4000	0.3970	1.0000		
2FSATF	0.3713	0.4409	0.5463	0.4466	0.4199	0.3891	0.6869	0.6110	0.4828	1.0000	
3ACOMU	0.4593	0.4447	0.4722	0.3002	0.3920	0.5776	0.4409	0.3849	0.3651	0.5508	1.0000
3BORTN	0.1925	0.3569	0.3520	0.1775	0.2518	-0.0007	0.2785	0.2971	0.2278	0.4098	0.3155
3C1DIN	0.1779	0.1885	0.4319	0.3361	-0.1127	0.0764	0.2242	0.2528	0.2645	0.3966	0.2624
3C2DSH	0.4310	0.4891	0.5495	0.4386	0.1473	0.1453	0.4535	0.4807	0.4809	0.5678	0.3559
3C3DAC	0.3917	0.4703	0.3670	0.2203	0.1158	0.2679	0.3977	0.3127	0.4556	0.4583	0.2549
3D1UAD	0.4535	0.5650	0.4810	0.3250	0.2811	0.1560	0.3425	0.4734	0.4169	0.3847	0.3423
3D2UPE	0.4070	0.4950	0.2689	0.2245	0.3172	0.1416	0.0551	0.3346	0.3163	0.4096	0.4036
3D3UDS	0.1710	0.4014	0.3626	0.3253	0.1001	-0.0132	0.2155	0.3655	0.4634	0.4274	0.2519
3D4UAC	0.3431	0.3854	0.2776	0.3348	0.1364	-0.0210	0.2896	0.3087	0.3416	0.3599	0.1542
3ESADE	0.3048	0.3719	0.3376	0.2343	0.3417	0.2632	0.3753	0.4271	0.5036	0.4303	0.3584
3FSADV	0.1445	0.2663	0.2063	0.1276	0.1514	0.1522	0.0802	0.2113	0.3426	0.2283	0.2751
3GFRIE	0.6236	0.4830	0.6577	0.4564	0.1580	0.2609	0.3689	0.3607	0.5136	0.4123	0.4230
4AAINF	0.4007	0.4529	0.6446	0.5061	0.1339	0.3164	0.3807	0.4260	0.5537	0.6224	0.4227
4BTEAM	0.4116	0.4467	0.4619	0.4820	0.2394	0.2672	0.3063	0.3650	0.4645	0.5514	0.4757
4C1INF	0.5393	0.4659	0.3882	0.1640	0.2296	0.4610	0.1592	0.3154	0.2597	0.4367	0.3270
4C2INB	0.3710	0.3834	0.3139	0.2034	0.1600	0.2809	0.2439	0.1825	0.3923	0.4294	0.2789
4D1ACT	0.1445	0.4242	0.3977	0.4006	0.3202	0.1731	0.2996	0.3833	0.3009	0.3221	0.4599
4EFFST	0.3463	0.4645	0.5490	0.4266	0.2002	0.1347	0.3183	0.4360	0.3681	0.5904	0.3239
5ADECL	0.1586	0.2948	0.2974	0.2630	0.1370	0.2120	0.2491	0.2456	0.1275	0.2657	0.2987
5BDINF	0.3707	0.4461	0.2604	0.2799	0.2632	0.1518	0.2535	0.2350	0.4276	0.4124	0.2404
5CASAP	0.4358	0.4575	0.4306	0.4154	0.1330	0.0608	0.4271	0.3163	0.3498	0.4956	0.2908
5DTEPR	0.4586	0.4647	0.3144	0.2604	0.1584	0.2619	0.2601	0.2638	0.4714	0.3914	0.4523
5ERLEV	0.2131	0.2213	0.4396	0.4113	0.0850	0.2430	0.3975	0.4596	0.4180	0.4596	0.4314
5FINFO	0.5408	0.4922	0.3352	0.3437	0.2656	0.2896	0.3183	0.2888	0.3740	0.4684	0.3253
6AGOLS	0.4091	0.4343	0.3038	0.3535	0.3567	0.4926	0.4139	0.3799	0.2267	0.4271	0.3019
6BGLEV	0.1283	0.2333	0.0980	0.2411	0.0041	-0.0790	0.1024	0.0919	0.3909	0.2956	0.1220
6CCACR	0.3714	0.4791	0.2031	-0.0434	0.2280	0.1698	0.3961	0.2132	0.4119	0.3427	0.3973
7ACORA	0.4577	0.4820	0.4179	0.2826	0.1233	0.1056	0.0963	0.2701	0.4492	0.3645	0.2267
7BCONC	0.1499	0.1859	0.3070	0.0664	0.0386	0.3202	0.1150	0.2356	0.1479	0.1478	0.1681
7CINFO	0.1691	0.3152	0.1663	-0.1381	-0.0140	0.1268	0.2241	0.2523	0.1256	0.1461	0.1159
7DPUNI	0.2316	0.4282	0.5056	0.3010	0.0501	0.0998	0.1612	0.4254	0.4013	0.3593	0.1482
8APROD	0.2686	0.3479	0.1341	0.0999	0.3956	0.3525	0.4585	0.4329	0.2709	0.4610	0.4518
8BARSC	0.3314	0.3530	0.2397	0.1395	0.1750	0.2327	0.2237	0.2341	0.2454	0.3964	0.1748
8CAACT	0.2187	0.4139	0.1747	-0.0190	0.3009	0.3315	0.3978	0.4065	0.3158	0.3922	0.3899
8DINSP	0.3891	0.3681	0.2236	0.2061	0.2342	0.2164	0.3511	0.2474	0.3978	0.4243	0.3966
INSTRP	0.3546	0.4174	0.3477	0.4056	0.1774	0.1976	0.4615	0.4961	0.3325	0.5521	0.2988
CONSTP	0.4212	0.4515	0.3737	0.5590	0.1588	0.0564	0.2400	0.3809	0.3477	0.3888	0.2338
INSTUD	0.2178	0.2928	0.1953	0.1723	-0.0045	0.2671	0.1075	0.3205	0.1925	0.3909	0.2631
CONSTU	0.4812	0.5650	0.5501	0.4777	0.2863	0.4175	0.5047	0.5479	0.5682	0.5937	0.4469
1LEADP	0.7498	0.8091	0.8093	0.6939	0.3017	0.3998	0.4445	0.5547	0.5029	0.5923	0.5450
2MOTER	0.4833	0.5674	0.5460	0.4187	0.6082	0.6776	0.8147	0.7635	0.5727	0.8160	0.6052
3COMUN	0.5699	0.6654	0.6601	0.5001	0.3295	0.2790	0.4854	0.6008	0.6420	0.7042	0.6148
4INTER	0.4980	0.6063	0.6065	0.4752	0.3164	0.3882	0.4162	0.4627	0.5151	0.6774	0.4818
5DECMK	0.5394	0.5830	0.5084	0.4905	0.2540	0.2987	0.4879	0.4454	0.5476	0.6221	0.5095
6GOLST	0.3792	0.4972	0.2266	0.2035	0.2621	0.2636	0.4595	0.2871	0.4327	0.4700	0.3632
7CONTR	0.2462	0.4979	0.5352	0.1455	0.1114	0.2177	0.2306	0.4422	0.3996	0.3349	0.2664
8PERFO	0.3907	0.4880	0.2594	0.1027	0.3972	0.3722	0.5028	0.4555	0.4017	0.5493	0.4441

TABLE VI - (continued)

** DEPT. A+B+C **

CORRELATION MATRIX VARIABLE	3BORTN	3C1DIN	3C2DSH	3C3DAC	3D1UAD	3D2URE	3D3UDS	3D4UAC	3ESADE	3FSADN	3GFRIE
3BORTN	1.0000										
3C1DIN	0.2981	1.0000									
3C2DSH	0.2847	0.2589	1.0000								
3C3DAC	-0.0311	0.2140	0.4565	1.0000							
3D1UAD	0.5579	0.2006	0.5286	0.2929	1.0000						
3D2URE	0.4051	0.1800	0.3549	0.2371	0.5444	1.0000					
3D3UDS	0.2468	0.2579	0.2918	0.2978	0.2320	0.3456	1.0000				
3D4UAC	0.1305	0.2007	0.4151	0.5976	0.4016	0.3939	0.3290	1.0000			
3ESADE	0.3133	0.2486	0.3132	0.1320	0.3376	0.2514	0.4444	0.0307	1.0000		
3FSADN	0.2112	0.1505	0.1480	0.0890	0.1675	0.2526	0.4139	0.0084	0.7721	1.0000	
3GFRIE	0.2045	0.3344	0.5994	0.3938	0.4222	0.3661	0.2382	0.4573	0.2952	0.1101	1.0000
4AAINT	0.3441	0.4504	0.5600	0.4790	0.4241	0.4531	0.4141	0.3780	0.4756	0.3367	0.6354
4BTEAM	0.2318	0.2937	0.5368	0.3834	0.3317	0.5251	0.3816	0.3781	0.2879	0.2996	0.5261
4C1INF	0.2326	0.0634	0.5117	0.2908	0.2520	0.3490	0.3485	0.2205	0.3074	0.2335	0.3344
4C2INB	0.3025	0.1634	0.4441	0.3113	0.4642	0.3555	0.2747	0.2332	0.3971	0.2512	0.2986
4DIACT	0.5139	0.1906	0.4059	0.1031	0.5166	0.3689	0.2051	0.2524	0.4255	0.3830	0.2634
4EEFST	0.3446	0.3451	0.5559	0.3230	0.4514	0.6082	0.4561	0.5072	0.3422	0.3392	0.3554
5ADECL	0.0686	0.0695	0.3148	0.2220	0.1878	0.1894	0.0683	0.2762	0.3053	0.2082	0.2519
5BDINF	0.2928	0.0314	0.4160	0.3936	0.3691	0.3947	0.2792	0.5309	0.2454	0.2273	0.2852
5CAWAR	0.2272	0.3066	0.5266	0.4801	0.4797	0.3941	0.1691	0.5598	0.1482	0.0924	0.4438
5DTEPR	0.2768	0.1569	0.4126	0.2514	0.4338	0.3314	0.2164	0.1553	0.4707	0.4392	0.3709
5EBLEV	0.2071	0.3046	0.5628	0.4107	0.3434	0.2877	0.2543	0.3560	0.2110	-0.0031	0.4901
5FINVO	0.1433	0.2764	0.5957	0.4250	0.3091	0.3141	0.1326	0.3282	0.3568	0.1644	0.5542
6AGOLS	0.1434	0.1548	0.4725	0.3304	0.3321	0.2660	0.1242	0.3961	0.1742	0.0209	0.3724
6BGLEV	0.1400	0.0417	0.2916	0.3528	0.2510	0.4755	0.5713	0.4879	0.2574	0.2494	0.2868
6CGACR	0.2299	0.0478	0.3553	0.6162	0.3194	0.3739	0.2573	0.3492	0.2735	0.0980	0.3905
7ACONA	0.2271	0.2190	0.3810	0.5054	0.5222	0.5670	0.4547	0.5687	0.3419	0.2314	0.4218
7BCONC	0.2276	0.1764	0.0694	0.1542	0.1353	0.1849	0.1951	-0.1273	0.3856	0.2336	0.2707
7CINFO	0.2338	0.1069	0.2057	0.2655	0.1647	0.0926	0.1565	-0.0010	0.2528	-0.0290	0.1358
7DPUNI	0.3142	0.3019	0.4149	0.3667	0.4305	0.5172	0.2654	0.5496	0.3037	0.2197	0.4154
8APROD	0.2915	0.0161	0.2487	0.3875	0.3173	0.3449	0.2023	0.2899	0.4162	0.3798	0.1256
8BASSC	0.0766	0.1001	0.2888	0.5165	0.0762	0.2630	0.2332	0.4294	0.1347	0.1659	0.3490
8CWAST	0.2917	-0.0667	0.2868	0.3382	0.3694	0.3229	0.3363	0.1547	0.4371	0.4297	0.0070
8DINSP	0.1622	0.1701	0.3247	0.4136	0.2914	0.3309	0.1189	0.3505	0.3043	0.1985	0.4914
INSTRP	0.1002	0.1560	0.4520	0.3910	0.2982	0.1844	0.2188	0.1679	0.2305	0.0625	0.2540
CONSIP	-0.0462	0.1230	0.6649	0.4853	0.3574	0.3247	0.1225	0.4186	0.1180	0.0408	0.5066
INSTUD	0.1360	0.2157	0.2450	0.3538	0.2019	0.3135	0.1726	0.3172	0.1277	0.1724	0.3993
CONSID	0.1698	0.2160	0.4027	0.4471	0.4696	0.3205	0.1743	0.2614	0.3683	0.1812	0.4700
1LEADP	0.3578	0.3808	0.6268	0.4748	0.5939	0.4484	0.4201	0.4635	0.4076	0.2453	0.7292
2MOTER	0.3341	0.2397	0.5281	0.4548	0.4615	0.3521	0.3508	0.3302	0.5259	0.2667	0.4721
3COMUN	0.5628	0.4920	0.7185	0.5485	0.7141	0.6639	0.5786	0.5742	0.6039	0.4744	0.6860
4INTER	0.4708	0.3103	0.6531	0.4285	0.5487	0.5590	0.4273	0.4194	0.4975	0.4659	0.5314
5DECMK	0.3009	0.2957	0.7073	0.5467	0.5332	0.4759	0.2735	0.5566	0.4239	0.2658	0.6009
6GOLST	0.2212	0.0949	0.4627	0.5927	0.3828	0.4897	0.4257	0.5935	0.2783	0.1321	0.4267
7COMTR	0.3212	0.2517	0.4156	0.4376	0.4764	0.4702	0.3708	0.3837	0.4765	0.2689	0.4677
8PERFO	0.2707	0.0657	0.3685	0.5608	0.3436	0.4067	0.3091	0.4277	0.4251	0.3837	0.2680

TABLE VI - (continued)

** DEPT. A+B+C **

CORRELATION MATRIX

VARIABLE	4AAINT	4BTEAM	4C1INF	4C2INB	4DIACT	4EEFST	5ADECL	5BDINF	5CAWAR	5DTEPR	5EBLEV
4AAINT	1.0000										
4BTEAM	0.5904	1.0000									
4C1INF	0.4074	0.3503	1.0000								
4C2INB	0.4669	0.3779	0.6697	1.0000							
4DIACT	0.3614	0.2668	0.2076	0.3466	1.0000						
4EEFST	0.5336	0.5034	0.4911	0.4302	0.3613	1.0000					
5ADECL	0.4346	0.2136	0.1851	0.0570	0.3382	0.3731	1.0000				
5BDINF	0.2744	0.2493	0.3847	0.2723	0.3460	0.5309	0.2409	1.0000			
5CAWAR	0.3608	0.4498	0.1885	0.2471	0.2937	0.4750	0.1944	0.3703	1.0000		
5DTEPR	0.3436	0.2966	0.2211	0.2713	0.3750	0.3588	0.2502	0.3652	0.3425	1.0000	
5EBLEV	0.3574	0.4742	0.1682	0.0810	0.2381	0.3544	0.2413	0.3364	0.3421	0.3942	1.0000
5EINVO	0.3092	0.4890	0.4688	0.3729	0.2834	0.4810	0.2818	0.3665	0.3135	0.4235	0.4642
6AGOLS	0.2766	0.3947	0.3784	0.3057	0.2779	0.4950	0.2750	0.3303	0.5326	0.1877	0.4229
6BGLEV	0.3418	0.3586	0.0918	0.1696	0.1800	0.3871	0.1403	0.2423	0.3433	0.2362	0.2022
6CGACH	0.3254	0.2507	0.2423	0.2508	0.2134	0.2520	0.2895	0.3665	0.2220	0.2060	0.4220
7ACCNA	0.4943	0.4196	0.4466	0.4822	0.2249	0.5295	0.0952	0.5264	0.3840	0.2791	0.3874
7BCONC	0.3331	0.1813	0.0193	0.0271	0.0679	0.0930	0.3668	0.0464	-0.2030	0.2941	0.3680
7CINFO	0.1864	0.1616	0.0506	0.0096	0.0634	-0.0270	0.1890	0.0175	-0.0511	0.0418	0.3758
7DPUNI	0.3633	0.2627	0.2816	0.0802	0.3355	0.5136	0.3091	0.4279	0.4762	0.3204	0.3426
8APROD	0.3264	0.2325	0.2324	0.2288	0.5069	0.3255	0.2950	0.4207	0.3006	0.3827	0.1349
8BARSC	0.3126	0.2892	0.3850	0.2117	0.0315	0.2746	0.3246	0.3994	0.3001	0.2017	0.3242
8CMAST	0.2752	0.1490	0.2915	0.3095	0.4389	0.3178	0.1773	0.4380	0.1946	0.3793	0.1258
8DINSP	0.4007	0.3869	0.3081	0.3009	0.1793	0.3597	0.2825	0.2316	0.2404	0.1774	0.1971
INSTRP	0.5237	0.3984	0.3430	0.3242	0.1575	0.1271	0.2278	0.1832	0.3050	0.2221	0.0970
CONSIP	0.4792	0.4395	0.3962	0.2929	0.3028	0.3451	0.4156	0.3237	0.5432	0.1180	0.2650
INSTUD	0.3445	0.2431	0.2377	0.2875	0.1572	0.1994	0.1726	0.2761	0.3525	0.2190	0.2558
CONSID	0.6356	0.4958	0.4889	0.5263	0.4202	0.4169	0.3691	0.3533	0.4493	0.3148	0.2793
1LEADP	0.6576	0.5901	0.4962	0.4110	0.4507	0.5738	0.3383	0.4267	0.5661	0.4814	0.4295
2MOTER	0.5472	0.5076	0.4103	0.3933	0.4132	0.4769	0.2703	0.3977	0.4120	0.4031	0.4379
3COMUN	0.7353	0.6417	0.4626	0.5358	0.5686	0.7157	0.3460	0.5157	0.5865	0.5507	0.5282
4INTER	0.7561	0.6807	0.7625	0.7905	0.6397	0.7563	0.3275	0.4554	0.4535	0.4229	0.2892
5DECMK	0.5533	0.5467	0.3658	0.3185	0.4790	0.6408	0.5370	0.6844	0.6662	0.6854	0.7171
6GLST	0.4155	0.4141	0.2740	0.2912	0.2849	0.5151	0.3441	0.4623	0.4949	0.3371	0.4731
7CONTR	0.4597	0.2815	0.3047	0.1914	0.3129	0.4120	0.3846	0.3746	0.2348	0.3892	0.4627
8PERFO	0.4237	0.3205	0.3866	0.3382	0.3660	0.4543	0.3585	0.5481	0.3535	0.3648	0.2607

TABLE VI - (continued)

** DEPT. A+B+C **

CORRELATION MATRIX

VARIABLE	5FINVO	6AGOLS	6BGLEV	6CGACR	7ACONA	7BCONC	7CINFO	7DPUNI	8APROD	8BABSC	8CWAST
5FINVO	1.0000										
6AGOLS	0.5732	1.0000									
6BGLEV	0.0881	0.1743	1.0000								
6CGACR	0.4695	0.2362	0.3721	1.0000							
7ACONA	0.3873	0.3122	0.4056	0.3965	1.0000						
7BCONC	0.2280	0.0528	0.1748	0.3823	0.1121	1.0000					
7CINFO	0.3580	0.1387	0.0212	0.5677	0.2664	0.5769	1.0000				
7DPUNI	0.3365	0.3257	0.3744	0.3213	0.5755	0.1892	0.3026	1.0000			
8APROD	0.2033	0.2467	0.1620	0.3730	0.2640	0.0339	0.1072	0.2187	1.0000		
8BABSC	0.3493	0.3944	0.2510	0.4297	0.3876	0.1408	0.0673	0.3005	0.2742	1.0000	
8CWAST	0.1624	0.2070	0.1791	0.4715	0.4020	0.0690	0.3475	0.3067	0.6936	0.2154	1.0000
8DINSP	0.3841	0.2624	0.3793	0.4740	0.5290	0.1355	0.2602	0.3645	0.4084	0.2856	0.4054
INSTRP	0.0937	0.1124	0.1597	0.1060	0.1838	0.0540	0.0490	0.0575	0.4046	0.1799	0.3921
CONSIP	0.4124	0.4494	0.2248	0.1989	0.3904	-0.0718	-0.0685	0.3537	0.2107	0.2494	0.1725
INSTUD	0.1965	0.2933	0.1633	0.1244	0.2330	0.0356	0.1325	0.1840	0.4448	0.3365	0.4283
CONSID	0.4385	0.4508	0.0873	0.2732	0.3911	0.0387	0.1574	0.3558	0.4112	0.3920	0.4392
1LEADP	0.5502	0.4820	0.2290	0.3249	0.5296	0.2286	0.1497	0.4785	0.2706	0.3507	0.2543
2MOTER	0.4753	0.5226	0.1692	0.3950	0.3183	0.2097	0.1907	0.3278	0.5736	0.3364	0.4954
3COMUN	0.5486	0.4339	0.4752	0.5071	0.6421	0.2776	0.2310	0.5757	0.5042	0.3639	0.4583
4INTER	0.5566	0.4689	0.2679	0.3703	0.5653	0.1450	0.1151	0.3746	0.4523	0.3243	0.4150
5DECMK	0.7086	0.5873	0.3252	0.4976	0.5208	0.2576	0.2323	0.5507	0.4269	0.4737	0.3594
6GOLST	0.4846	0.6311	0.7392	0.8046	0.5029	0.2654	0.3844	0.4390	0.3783	0.5024	0.3929
7CONTR	0.3856	0.2505	0.3236	0.5466	0.6635	0.6593	0.7689	0.7996	0.2461	0.3717	0.3843
8PERFO	0.3574	0.3729	0.3223	0.5952	0.5245	0.1061	0.2627	0.3870	0.8149	0.8309	0.8015

CORRELATION MATRIX

VARIABLE	8DINSP	INSTRP	CONSIP	INSTUD	CONSID	1LEADP	2MOTER	3COMUN	4INTER	5DECMK	6GOLST
8DINSP	1.0000										
INSTRP	0.3560	1.0000									
CONSIP	0.4219	0.6144	1.0000								
INSTUD	0.2621	0.4380	0.2058	1.0000							
CONSID	0.5010	0.6248	0.6441	0.3389	1.0000						
1LEADP	0.4217	0.5017	0.5925	0.2859	0.6832	1.0000					
2MOTER	0.4240	0.5546	0.4039	0.3488	0.6628	0.6585	1.0000				
3COMUN	0.4986	0.4412	0.5165	0.3931	0.5943	0.7828	0.6979	1.0000			
4INTER	0.4308	0.4660	0.4829	0.3540	0.6905	0.7163	0.6378	0.8058	1.0000		
5DECMK	0.3833	0.2374	0.5302	0.3630	0.5594	0.6918	0.5970	0.7649	0.6112	1.0000	
6GOLST	0.5137	0.1685	0.3492	0.3006	0.3264	0.4158	0.4806	0.6122	0.4540	0.6309	1.0000
7CONTR	0.4501	0.1760	0.3051	0.1998	0.3883	0.4971	0.3849	0.6205	0.3979	0.5510	0.5042
8PERFO	0.7098	0.4269	0.3242	0.4926	0.5372	0.3992	0.6183	0.5911	0.5298	0.5558	0.6046

CORRELATION MATRIX

VARIABLE	7CONTR	8PERFO
7CONTR	1.0000	
8PERFO	0.4554	1.0000

** DEPT. A+B+C **

APPROXIMATELY
63 OBSERVATIONS
62 DEGREES OF FREEDOM

NAME	MEAN	STD.DEV.	NAME	MEAN	STD.DEV.	NAME	MEAN	STD.DEV.
1ACCTB	12.0811	2.93189	3ESADE	13.0422	3.37822	7BCONC	10.3783	3.07282
1BCCTP	12.2567	3.47617	3FSAIN	12.4348	3.47613	7CINFO	12.6326	3.38311
1CDISC	14.1216	3.81758	3GFRIE	11.2500	4.11711	7DPUNI	13.1333	4.62287
1CCEID	10.7260	3.63722	4AAINT	12.7941	3.20707	8APROD	10.7083	3.81780
2AMOTI	7.90624	4.05797	4BTEAM	14.3194	3.08026	8BABSC	12.2121	4.25174
2BUSED	12.4167	3.56719	4C1INF	12.0678	3.53730	8CFAST	11.5139	4.11452
2CATTF	11.5000	3.45330	4C2INB	10.9143	4.11691	8DINSP	12.7764	3.48042
2DRESP	11.3151	3.45557	4D1ACT	10.8500	4.12156	INSTRP	5.61474	0.5430B7
2EATBE	13.4084	3.04994	4EFFST	11.3158	3.24123	CONSIP	3.29076	0.744205
2FSATF	11.5555	3.74875	5ADECL	9.78872	3.81318	INSTUD	3.51547	0.649415
3ACOMU	10.5555	3.56422	5BDINF	11.6232	3.81598	CONSID	3.21624	0.701872
3BRTRN	11.5211	4.24216	5CAWAR	11.2778	4.48226	1LEADP	12.3649	2.65241
3C1DIN	11.9254	3.53472	5DTEPR	11.7353	3.94596	2MOTFR	11.4434	2.62090
3C2DST	11.1621	4.70506	5EBLFV	12.5079	4.59968	3COMUN	12.3418	2.25009
3C3DAC	13.7605	3.52323	5FINVO	11.4028	3.90253	4INTER	12.2492	2.70707
3D1MAD	11.1111	3.87681	6AGOLS	10.1286	3.47629	5DECMK	11.4244	2.69345
3D2UPE	12.9577	3.71266	6BGLFV	13.4062	3.78265	6GOLST	11.6047	2.82787
3D3UDS	14.0625	3.38471	6CGACR	11.4827	4.38993	7CONTR	12.9515	2.90603
3D4UAC	13.7681	3.84685	7ACCNA	14.7460	3.09508	8PERFO	11.8356	2.93961

TABLE VII

Means and standard deviations - Climate items, leadership scores, & a priori climate dimensions

Points of interest concerning the matrix in Table VI should be noted. Though this is a small sample to judge by, the orthogonality of initiation of structure (IS) and consideration (C) dimensions is of interest. The correlation for the three department heads is 0.34 while that for the project leaders it is 0.61. In general, across many of the climate items, there are higher correlations with C than with IS. In general, there are also higher correlations with department head style dimension than with project leader style dimensions. The correlations between climate dimensions also appear to be uniformly higher than those between the climate items in general. By checking the paired observations table one can also assess the difficulty of completing some of the climate scales. Question 7C only had 49 responses out of 77 while 7B, 6C and 4E had only 57 or 58 responses. Anyone intending to use these items in future should certainly look to simplifying these or possibly all of the scales. There were many comments about the length and difficulty of the climate questionnaire and reports that many persons gave up and did not send in their questionnaires. It should be noted that several of the questionnaires were well completed for the climate items with absolutely no entries for leadership style and vice versa. The results of regression analysis with climate dimension as dependent variables will be found in Tables VIII and IX following.

REGRESSION RESULTS **DEPT. A+B+C **

APPROXIMATE DEGREES OF FREEDOM IN SELECTED ARRAY IS 67

DEPENDENT VARIABLE IS 1LEADP

RSQ =	0.4701
FPROB. =	0.0000
STD ERR Y =	1.8858

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	3.3705	1.4910		
INSTUD	0.2508	0.3920	0.4093	0.5318
CONSID	2.5034	0.3627	47.6409	0.0000

DEPENDENT VARIABLE IS 2PUTER

RSQ =	0.4642
FPROB. =	0.0000
STD ERR Y =	1.8737

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.0149	1.4815		
INSTUD	0.5567	0.3895	2.0426	0.1539
CONSID	2.3229	0.3604	41.5475	0.0000

DEPENDENT VARIABLE IS 3COMUN

RSQ =	0.3947
FPROB. =	0.0000
STD ERR Y =	1.7857

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	3.5765	1.4118		
INSTUD	0.7836	0.3712	4.4564	0.0366
CONSID	1.7442	0.3434	25.7941	0.0000

DEPENDENT VARIABLE IS 4INTER

RSQ =	0.4931
FPROB. =	0.0000
STD ERR Y =	1.8324

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.2654	1.4883		
INSTUD	0.5651	0.3913	2.0858	0.1496
CONSID	2.4660	0.3620	47.1460	0.0000

TABLE VIII

Regression results - climate dimensions dependent, leadership scores, (Dept. Heads only) independent

REGRESSION RESULTS **DEPT. A+B+C **

DEPENDENT VARIABLE IS 5DECMK

RSQ = 0.3469
FPROB. = 0.0000
STD ERR Y = 2.1259

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.4430	1.6808		
INSTUD	0.8123	0.4419	3.3788	0.0672
CONSID	1.8920	0.4089	21.4120	0.0000

DEPENDENT VARIABLE IS 6GOLST

RSQ = 0.1473
FPROB. = 0.0059
STD ERR Y = 2.5503

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	5.0314	2.0164		
INSTUD	0.9348	0.5301	3.1096	0.0789
CONSID	1.0217	0.4905	4.3389	0.0390

DEPENDENT VARIABLE IS 7CONTR

RSQ = 0.1560
FPROB. = 0.0042
STD ERR Y = 2.6074

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	6.9156	2.0615		
INSTUD	0.3449	0.5420	0.4050	0.5341
CONSID	1.4996	0.5015	8.9424	0.0040

DEPENDENT VARIABLE IS 8PERFO

RSQ = 0.3976
FPROB. = 0.0000
STD ERR Y = 2.2283

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.6159	1.7618		
INSTUD	1.5882	0.4632	11.7571	0.0012
CONSID	1.7520	0.4286	16.7117	0.0002

TABLE VIII - (continued)

TABLE IX

Regression results - climate dimensions dependent, leadership scores independent

REGRESSION RESULTS **DEPT. A+B+C **

APPROXIMATE DEGREES OF FREEDOM IN SELECTED ARRAY IS 63

DEPENDENT VARIABLE IS 1LEADP

RSQ = 0.5103
FPROB. = 0.0000
STD ERR Y = 1.9029

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.2615	1.7666		
INSTRP	0.0474	0.6473	0.5358D-02	0.8997
CONSIP	0.9182	0.4575	4.0270	0.0468
INSTUD	0.2556	0.4200	0.3704	0.5524
CONSID	1.8503	0.4917	14.1595	0.0005

DEPENDENT VARIABLE IS 2MOTER

RSQ = 0.4931
FPROB. = 0.0000
STD ERR Y = 1.9128

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.7538	1.7757		
INSTRP	1.1723	0.6506	3.2461	0.0732
CONSIP	-0.4651	0.4599	1.0223	0.3173
INSTUD	0.2985	0.4222	0.4998	0.4892
CONSID	2.1556	0.4943	19.0204	0.0001

DEPENDENT VARIABLE IS 3COMUN

RSQ = 0.4283
FPROB. = 0.0000
STD ERR Y = 1.8215

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	3.4747	1.6909		
INSTRP	-0.2681	0.6196	0.1872	0.6699
CONSIP	0.8062	0.4380	3.3885	0.0673
INSTUD	0.8540	0.4021	4.5116	0.0359
CONSID	1.2997	0.4707	7.6255	0.0075

DEPENDENT VARIABLE IS 4INTER

RSQ = 0.4960
FPROB. = 0.0000
STD ERR Y = 1.9700

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.1242	1.8289		
INSTRP	-0.1130	0.6701	0.0284	0.8423
CONSIP	0.2775	0.4737	0.3433	0.5673
INSTUD	0.5938	0.4349	1.8645	0.1738
CONSID	2.3416	0.5091	21.1566	0.0000

TABLE IX - (continued)

REGRESSION RESULTS **DEPT. A+B+C **

DEPENDENT VARIABLE IS 5DECMK

RSQ = 0.4587
FPROB. = 0.0000
STD ERR Y = 2.0314

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	3.4530	1.8858		
INSTRP	-1.7822	0.6910	6.6527	0.0120
CONSIP	1.5407	0.4884	9.9496	0.0027
INSTUD	1.2183	0.4484	7.3821	0.0084
CONSID	1.5712	0.5249	8.9601	0.0041

DEPENDENT VARIABLE IS 6GOLST

RSQ = 0.2208
FPROB. = 0.0049
STD ERR Y = 2.5589

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	5.8257	2.3756		
INSTRP	-1.4989	0.8704	2.9655	0.0865
CONSIP	1.3192	0.6153	4.5974	0.0342
INSTUD	1.2767	0.5649	5.1083	0.0261
CONSID	0.7358	0.6612	1.2382	0.2698

DEPENDENT VARIABLE IS 7CONTR

RSQ = 0.1845
FPROB. = 0.0157
STD ERR Y = 2.6901

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	7.9415	2.4974		
INSTRP	-1.1841	0.9151	1.6744	0.1978
CONSIP	0.6893	0.6468	1.1358	0.2912
INSTUD	0.6092	0.5938	1.0526	0.3101
CONSID	1.5171	0.6951	4.7631	0.0313

DEPENDENT VARIABLE IS 8PERFO

RSQ = 0.3988
FPROB. = 0.0000
STD ERR Y = 2.3365

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.4920	2.1691		
INSTRP	0.2096	0.7548	0.0696	0.7822
CONSIP	-0.1732	0.5618	0.0951	0.7581
INSTUD	1.5406	0.5158	8.9224	0.0042
CONSID	1.7842	0.6037	8.7333	0.0045

When department head leadership style dimensions are used as independent variables for determining climate dimensions (Table XIII), some very significant results become apparent. For all eight climate dimensions the F-prob for the C coefficient is lower than for the IS one. The fact that the F-probs are less than 0.000 for the first 5 dimensions, and are 0.0002, 0.0040, and 0.0390 for the remainder is very good evidence of a positive relationship in all cases. With a lower coefficient in all cases the IS F-probs are only significant for character of performance (0.0012) and of communications (0.0366). Inclusion of sizeable IS coefficients with relatively low F-probs for prediction of decision making (0.0672) and goal-setting (0.0789) dimensions might also be warranted. For the degree of predictability or, more properly, the proportion of variance of the dependent variable accounted for by the independent variables we should also note the R^2 (RSQ) values. For the first 5 climate dimensions the RSQ values are quite substantial, all being greater than 0.46. Character of performance has an 0.40 RSQ while the character of goal-setting and of control process would appear to be affected to a large extent by variables other than leadership styles

When the same dependent variable regressions where leadership style dimensions of project leaders are examined (Table IX) a few surprising relationships are found. The C coefficient for department heads remains significant for all equations except character of goal-setting where the IS

coefficient becomes the most significant (though not largest) while the C for project leaders coefficient is significant and the IS coefficient is the largest and also negative. The last fact would imply that reduced IS by project leaders would shift the character of goal-setting towards a more ideal situation. The low value of RSQ (.22 compared to .15 previously) and the increase in the standard error of the predicted value would lead one to consider other more effective ways of affecting goal-setting. The IS (project leaders) is also negative in three other equations but in only one (character of decision making) is it significant. The coefficient for C (project leaders) is significant in three equations (character of leadership processes, of decision making, and of goal setting). The generally low relative increase in RSQ with the addition of "significant" coefficients and the general increase in standard errors should generate some suspicion of the value of all of the Table IX equations. If we look back to the correlation matrix we find high correlations between C (department heads) and both C and IS (project leaders, 0.64 and 0.63 respectively) as well as with IS of project leaders (0.61) and, the potential problem of multicollinearity arises. That is to say, the large shifts in values of coefficients may be due to multicollinearity effects rather than underlying importance of the project leader dimension.

As will be seen later, this discussion may appear to be

rather academic in light of results to be seen in the forthcoming sections.

Second Survey - preliminary

Before giving the results from the second survey, an accounting of the situation developing in the firm should be given. At the meeting referred to earlier (Appendix A), there was not too much enthusiasm on the part of the department heads (A and B) with regard to the MVTAB results. In particular there was considerable concern over the response rate and the possible implications as to the validity of the survey. The attempt by the investigator to convey the impact of statements made by respondents on the questionnaire was not considered very successful. Two factors of this impact were the intensity of many statements and the general impression that a great many employees had high expectations with regard to potential improvement and success of the company, and a desire to participate in a much more active manner with the creation of goals, the implementation of policies, and the sharing of success. The chief executive was moderately impressed with the results and expressed an interest in getting a sampling of opinion from all parts of the company. A "go ahead" to carry out the second survey was also given at the meeting.

After this meeting the written report was given to the department heads as well as an appreciation for the regression results noted earlier (Tables VIII & IX). Unfortunately the

investigator found it rather difficult to transmit the implications of F-probs and RSQ to individuals unfamiliar with these terms. The main emphasis was therefore placed on a more simplistic statement that Consideration appeared to be an important variable insofar as its relationship to all of the climate items. As it turned out later, when these results were given to him a couple of weeks after the second survey, department head C was fairly conversant with statistical terminology and was able to appreciate the results in a more meaningful manner.

During the time between the surveys a possibly relevant situation was developing. The consulting industry can be rather cyclic in nature with consequent booms with rapidly growing work forces or depressions with rapidly declining work forces. The company was going into a period of imminent decline. Though there had been no layoffs before the second survey there had been substantial employee turnover (see Table X), though, historically, the consulting business would have appreciable turnover even during periods of growth.

	dept. A	dept. B	dept. C
left dept.*	18	7	11
entered dept.	3	1	9

*note that this would be divided among voluntary dismissal, involuntary dismissal, and loans to other departments or companies.

TABLE X

Employee turnover between surveys

The timing of the second surveys was such, however, that layoffs in a department occurred approximately two weeks later. Thus the job security points brought up in the first survey and any fears that might affect organizational climate were based upon legitimate foundations. In the months following the second survey there were substantive layoffs throughout the entire organization.

The imminent layoffs combined with the length and difficulty of the climate questions acted to diminish the response rate on the second survey to a disastrously low level (see Table XI).

	dept. A	dept. B	dept. C	total
population	83	43	70	196
responses	10	7	10	27
% response	12%	16.7%	14.3%	13.8%

TABLE XI

Second survey response rates

This low response rate, as will be discussed later, seriously handicapped the implementation of valid statistical tests and the derivation of readily acceptable or more valid conclusions. In the presentation of results to follow the concern with this aspect of validity will generally be left until the conclusions are drawn in the next chapter.

The correlation matrix for the results from both surveys will be found in Table XII. In each case the "1" suffix on a variable name indicates a first survey variable, a "2" suffix indicates a second survey variable, while a "D" suffix indicates a difference which is the mean of paired differences between results of survey 1 and survey 2. The number of paired observations will be found in Appendix H.

TABLE XII

Correlation matrix - leadership scores and a priori climate dimensions with differences - both surveys

** USING A PRIORI DIMENSIONS **

CORRELATION MATRIX

VARIABLE	ISP1	ISP2	ISPD	CONP1	CONP2	CONPD	ISDE1	ISDE2	ISDED	CONDE1	CONDE2
ISP1	1.0000										
ISP2	0.7927	1.0000									
ISPD	0.2499	0.7883	1.0000								
CONP1	0.8144	0.5251	0.1147	1.0000							
CONP2	0.6340	0.5265	0.3024	0.8023	1.0000						
CONPD	0.2902	0.4059	0.3600	0.2690	0.7907	1.0000					
ISDE1	0.4380	0.4711	0.2570	0.2058	0.1844	-0.1674	1.0000				
ISDE2	0.4537	0.2586	0.2501	0.4247	0.3727	0.5318	0.2615	1.0000			
ISDED	-0.1242	-0.0777	0.0001	-0.0563	0.3117	0.5607	-0.6537	0.5595	1.0000		
CONDE1	0.6248	0.3631	-0.0689	0.6441	0.2893	-0.1243	0.3389	0.2511	-0.1443	1.0000	
CONDE2	0.2794	0.1324	-0.0484	0.2170	0.0871	-0.2778	0.1846	0.2419	-0.1672	0.6841	1.0000
CONDED	-0.5762	-0.3096	0.0517	-0.5340	-0.4350	-0.1989	-0.3453	-0.3056	-0.0203	-0.5163	0.2714
LDPRO1	0.5017	0.5128	0.6435	0.5925	0.5794	0.2399	0.2859	0.3071	-0.1656	0.6832	0.7454
LDPRO2	0.5600	0.6714	0.6330	0.4918	0.5039	0.3304	0.3804	0.4963	-0.0215	0.5964	0.7696
LDPROD	0.1095	0.1645	0.3001	-0.0168	0.1430	0.2741	0.0499	0.4133	0.1815	-0.0016	0.3665
MOTP1	0.5546	0.3610	0.5279	0.4039	0.5352	0.2650	0.3488	0.4373	-0.1561	0.6688	0.7070
MOTP2	0.6052	0.5193	0.7140	0.4659	0.5937	0.4675	0.3373	0.2503	-0.0493	0.5252	0.6286
MOTPD	0.1618	0.3545	0.6255	0.1294	0.2877	0.5287	-0.1672	-0.0202	0.1349	-0.0331	0.2626
COMM1	0.4412	0.8526	0.7156	0.5165	0.3538	0.1008	0.3931	0.2315	-0.3250	0.5943	0.7983
COMM2	0.3566	0.5461	0.7230	0.3080	0.4404	0.2217	0.2169	0.2420	-0.0302	0.3992	0.7977
COMMD	-0.4099	-0.3089	-0.0248	-0.2452	-0.0341	0.2074	-0.6051	-0.0111	0.5289	-0.4363	-0.0954
INTER1	0.4660	0.8304	0.4333	0.4829	0.3184	-0.0073	0.3540	0.4983	-0.2053	0.6905	0.7972
INTER2	0.6281	0.5648	0.5023	0.3493	0.4553	0.3627	0.2939	0.4744	0.1320	0.5039	0.6973
INTERD	-0.5166	-0.4091	-0.0753	-0.3926	0.0147	0.4425	-0.6454	-0.1056	0.4767	-0.7262	-0.2883
DEC1	0.2878	0.5656	0.6067	0.5302	0.5548	0.3578	0.3630	0.2837	-0.0935	0.5594	0.6310
DEC2	0.3569	0.5885	0.6766	0.4603	0.5282	0.3825	0.1873	0.4747	0.1780	0.5294	0.7567
DECD	0.3298	0.3271	0.1673	0.0635	0.1434	0.1464	-0.2591	0.4780	0.4595	0.2861	0.3833
GOAL1	0.1665	0.5484	0.4082	0.3492	0.5826	0.3530	0.3006	0.0868	-0.3406	0.3264	0.3428
GOAL2	0.2814	0.4496	0.6420	0.3888	0.4484	0.2536	0.2513	0.4039	-0.0768	0.5418	0.4739
GOALD	-0.0580	-0.0885	-0.0257	-0.2819	-0.3037	-0.2200	-0.2972	0.2227	0.3938	0.1237	0.1421
CONTR1	0.1760	0.6488	0.6863	0.3051	0.2680	0.0265	0.1998	-0.1708	-0.3558	0.3883	0.5786
CONTR2	0.4379	0.6109	0.5968	0.3900	0.5085	0.4358	-0.0192	0.1486	-0.1279	0.3212	0.5587
CONTRD	-0.0683	0.0700	0.1663	-0.1565	0.2250	0.5285	-0.3864	0.4168	0.5935	0.1562	0.3761
PERF1	0.4269	0.8324	0.5092	0.5242	0.3132	0.0152	0.4926	0.4818	-0.3960	0.5372	0.6622
PERF2	0.4444	0.7343	0.6146	0.3294	0.2350	-0.0963	0.7687	0.3310	-0.5845	0.4058	0.5063
PERFD	-0.7836	-0.6850	-0.2036	-0.3910	-0.3681	-0.1680	-0.5267	-0.6257	-0.0016	-0.7741	-0.5492

TABLE XII - continued

CORRELATION MATRIX VARIABLE	CONDED	LDPRO1	LDPRO2	LDPROD	MOTF1	MOTF2	MOTFD	COMM1	COMM2	COMMD	INTER1
CONDED	1.0000										
LDPRO1	-0.2569	1.0000									
LDPRO2	0.0286	0.8190	1.0000								
LDPROD	0.3627	0.0841	0.6406	1.0000							
MOTF1	-0.1871	0.6595	0.7128	0.1547	1.0000						
MOTF2	0.1368	0.8368	0.5908	0.2754	0.7693	1.0000					
MOTFD	0.4587	0.3032	0.3683	0.2379	-0.0427	0.6055	1.0000				
COMM1	0.0187	0.7828	0.7488	0.1646	0.6579	0.8600	0.3853	1.0000			
COMM2	0.2900	0.6792	0.7432	0.4169	0.6072	0.7706	0.5243	0.8427	1.0000		
COMMD	0.4728	-0.3612	-0.0333	0.4256	-0.3442	-0.1389	0.2115	-0.3519	0.2074	1.0000	
INTER1	-0.3062	0.7163	0.7620	0.2177	0.6378	0.7251	0.1914	0.8058	0.6049	-0.3937	1.0000
INTER2	0.1719	0.6944	0.6391	0.2482	0.6545	0.7858	0.4926	0.7757	0.7588	-0.0365	0.7640
INTERD	0.6629	-0.4621	-0.3819	-0.0449	-0.4010	-0.1379	0.2840	-0.3185	-0.0067	0.5672	-0.6493
DEC1	0.1426	0.6918	0.6300	0.1318	0.5970	0.8137	0.4424	0.7649	0.8138	-0.1212	0.6112
DEC2	0.2232	0.7951	0.8059	0.3744	0.6711	0.6733	0.5030	0.7998	0.8402	0.1010	0.6549
DECD	-0.0008	0.2342	0.3891	0.3828	0.0954	0.1590	0.1308	0.0103	0.1719	0.3058	0.3089
GOAL1	-0.1820	0.4158	0.4290	-0.0823	0.4806	0.5535	0.2336	0.6122	0.4957	-0.4110	0.4540
GOAL2	0.0069	0.7534	0.6515	0.1971	0.4868	0.5710	0.5847	0.8213	0.6701	-0.0439	0.6854
GOALD	0.0882	-0.0250	0.1105	0.2326	-0.1275	0.0798	0.2745	-0.0791	0.1569	0.4501	0.1864
CONTR1	0.2238	0.4971	0.5427	0.1279	0.3849	0.7181	0.7237	0.6205	0.6075	-0.1776	0.3979
CONTR2	0.2623	0.6369	0.5856	0.2252	0.5431	0.7118	0.6651	0.8161	0.6412	-0.0713	0.5162
CONTRD	0.1980	0.1190	0.3556	0.4797	0.3666	0.2806	-0.0054	0.1599	0.4147	0.4836	0.2206
PERF1	-0.3169	0.3992	0.7133	0.2713	0.6183	0.5826	-0.0263	0.5911	0.5906	-0.4327	0.5298
PERF2	-0.0717	0.5634	0.7131	0.2768	0.6221	0.3081	-0.0601	0.7358	0.5505	-0.2577	0.6294
PERFD	0.4885	-0.5634	-0.6102	-0.1253	-0.5437	-0.4540	-0.0327	-0.4836	-0.2482	0.4473	-0.6855

CORRELATION MATRIX VARIABLE	INTER2	INTERD	DEC1	DEC2	DECD	GOAL1	GOAL2	GOALD	CONTR1	CONTR2	CONTRD
INTER2	1.0000										
INTERD	-0.0054	1.0000									
DEC1	0.5726	-0.0208	1.0000								
DEC2	0.7268	0.0017	0.8521	1.0000							
DECD	0.3806	-0.0192	-0.1726	0.3685	1.0000						
GOAL1	0.4930	-0.1616	0.6309	0.5661	-0.2526	1.0000					
GOAL2	0.5881	-0.1798	0.8116	0.7408	0.0548	0.7500	1.0000				
GOALD	0.1943	-0.0506	-0.1806	0.0663	0.4454	-0.6419	0.0257	1.0000			
CONTR1	0.4303	-0.1361	0.5510	0.6269	0.1243	0.5042	0.6746	0.2239	1.0000		
CONTR2	0.5700	0.0088	0.8750	0.8077	-0.0986	0.6577	0.5929	-0.0633	0.8520	1.0000	
CONTRD	0.4191	0.1620	0.3245	0.3789	0.2881	0.1525	0.2325	0.1144	-0.2414	0.3024	1.0000
PERF1	0.6159	-0.5802	0.5558	0.5980	0.1562	0.6046	0.5570	-0.0585	0.4554	0.4682	0.1771
PERF2	0.4686	-0.3385	0.5597	0.6042	0.0216	0.6410	0.6191	-0.2675	0.1847	0.4348	0.1222
PERFD	-0.3845	0.6092	-0.2529	-0.3291	-0.2545	-0.1204	-0.2061	-0.2832	-0.3003	-0.3118	-0.1664

CORRELATION MATRIX VARIABLE	PERF1	PERF2	PERFD
PERF1	1.0000		
PERF2	0.8460	1.0000	
PERFD	-0.6964	-0.2065	1.0000

A great deal of information may be garnered from the matrix in Table XII. Before commenting on the data from the matrix, however, it may be appropriate to examine the changes which took place in the two experimental groups and the control group. For this purpose Tables XIII & XIV were prepared showing the results for each department as well as combined results of all departments and combined results of departments A and B. With the large drop in response on the second sampling there are two possible differences between Time 1 and Time 2 results. For this reason DIFF indicates the difference between the means shown directly above, while P DIFF indicates the mean of the paired (only) differences between Time 1 and Time 2 for that variable. For each difference the t-prob for the relevant t-statistic is shown directly following the differences indicated. For the paired differences formula 2 was used while, for the others, formula 3 was used except where a 1 is shown directly following the t-prob. The use of formula 1 was based on the decision rule indicated in Appendix C. The more statistically significant differences are flagged with * for .1 and ** for .05 significance level.

If the leadership style dimensions are considered first, one finds that most of the differences are consistent in terms of sign except for two anomalies. While the paired difference for department head IS is positive (rising), the means difference is negative (falling). The reverse situation is indicated in the Consideration differences for department head C. These

TABLE XIII

Mean leadership scores - both surveys

		ALL DEPTS.	T-PROB	DEPTS. A+B	T-PROB	DEPT. A	T-PROB	DEPT. B	T-PROB	DEPT. C	T-PROB
ISP	1	3.615		3.579		3.675		3.496		3.700	
	2	3.580		3.715		3.655		3.850		3.343	
DIFF		- .035	.857	+ .136	.570	- .020	.905	+ .354	.216	- .357	.326
P DIFF		- .094	.553	+ .060	.737	- .020	.903	+ .233	.194	- .360	.162
COMP	1	3.291		3.305		3.498		3.136		3.247	
	2	3.174		3.139		3.374		2.515		3.229	
DIFF		- .117	.567	- .169	.506	- .124	.755	- .621	.146	- .018	.917
P DIFF		- .292	.094*	- .325	.223	- .249	.531	- .492	.327	- .240	.267
ISDE	1	3.510		3.600		3.512		3.680		3.310	
	2	3.034		2.907		2.705		3.444		3.233	
DIFF		- .466	.012**	- .693	.033**	- .806	.016**	- .235	.470	- .077	.810
P DIFF		- .024	.890	- .022	.913	- .271	.685	+ .394	.373	- .029	.893
CONDE	1	3.210		3.242		3.464		3.002		3.154	
	2	3.479		3.589		3.648		3.470		3.314	
DIFF		+ .269	.189	+ .347	.086*	+ .184	.411	+ .467	.207	+ .159	.598
P DIFF		+ .016	.876	+ .108	.142	+ .183	.252	+ .144	.482	- .200	.539

anomalies along with a substantial variation between difference levels and/or t-prob values would indicate that there were some underlying differences between the respondent samples for Time 1 and Time 2. The entire variation can not be attached to the drop-out of first survey respondents as there were respondents to the second survey who had not responded on the first survey.

The most consistent change across all three departments is a drop in Consideration(C) for project leaders though that in department C is somewhat lower. On Initiation of Structure (IS) for project leaders, department B had a rise, department A virtually had no change, and department C indicates a fall. The most notable changes in style appear to be in the department head IS scores. The drop in department A and the anomalous change in B are substantially greater than that for department head C. The positive change in both departments A and B contrasts with the anomalous change in department C. The results for department head A would indicate some degree of acceptance of the results and information generated from survey 1. The results for department head B also indicate similar shifts particularly when one has more information on how the department has been managed. As indicated by the survey 1 scores his IS score was the highest while his C score was lowest. The department head concerned was aware of a recent decline in communications and other C-related factors and saw the survey as a means of improving matters in this area. One of the actions taken after the first survey was to order, via a written memo,

new procedures for review and discussion of recently completed projects. This was seen as a means of improving communication and would involve a certain amount of confrontation amongst personnel as to what was wrong or right with previous projects. This Initiation of Structure activity which might be considered in various manners by different individuals, along with an apparent increase in Consideration, may well explain the anomalous results for Initiation of Structure. The changes in department C are all generally low, but declining. This would probably reflect the types of change that would be expected if there had been no intervention.

When the combined results of departments A and B were compared with those of department C, t-prob values of 0.21 and 0.17 were found for C (department heads) and IS (project leaders) respectively. The above t-tests were for paired differences only and they were not indicative of even a near significant change in IS (department heads).

When one looks to changes in the a priori climate dimensions (Table XIV) one finds a different picture. Across most climate dimensions there would appear to be more stability in the climate dimensions than in the leadership ones. Through this stability one can still discern a general tendency for department A (particularly) and B to have larger positive changes or smaller negative changes than department C. This is more evident for character of leadership processes, of motivational forces tapped, of communications, of goal-setting, and

Mean a priori climate dimensions - both surveys

TABLE XIV

		ALL DEPTS.	T-PROB	DEPTS. A+B	T-PROB	DEPT. A	T-PROB	DEPT. B	T-PROB	DEPT. C	T-PROB
LDPRO	1	12.304		12.500		13.125		11.923		11.896	
	2	12.429		13.230		13.400		12.988		11.067	
DIFF		+ .125	.822	+ .730	.258	+ .275	.742	+1.065	.279	- .829	.533
P DIFF		+ .686	.840	+ .600	.120	+1.000	.119	+ .200	.691	- .690	.405
MOTF	1	11.443		11.459		11.900		11.036		11.411	
	2	11.849		12.352		13.088		11.814		10.833	
DIFF		+ .406	.512	+ .892	.087*	+1.188	.124	+ .778	.478	- .758	.561
P DIFF		- .556	.509	- .029	.905	+ .833	.103*	- .893	.234	- .774	.465
COMM	1	12.342		12.384		12.880		11.927		12.254	
	2	12.100		12.758		13.196		12.131		10.983	
DIFF		- .241	.649	+ .373	.518	+ .316	.670	+ .204	.800	-1.270	.255
P DIFF		- .411	.227	- .091	.808	+ .144	.824	- .326	.516	- .869	.164
INTER	1	12.246		12.210		12.460		11.951		12.326	
	2	12.409		12.621		12.675		12.543		12.050	
DIFF		+ .161	.772	+ .410	.452	+ .195	.774	+ .592	.632	- .276	.794
P DIFF		- .363	.472	- .417	.427	- .767	.310	- .067	.895	- .266	.774
DEC	1	11.424		11.862		12.359		11.421		10.474	
	2	11.719		12.349		12.397		12.281		10.519	
DIFF		+ .291	.643	+ .487	.452	+ .057	.897	+ .859	.434	+ .044	.923
P DIFF		+ .606	.041**	+ .740	.174	+ .167	.717	+1.313	.214	+ .917	.147
GOAL	1	11.603		11.663		11.848		11.486		11.486	
	2	12.026		12.608		12.983		12.071		10.926	
DIFF		+ .420	.524	+ .944	.225	+1.135	.266	+ .585	.644	- .559	.640
P DIFF		+ .667	.237	+1.000	.208	+ .867	.283	+1.333	.455	+ .111	.864
CONTR	1	12.952		13.053		13.349		12.758		12.757	
	2	12.497		12.906		13.324		12.369		11.769	
DIFF		- .454	.494	- .146	.835	- .024	.950	- .388	.758	- .988	.395
P DIFF		- .922	.018**	- .602	.169	- .183	.751	-1.125	.122	-1.403	.071*
PERF	1	11.838		11.818		11.765		11.865		11.872	
	2	11.324		11.958		11.565		12.464		10.308	
DIFF		- .511	.444	+ .140	.829	- .199	.823	+ .598	.604	-1.563	.253
P DIFF		- .533	.486	- .450	.402	-1.000	.227	+ .100	.865	- .167	.827

of control processes used. The t-prob values for comparison of departments A and B (combined) with department C are 0.11, 0.48, 0.26, 0.45, and 0.27 respectively. Though the evidence is, statistically, very weak there is an inference of a positive result developing in both departments A and B as a result of the feedback of information when compared to the control department.

The major question of research interest, however, was the causal relationship between leadership style and organizational climate. For this purpose the cross-lagged correlational model as described by Lawler (1968) and Lawler and Suttle (1972) was used in an attempt to determine if there were causal linkages between leadership style and organizational climate dimensions. The model uses the correlational relationships as illustrated on Tables XV and XVI. For this analysis the (1) and (2) figures are the correlations between a leadership style dimension and a climate dimension at Time 1 and 2 respectively. The (5) figure is the correlation between a leadership style dimension at Time 1 and a climate dimension at Time 2. The (6) figure is at the correlation for the opposite relationship while correlations (3) and (4) indicate the stability of the dimension concerned.

> The logic underlying this kind of analysis rests upon the time lag that typically exists when one variable causes another. The argument is that if A causes B then the present state of A should be more strongly related to B's future state than to B's past or present state. Thus, where A $\longrightarrow$ B, then

> r_{AB} where B is measured after A should be greater than r_{AB} where B is measured either before or at the same time as A. Thus, by comparing the relative sizes of r_{AB1}, r_{AB2}, and r_{AB3} where B is measured before, after, and at the same time as A, it is possible to determine whether the hypothesis A → B or B → A is more tenable (Lawler, 1968, p. 463).

As well as the above, the dynamic correlation (7) for each combination of dimensions is also indicated. This is the correlation between the change in the leadership style dimension and the change in the climate dimension under consideration. "When a significant dynamic correlation is found between two variables one can put more faith in the fact that one caused the other than one can when a significant static correlation appears between two variables (Lawler, 1968, p. 464)." The cross-lagged correlational results shown on the following pages are all extracted from the correlation matrix shown earlier (Table XII).

TABLE XV

Cross-lagged correlational panels - a priori dimensions, dept. heads

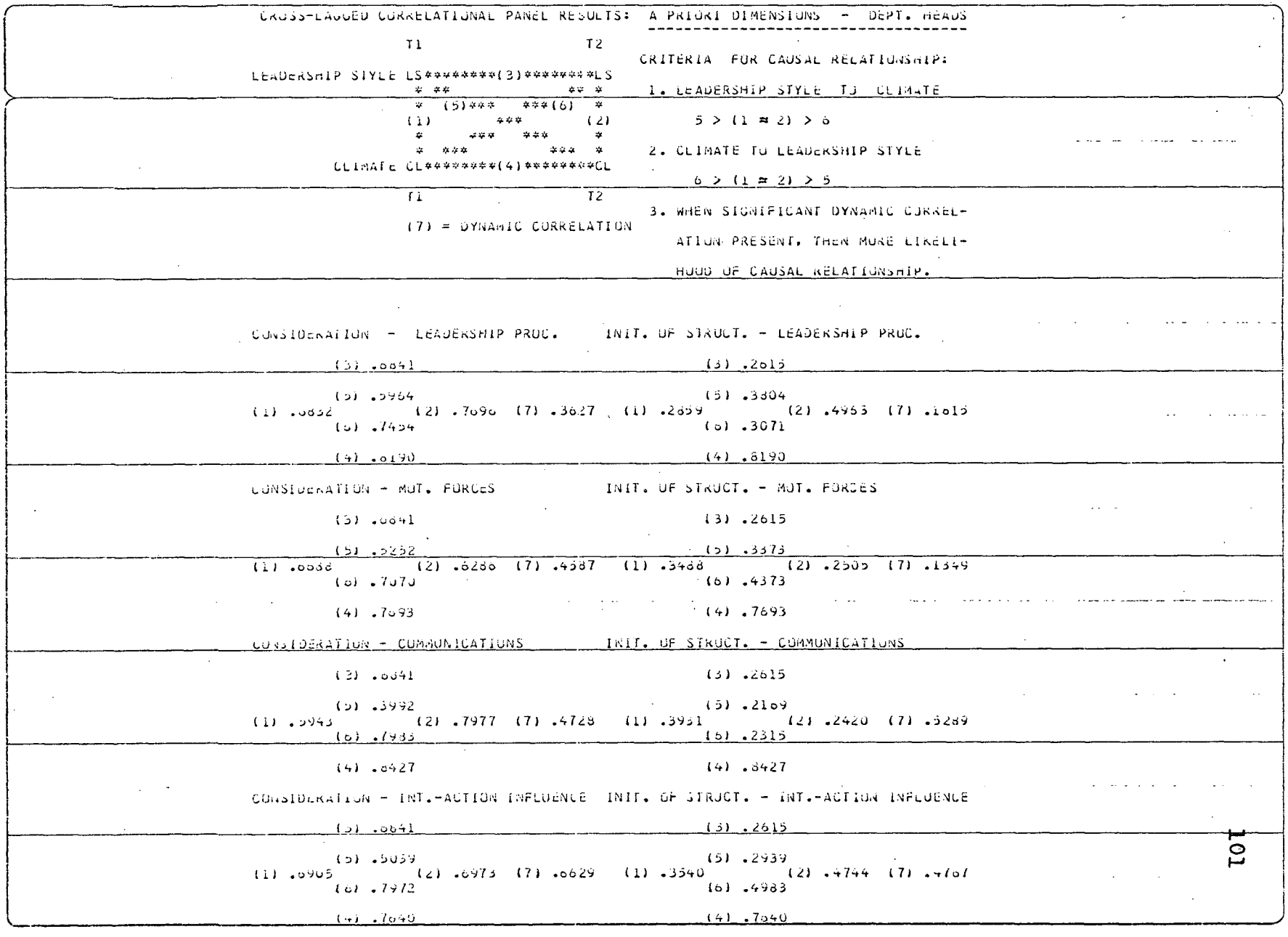
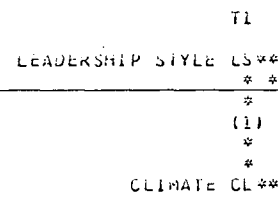


TABLE XV - (continued)

CROSS-LAGGED CORRELATIONAL PANEL RESULTS: A PRIORI DIMENSIONS - DEPT. HEADS



(7) = DYNAMIC CORRELATION

CRITERIA FOR CAUSAL RELATIONSHIP:

1. LEADERSHIP STYLE TO CLIMATE

   5 > (1 ≈ 2) > 6

2. CLIMATE TO LEADERSHIP STYLE

   6 > (1 = 2) > 5

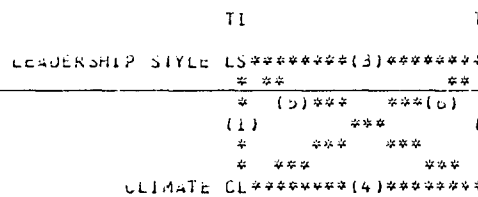
3. WHEN SIGNIFICANT DYNAMIC CORRELATION PRESENT, THEN MORE LIKELIHOOD OF CAUSAL RELATIONSHIP.

CONSIDERATION - DECISION-MAKING	INIT. OF STRUCT. - DECISION-MAKING
(3) .6641	(3) .2615
(5) .5294	(5) .1873
(1) .5594 (2) .7567 (7)-.0008	(1) .3630 (2) .4747 (7) .4595
(6) .5310	(6) .2837
(4) .8521	(4) .8521
CONSIDERATION - GOAL SETTING	INIT. OF STRUCT. - GOAL SETTING
(3) .6641	(3) .2615
(5) .5416	(5) .2513
(1) .5264 (2) .4759 (7) .0862	(1) .3006 (2) .4039 (7) .5938
(6) .5426	(6) .0868
(4) .7500	(4) .7500
CONSIDERATION - CONTROL PROCESSES	INIT. OF STRUCT. - CONTROL PROCESSES
(3) .6641	(3) .2615
(5) .5212	(5)-.0192
(1) .5365 (2) .5587 (7) .1980	(1) .1998 (2) .1486 (7) .5935
(6) .5736	(6)-.1708
(4) .8520	(4) .8520
CONSIDERATION - PERFORMANCE	INIT. OF STRUCT. - PERFORMANCE
(3) .6641	(3) .2615
(5) .4058	(5) .7687
(1) .5572 (2) .5063 (7) .4885	(1) .4926 (2) .3310 (7)-.0016
(6) .6022	(6) .4818
(4) .8480	(4) .8480

TABLE XVI

Cross-lagged correlational panels - a priori dimensions, project leaders

CROSS-LAGGED CORRELATIONAL PANEL RESULTS: A PRIORI DIMENSIONS - PROJ. LEADER



CRITERIA FOR CAUSAL RELATIONSHIP:

1. LEADERSHIP STYLE TO CLIMATE

   5 > (1 ≈ 2) > 6

2. CLIMATE TO LEADERSHIP STYLE

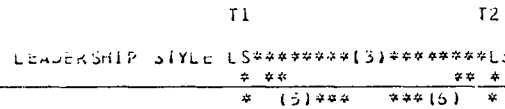
   6 > (1 = 2) > 5

3. WHEN SIGNIFICANT DYNAMIC CORRELATION PRESENT, THEN MORE LIKELIHOOD OF CAUSAL RELATIONSHIP.

CONSIDERATION - LEADERSHIP PROC.	INIT. OF STRUCT. - LEADERSHIP PROC.
(3) .8023	(3) .7927
(5) .4913	(5) .5600
(1) .5925 (2) .5039 (7) .2741	(1) .5017 (2) .5714 (7) .3001
(6) .5794	(6) .9128
(4) .8190	(4) .8190
CONSIDERATION - MOT. FORCES	INIT. OF STRUCT. - MOT. FORCES
(3) .8023	(3) .7927
(5) .4859	(5) .6092
(1) .4059 (2) .3937 (7) .5287	(1) .5546 (2) .5193 (7) .6255
(6) .5352	(6) .8610
(4) .7048	(4) .7693
CONSIDERATION - COMMUNICATIONS	INIT. OF STRUCT. - COMMUNICATIONS
(3) .8023	(3) .7927
(5) .3080	(5) .3586
(1) .5105 (2) .4404 (7) .2074	(1) .4412 (2) .5451 (7)-.0248
(6) .3958	(6) .8526
(4) .8427	(4) .8427
CONSIDERATION - INT.-ACTION INFLUENCE	INIT. OF STRUCT. - INT.-ACTION INFLUENCE
(3) .8023	(3) .7927
(5) .3493	(5) .6281
(1) .4629 (2) .4563 (7) .4425	(1) .4650 (2) .5648 (7)-.0753
(6) .3134	(6) .8304
(4) .7640	(4) .7640

TABLE XVI - (continued)

CROSS-LAGGED CORRELATIONAL PANEL RESULTS: A PRIORI DIMENSIONS - PROJ. LEADER



CRITERIA FOR CAUSAL RELATIONSHIP:

1. LEADERSHIP STYLE TO CLIMATE

   5 > (1 = 2) > 6

2. CLIMATE TO LEADERSHIP STYLE

   6 > (1 = 2) > 5

3. WHEN SIGNIFICANT DYNAMIC CORRELATION PRESENT, THEN MORE LIKELIHOOD OF CAUSAL RELATIONSHIP.

CONSIDERATION - DECISION-MAKING

(3) .8023

(5) .4603
(1) .5302 (2) .5262 (7) .1464
(6) .5546

(4) .8521

INIT. OF STRUCT. - DECISION-MAKING

(3) .7927

(5) .3569
(1) .2674 (2) .5385 (7) .1675
(6) .5855

(4) .8521

CONSIDERATION - GOAL SETTING

(3) .8023

(5) .3888
(1) .3492 (2) .4484 (7)-.2200
(6) .5626

(4) .7500

INIT. OF STRUCT. - GOAL SETTING

(3) .7927

(5) .2814
(1) .1685 (2) .4496 (7)-.0257
(6) .5484

(4) .7500

CONSIDERATION - CONTROL PROCESSES

(3) .8023

(5) .3900
(1) .3051 (2) .5085 (7) .5285
(6) .2083

(4) .8520

INIT. OF STRUCT. - CONTROL PROCESSES

(3) .7927

(5) .4379
(1) .1760 (2) .0109 (7) .1663
(6) .6486

(4) .8520

CONSIDERATION - PERFORMANCE

(3) .8023

(5) .3294
(1) .3242 (2) .2550 (7)-.1630
(6) .5132

(4) .8460

INIT. OF STRUCT. - PERFORMANCE

(3) .7927

(5) .4444
(1) .4269 (2) .7343 (7)-.2036
(6) .8324

(4) .8460

When the cross-lagged data are examined some distinctive characteristics are found. If a presumption is made that a high correlation between results for a variable between two time periods (i.e. (3) and (4)) is an indication of stability of that variable, then some interesting inferences can be made. The stability of the climate dimensions in all cases is greater than that of the leadership style dimensions of the department heads. The IS dimension for department heads with a correlation of 0.26 would indicate a great deal of volatility. The style dimensions for project leaders, on the other hand, would indicate much less flexibility in style than department heads.

When a check is made to see if any combination of variables meets the cross-lagged criterion, several good examples come forth. The best of these, for department heads, is the Consideration--interaction-influence panel where the high dynamic correlation (0.66) combined with an excellent fit to the cross-lagged model would strongly indicate that the character of interaction-influence processes is a causal variable affecting Consideration. Other climate dimensions which also would appear to have causal relationships with Consideration are character of performance, of communications, and of motivational forces being tapped. Even when the model criteria are not wholly met, the (6) value is consistently higher than the (5) value except for the goal-setting dimension, but in that case the dynamic correlation (7) is quite small.

When relations between initiation of structure (for department heads) and climate are considered, fewer clear-cut conclusions result. With several dimensions where the dynamic correlations is greater than 0.45 there are no cross-lagged panels which truly fit the criteria required; though more often than not the (6) value is larger than the (5) value. Worthy of note are a few cases where (1) and (2) values are higher than either (5) or (6) values while the (7) value is significant. It is possible in these cases that the lag time is very much shorter than the time period used between the two surveys on this study. Examples of this situation are character of control processes, of goal-setting, and of decision-making.

When the leadership style of project leaders is considered somewhat different results are found. Though there is a consistent pattern of the (6) value being larger than the (5) value there are few panels that satisfy both the panel criterion and the requirements for a substantive dynamic correlation. Most notable of these is the initiation of structure interaction with character of motivational forces tapped where the panel criterion is met, and with character of leadership processes where the very high (6) value (0.91) indicates a relationship between character of leadership processes and later initiation of structure behaviour on the part of project leaders.

The evidence given provides a clear indication that rather than leadership style being a causal variable interacting with organizational climate as suggested by the earlier

hypothesis (H3), the direct opposite appears to be the case. If one were to try to develop a regression model for predicting leadership style from climate dimensions there would be some difficulty. Of the 28 correlation values between climate dimensions, four are above 0.7, another nine are above 0.60, and only three are below 0.4 (Table XII). There would, doubtless, be problems with multicollinearity if any attempt at regression was made.

The requirement would then be to have orthogonal climate dimensions which would be more satisfactory in terms of a theoretical desire for "clean" dimensions as well as meeting the idealized requirements for satisfactory regression analysis (i.e. orthogonal independent variables). To this end, it was decided to carry out a factor-analysis of the climate variables as described in the following section.

Factor Analyses

The following analyses were carried out after the results from the cross-lag analysis had been studied. If a statement was to be made, that changes in leadership style followed changes in organizational climate dimensions, it was important to be able to distinguish which dimensions were most relevant, and to ascertain the extent to which the a priori categorization of dimensions was valid. Another important matter to be considered was the independence of the dimensions from each other. If there was high correlation between climate dimensions

the possible problem of multicollinearity would make selection of appropriate or relevant dimensions hazardous, and the shifting values of coefficients with different selections would cloud any conclusions drawn.

Analysis using data from this study. The initial correlation matrix used for the first factor analysis would, of course, be the same as that seen earlier in Table VI. With the objective of finding independent dimensions, only orthogonal rotations were considered. The choice of the principal components method and the use of multiple R^2 values on the diagonal was not based on any untheoretical reasoning, but, as suggested by Rummel (1970, p. 319), was guided by the choice made in other studies and the need to use similar techniques for purposes of comparison. Varimax rotation was used because "The varimax rotation criterion for orthogonal rotation comes closest to the graphical simple structure solution . . . [and] is now generally accepted as the best analytic orthogonal rotation technique (Rummel, 1970, p. 392)." If these procedures had not developed results that were meaningful or useful other procedures may well have proven worthwhile. Table XVII on the following page indicates the results when a maximum of eight factors is allowed. The associated eigenvalues, proportion of variance, communality figures, factor-loading matrix before rotation, an ordered factor-loading matrix after rotation, and a complete correlation matrix with variables reordered will be found in Appendix J.

TABLE XVII

Correlations of each variable with factors - Survey data

MATRIX OF CORRELATIONS WITH VARIABLES RECORDED ACCORDING TO HIGHEST CORRELATION WITH A FACTOR. * INDICATES A VALUE GREATER THAN OR EQUAL TO 0.60

VARIABLE	1INTNM	3GLCGR	6PROCM	2PRCON	7INFOR	4CONPR	5UPCOM	8DECMK
9 2EATME	-0.4451	0.1646	0.3110	0.3467	-0.1152	0.2137	0.1141	-0.0051
14 3C2DSH	-0.5178	0.1847	-0.0220	0.3276	-0.0490	0.3417	0.2557	-0.1597
24 4BTEAM	-0.5181	0.1426	0.1593	0.2612	-0.0279	0.3307	0.0729	-0.0873
33 5E8LEV	-0.5290	0.1671	-0.1046	0.2783	-0.3208	0.0221	0.0846	-0.3206
22 3GFRIE	* -0.5566	0.0231	-0.0344	0.2421	-0.1725	0.4111	0.0787	-0.2410
23 4AAINT	* -0.6212	0.1479	0.3391	0.2514	-0.1383	0.2892	0.0942	-0.0503
13 3C1DIN	* -0.6865	-0.0415	0.0784	0.0141	-0.0818	0.0008	0.1231	0.0818
4 1CCEID	* -0.6961	0.0621	0.0955	0.1532	0.2631	0.0474	0.1097	-0.2565
3 1CDISC	* -0.7121	0.1543	0.0949	0.0758	-0.1155	0.2608	0.2214	-0.1117
	********	********	--------	--------	--------	--------	--------	--------
7 2CATIT	-0.4362 *	0.7809	-0.0564	0.1444	-0.1330	0.0097	0.0410	0.0255
42 8APPOR	0.1123 *	0.6905	0.3041	0.3123	-0.0118	0.0213	0.2342	-0.1251
5 2AMOTI	0.0721 *	0.6756	0.0234	-0.0180	0.0648	0.2711	0.1810	-0.1135
6 2BUSED	-0.1570 *	0.6149	0.0754	-0.1831	-0.1161	0.4216	-0.1863	-0.2576
44 8CMAST	0.2101	0.5762	0.3783	0.3132	-0.2197	0.1018	0.3156	0.0536
10 2FSATF	-0.5449	0.5505	0.1684	0.2948	-0.0200	0.2018	0.1054	0.0271
8 2DRESP	-0.4170	0.5398	0.0999	0.1283	-0.1126	0.0606	0.2354	-0.1040
11 3ACOMU	-0.3252	0.5185	0.1894	-0.0001	-0.1054	0.2759	0.1568	-0.1566
	--------	********	********	--------	--------	--------	--------	--------
21 3FSADN	-0.0363	0.1089 *	0.8599	0.0473	0.0615	0.1224	0.1239	-0.1735
20 3FSACE	-0.2249	0.2764 *	0.7135	0.0010	-0.1947	0.1645	0.1859	-0.1479
18 3D3UOS	-0.3497	0.0456	0.5446	0.4003	-0.0716	0.0516	0.0749	0.2425
	--------	--------	********	********	--------	--------	--------	--------
19 3D4UAC	-0.2437	0.0715	-0.1377 *	0.7994	0.1242	0.1001	0.1679	-0.1152
36 6RGLEV	-0.1704	-0.1034	0.3618 *	0.6723	-0.0390	-0.0602	0.0628	0.0304
15 3C3EAC	-0.2430	0.2637	-0.0280 *	0.6510	-0.2447	0.2290	-0.1436	-0.0305
39 7ASCNA	-0.1819	-0.0475	0.1770	0.5988	-0.1588	0.4142	0.2744	0.0549
40 8B1BSC	-0.0092	0.1793	0.0549	0.5419	-0.0920	0.2922	-0.2435	-0.2825
30 5PDINF	-0.0060	0.2007	0.1074	0.5243	0.0638	0.2380	0.2922	-0.2747
41 7DPUNI	-0.2653	-0.0436	0.0679	0.5121	-0.1778	0.0405	0.4231	-0.2862
31 5CAWAR	-0.4008	0.2105	-0.1739	0.5064	0.2514	0.1301	0.2838	-0.1363
28 4BEEST	-0.3695	0.1324	0.2423	0.4430	0.1807	0.2853	0.3279	-0.1899
45 8D1CSP	-0.1495	0.2659	0.1300	0.4244	-0.2640	0.2920	0.0275	0.0459
	--------	--------	--------	********	********	--------	--------	--------
37 6CPACR	0.0137	0.2788	0.0291	0.5044	* -0.6390	0.2117	0.0848	-0.0448
38 7BCONC	-0.2217	-0.0461	0.3136	-0.1324	* -0.7198	0.0120	-0.0105	-0.3496
47 7C1LEC	-0.3554	0.0949	-0.0477	0.0646	* -0.9018	0.0357	0.1425	0.0026
	--------	--------	--------	--------	********	********	--------	--------
25 4C1INF	-0.1125	0.1579	0.1922	0.1542	0.0501 *	0.7937	0.0504	0.0144
1 1AC8TB	-0.1966	0.1778	-0.0311	0.1799	-0.1172 *	0.7219	0.1520	-0.1517
26 4C2INB	-0.1829	0.1335	0.2948	0.1336	0.0741 *	0.6424	0.1850	0.2195
34 5FINVO	-0.3043	0.1300	-0.0504	0.2080	-0.2343	0.5467	0.0700	-0.3767
2 1BC8TP	-0.1924	0.2810	0.0865	0.2895	-0.1817	0.5026	0.3676	-0.1381
35 6ACOLS	-0.2544	0.3591	-0.2219	0.2697	0.0703	0.3767	0.0680	-0.3633
	--------	--------	--------	--------	--------	********	********	--------
12 3BDRIN	-0.2269	0.1661	0.1420	-0.0269	-0.1572	0.0676	0.7304 *	0.1161
16 3C1UAD	-0.2766	0.1782	0.0111	0.2142	-0.0822	0.2647	0.6972 *	-0.0232
27 4B1ACT	-0.1872	0.3349	0.2602	0.0442	0.0822	0.0156	0.6245 *	-0.2523
17 3D2UPE	-0.1184	0.0168	0.2061	0.4065	-0.0416	0.3273	0.5058	-0.1027
	--------	--------	--------	--------	--------	--------	********	********
32 5DTEPR	-0.1889	0.1580	0.3633	0.0959	-0.0499	0.2204	0.2899	-0.4435
29 5ACECL	-0.1597	0.1807	0.1611	0.1761	-0.1506	0.0055	0.0254	-0.5729
	--------	--------	--------	--------	--------	--------	--------	********
SUM OF SQUARED FACTOR-LOADINGS DIVIDED BY SUM OF COMMUNALITIES								
	0.1807	0.1439	0.1015	0.1746	0.0889	0.1386	0.1068	0.0652

One of the most difficult choices to be made during the analysis was the number of factors to be extracted. The initial selection of eight, in this case, was based on the number of a priori dimensions, but five and ten factor attempts were made. The plot of eigenvalues in Fig. 9 reveals more than one discontinuity though the one between five and six is the largest. The scree test (Rummel, 1970, p. 361) would suggest going further than five factors to a point where the proportion of variance being added by each factor was beginning to level off (13 or 16 factors). When the dimensions were compared to those derived (later in the chapter) from the Likert data matrix the eighth factor in the results given was thought to be similar to one of the Likert data factors concerning level of decision-making. Though going to eight might be considered overfactoring, it was felt that for a preliminary study it would be advisable to hold on to as many factors as possible and allow future studies to determine if any should be cast aside. There would appear to be a general belief that overfactoring was less likely to result in undue distortions than underfactoring (Rummel, 1970, p. 365). The final consideration was the extent to which the dimensions found were definable or sensible. With the intimate knowledge of the operating circumstances of the firm being studied, the investigator was able to "make sense" of the pattern that came from the eight factor result.

The foregoing statement might well draw the criticism that there was biased opinion as far as interpretation and

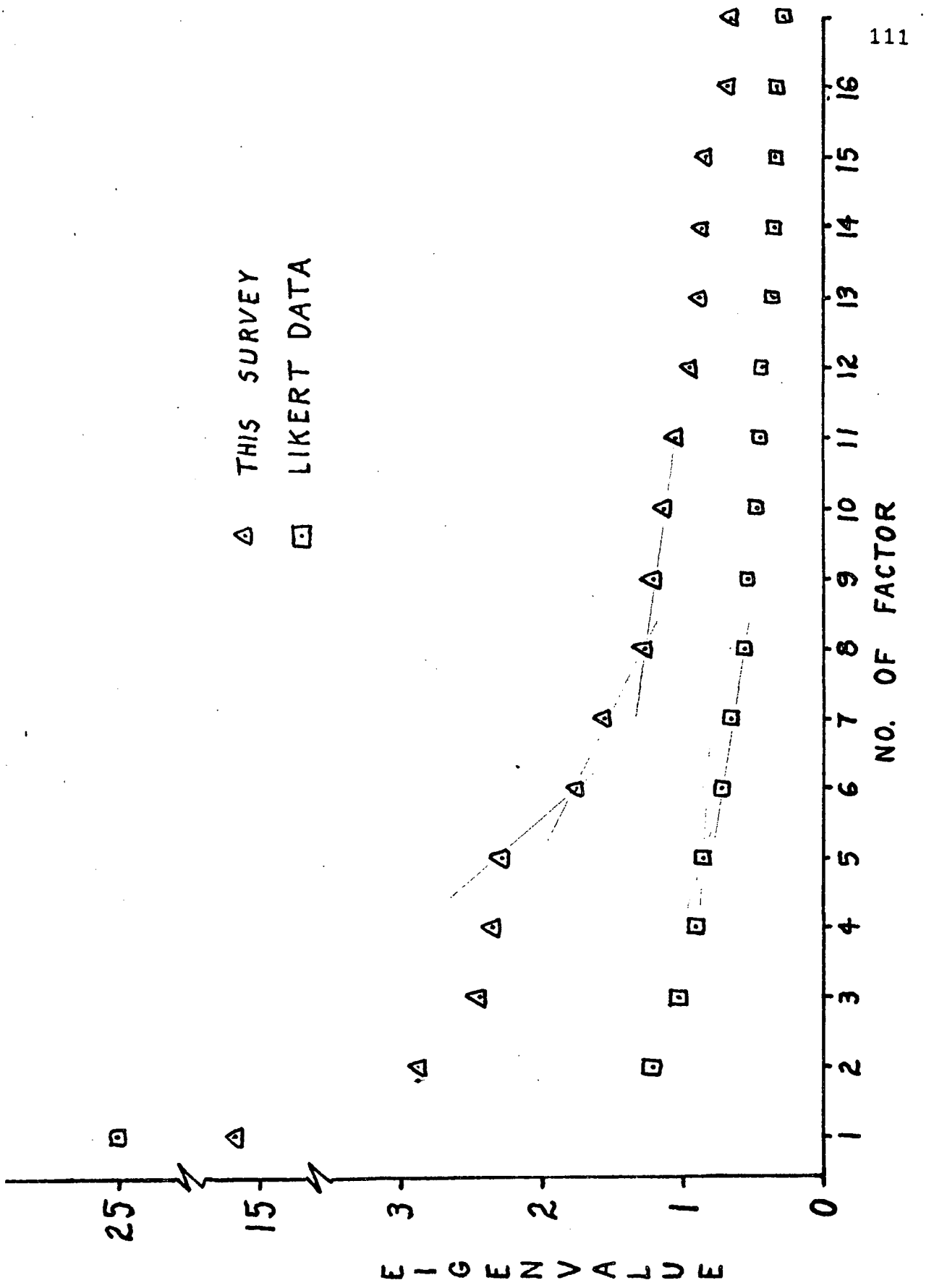


FIG. 9 Eigenvalues vs no. of factors

definition of the dimensions. For this reason the variable items were listed according to factors and presented to an expert panel. The panel was given instructions (see last page of Appendix J) and asked to provide a name or label for each factor and if necessary for clarification and/or, if time allowed, to give a definition and/or any exceptions or unsuitable connotations to the name or label chosen if it was considered inexact (i.e. if the given label and the "true" definition did not have the same connotations). In Tables XVIII to XXV on the following pages will be found the variable items which comprise the factors found in the analysis. On the page following each Table will be found the definition arrived at after consultation with the panel. Also on this page will be found the label provided by the panel members and the investigator before consultation, a listing of the items as given to the panel for that factor, and a listing of the items used in generating dimensions scores for use in further analysis. The items listed for the panel included all items which had a loading as high on that factor as the lowest loading item which fell into that factor by virtue of having its highest loading on that factor. This was done because it was felt that any item which loaded highly on a factor would be useful in ascertaining its "true" nature. The items used later for dimensions include only those items for that dimension which did not load any greater than 0.35 (considered roughly as a significant level) on any other factor. This criterion was not used to

eliminate items from factors or dimensions which had three or less items included with that factor. These exceptions affected only the last three factors (6, 7, 8,) which accounted for comparatively low percentages of total variance.

The exercise of getting the opinions of a panel on the interpretation of the factor dimensions proved very valuable. Several important aspects of various dimensions were pointed out by the panel and incorporated into the final labels and definitions that follow. It should be noted that the definitions provided by the panel were more consistent than the short label names would indicate. In each case the number 5 label was that conceived by the investigator before consideration of panel responses.

Extent to which superiors behave so that subordinates feel free to discuss important things about their jobs with their immediate superior	Subordinates feel completely free to discuss things about the job with their superior	Subordinates feel rather free to discuss things about the job with their superior	Subordinates do not feel very free to discuss things about the job with their superior	Subordinates do not feel at all free to discuss things about the job with their superior
				1C
Extent to which immediate superior in solving job problems generally tries to get subordinates' ideas and opinions and make constructive use of them.	Always get ideas and opinions and always tries to make constructive use of them	Usually gets ideas and opinions and usually tries to make constructive use of them	Sometimes gets ideas and opinions of subordinates in solving job problems	Seldom gets ideas and opinions of subordinates in solving job problems
				1D
Downward communication: (1) Where initiated	Initiated at all levels	Patterned on communication from top but with some initiative at lower levels	Primarily at top or patterned on communication from top	At top of organization or to implement top directive
				3C1
Character of interaction-influence process Amount and character of interaction	Extensive, friendly interaction with high degree of confidence and trust	Moderate interaction, often with fair amount of confidence and trust	Little interaction and usually with some condescension by superiors; fear and caution by subordinates	Little interaction and always with fear and distrust
				4A
Friendliness between superiors and subordinates	Usually very close	Fairly close	Can be moderately close if proper roles are kept	Far apart
				3G
Are decisions made at the best level in the organization as far as: availability of the most adequate and accurate information bearing on the decision	Overlapping groups and group decision processes tend to push decisions to a point where information is most adequate or to pass the relevant information to the decision-making point	Some tendency for decisions to be made at higher levels than where most adequate and accurate information exists	Decisions often made at levels appreciably higher than levels where most adequate and accurate information exists	Decisions usually made at levels appreciably higher than levels where most adequate and accurate information exists
				5E
Amount of cooperative teamwork present	Very substantial amount	A moderate amount	Relatively little	None
				4B
(2) Extent to which superiors willingly share information with subordinates	Provide minimum of information	Gives subordinates only information superior feels they need	Gives information needed and answers most questions	Seeks to give subordinates all relevant information and all information they want
				3C2
Attitudes toward other members of the organization	Favorable, cooperative attitudes throughout the organization with mutual trust and confidence	Co-operative, reasonably favorable attitudes toward others in organization; may be some competition between peers with resulting hostility and some condescension toward subordinates	Subservient attitudes toward superiors; competition for status resulting in hostility toward peers; condescension toward subordinates	Subservient attitudes toward superiors coupled with hostility; hostility toward peers and contempt for subordinates; distrust is widespread
				2E

TABLE XVIII

Factor 1--INTWM--Interaction-warmth

1. INTWM--Interaction-warmth. This dimension is concerned with the extent and warmth of individual interaction particularly between immediate subordinates and superiors.

Labels from panel members:

1. Openness for vertical communication
2. Openness, sharing
3. Humane social relations
4. Problem-solving style
5. Discussion - cooperation - friendliness

Items included in the dimension for:

1. panel	2. factor	3. dimension score
1 C	1 C	1 C
1 D	1 D	1 D
3 C 1	3 C 1	3 C 1
4 A	4 A	4 A
3 G	3 G	
2 F		
5 E	5 E	5 E
4 B	4 B	4 B
3 C 2	3 C 2	3 C 2
2 E	2 E	2 E

(4) Accuracy of upward communication within department(s)	Accurate	Information that boss wants to hear flows; other information may be limited or cautiously given	Information that boss wants to hear flows; other information is restricted and filtered	Tends to be inaccurate 3D4
To what extent do the different hierarchical levels tend to strive for high performance goals?	High goals sought by all levels, with lower levels sometimes pressing for higher goals than top levels	High goals sought by higher levels but with occasional resistance by lower levels	High goals sought by top and often resisted moderately by subordinates	High goals pressed by top, generally resisted by subordinates 6B
(3) Extent to which communications are accepted by subordinates	Generally accepted, but if not, openly and candidly questioned	Often accepted but, if not, may or may not be openly questioned	Some accepted and some viewed with suspicion	Viewed with great suspicion 3C3
Character of control processes				
How accurate are the measurements and information used to guide and perform the control function, and to what extent do forces exist in the organization to distort and falsify this information?	Strong pressures to obtain complete and accurate information to guide own behavior and behavior of own and related work groups; hence information and measurements tend to be complete and accurate	Some pressure to protect self and colleagues and hence some pressures to distort; information is only moderately complete and contains some inaccuracies	Fairly strong forces exist to distort and falsify; hence measurements and information are often incomplete and inaccurate	Very strong forces exist to distort and falsify; as a consequence, measurements and information are usually incomplete and often inaccurate 7A
Excessive absence and turnover	Low	Moderate	Moderately high when people are free to move	Tends to be high when people are free to move 8B
How adequate and accurate is the information available for decision making at the place where the decisions are made?	Information is generally inadequate and inaccurate	Information is often somewhat inadequate and inaccurate	Reasonably adequate and accurate information available	Relatively complete and accurate information available based both on measurements and efficient flow of information in organization 5B
Extent to which control data (e.g., accounting, productivity, cost, scheduling, etc.) are used for self-guidance or group problem solving by managers and non-supervisory employees, or used by superiors in a punitive, policing manner	Used for policing and in punitive manner	Used for policing coupled with reward and punishment, sometimes punitively; used somewhat for guidance but in accord with orders	Used for policing with emphasis usually on reward but with some punishment; used for guidance in accord with orders; some use also for self-guidance	Used for self-guidance and for co-ordinated problem solving and guidance; not used punitively 7D
To what extent are decision makers aware of problems, particularly those at lower levels in the organization	Generally quite well aware of problems	Moderately aware of problems	Aware of some, unaware of others	Often are unaware or only partially aware 5C
Extent to which an effective structure exists enabling one part of organization to exert influence upon other parts	Highly effective structure exists enabling exercise of influence in all directions	Moderately effective structure exists; influence exerted largely through vertical lines	Limited capacity exists; influence exerted largely via vertical lines and primarily downward	Effective structure virtually not present 4E
Checking and inspection	Useful to help people guide own efforts	Useful as a check	Useful for policing	Necessary for policing 8D

TABLE XIX

Factor 2--PRCON - Performance and control communications

2. PRCON--Performance and control communications. This dimension concerns the type, extent and implications of communications related to the reporting of performance and the control of performance.

Labels from the panel members:

1. Lateral compatibility
2. Organizational integration
3. Leadership processes and products (not style)
4. Communication for control
5. Performance and control communications

Items included in the dimension for:

1. panel	2. factor	3. dimension score
3 D 4	3 D 4	3 D 4
6 B	6 B	6 B
3 C 3	3 C 3	3 C 3
7 A	7 A	
8 B	8 B	8 B
5 B	5 B	5 B
7 D	7 D	
5 C	5 C	
6 C		
4 E	4 E	
8 D	8 D	8 D

Kinds of attitudes developed toward organization as a whole and its goals	Attitudes are strongly favorable and provide powerful stimulation to behavior implementing organization's goals	Attitudes usually are favorable and support behavior implementing organization's goals	Attitudes are sometimes hostile and counter to organization's goals and are sometimes favorable to the organization's goals and support the behavior necessary to achieve them	Attitudes usually are hostile and counter to organization's goals 2C
Performance characteristics				
Productivity	Mediocre productivity	Fair to good productivitity	Good productivity	Excellent productivity 8A
Character of motivational forces				
Underlying motives tapped	Physical security, economic needs, and some use of the desire for status	Economic needs and moderate use of ego motives, e.g. desire for status and achievement	Economic needs and considerable use of status and other major motives, e.g., desire for new experiences	Full use of economic, status and other major motives, as, for example, motivational forces arising from group goals 2A
Manner in which motives are used	Fear, threats, punishment, and occasional rewards	Rewards and some actual or potential punishment	Rewards, occasional punishment, and some involvement	Economic rewards based on compensation system developed through participation; group participation and involvement in setting goals, improving methods, appraising progress toward goals, etc. 2B
Lost or wasted time and effort	Relatively high unless policed carefully	Moderately high unless policed	Moderate	Members themselves will use measurements and other steps in effort to keep losses to a minimum 8C
Satisfaction derived	Relatively high satisfaction throughout the organization with regard to membership in the organization, supervision, and one's own achievements	Some dissatisfaction to moderately high satisfaction with regard to membership in the organization, supervision, and one's own achievements	Dissatisfaction to moderate satisfaction with regard to membership in the organization, supervision, and one's own achievements	Usually dissatisfaction with membership in the organization, with supervision, and with one's own achievements 2F
Amount of responsibility felt by each member of organization for achieving organization's goals	Personnel at all levels feel real responsibility for organization's goals and behave in ways to implement them	Substantial proportion of personnel, especially at higher levels, feel responsibility and generally behave in ways to achieve the organization's goals	Managerial personnel usually feel responsibility; rank and file usually feel relatively little responsibility for achieving organization's goals	High levels of management feel responsibility; lower levels feel less; rank and file feel little and often welcome opportunity to behave in ways to defeat organization's goals 2D
Character of communication process				
Amount of interaction and communication aimed at achieving organization's objectives	Very little	Little	Quite a bit	Much with both individuals and groups 3A

TABLE XX

Factor 3--GLCGR - Goal congruence

3. GLCGR--Goal congruence. This dimension concerns the extent of congruence, identification, and satisfaction with organizational goals. It also includes some aspects of the mechanics (e.g. motivational aspects) of inducing goal congruence.

Labels from panel members:

1. Corporate/self interest
2. Organizational goal commitment
3. Motivational climate
4. Goal centredness
5. Congruence, identification, satisfaction with organizational goals.

Items included in the dimension for:

1. panel	2. factor	3. dimension score
2 C	2 C	2 C
8 A	8 A	8 A
2 A	2 A	2 A
2 B	2 B	
8 C	8 C	
2 F	2 F	
2 D	2 D	
3 A	3 A	3 A

Extent to which subordinates can influence the goals, methods and activity of their units and departments				
(1) As seen by superiors	None	Virtually none	Moderate amount	A great deal 4C1
Leadership processes used Extent to which superiors have confidence in subordinates	Have no confidence and trust in subordinates	Have condescending confidence and trust, such as master has in servant	Substantial but not complete confidence and trust; still wishes to keep control of decisions	Complete confidence and trust in all matters 1A
(2) As seen by subordinates	None except through "informal organization"	Little except through "informal organization"	Moderate amount directly	Substantial amount directly 4C2
To what extent are subordinates involved in decisions related to their work?	Not at all	Never involved in decisions; occasionally consulted	Usually are consulted but ordinarily not involved in the decision making	Are involved fully in all decisions related to their work 5F
Extent to which subordinates, in turn, have confidence and trust in superiors	Have no confidence and trust in superiors	Have subservient confidence and trust, such as servant has to master	Substantial but not complete confidence and trust	Complete confidence and trust 1B
Character of goal setting or ordering Manner in which usually done	Except in emergencies, goals are usually established by means of group participation	Goals are set or orders issued after discussion with subordinates of problems and planned action	Orders issued, opportunity to comment may or may not exist	Orders issued 6A

TABLE XXI

Factor 4--CONPR - Confidence-participation

4. CONPR--Confidence-participation. This dimension is concerned with the participation and influence of subordinates and the extent to which they are relied upon (or trusted) by superiors.

Labels from panel members:

1. Participation
2. Mutual trust and participation
3. Vertical mutuality and intimacy
4. Subordinate involvement
5. Confidence-influence

Items included in the dimension for:

1. panel	2. factor	3. dimension score
4 C 1	4 C 1	4 C 1
1 A	1 A	1 A
4 C 2	4 C 2	4 C 2
5 F	5 F	5 F
1 B	1 B	
2 B		
7 A		
3 G		
6 A	6 A	

Direction of information flow	Downward	Mostly downward	Down and up	Down, up, and with peers
				3B
Upward communication:				
(1) Adequacy of upward communication	Very little	Limited	Some	A great deal
				3D1
Amount of actual influence which superiors can exercise over the goals, activity and methods of their units and departments	Believed to be substantial but actually moderate unless capacity to exercise severe punishment is present	Moderate to somewhat more than moderate; especially for higher levels in organization	Moderate to substantial, especially for higher levels in organization	Substantial but often done indirectly, as, for example, by superior building effective interaction-influence system
				4D
(2) Subordinates' feeling of responsibility for initiating accurate upward communication along project lines	None at all	Relatively little, usually communicates "filtered" information and only when requested, may "yes" the boss	Some to moderate degree of responsibility to initiate accurate upward communication	Considerable responsibility felt and much initiative; group communicates all relevant information
				3D2

TABLE XXII

Factor 5--UPCOM - Upward communications

5. UPCOM--Upward communications. This dimension is concerned with the directionality of communications and influence or more particularly with the extent of upward communications and influence.

Labels from panel members:

1. Vertical communication
2. Directionality of influence
3. Subordinate liberation
4. Communication openness
5. Upward communication

Items included in the dimension for:

1. panel	2. factor	3. dimension score
3 B	3 B	3 B
3 D 1	3 D 1	3 D 1
4 D	4 D	4 D
3 D 2	3 D 2	

Sideward communication, its adequacy and accuracy with other non-engineering departments	Usually poor because of competition, corresponding hostility	Fairly poor because of competition	Fair to good	Good to excellent 3F

Sideward communication, its adequacy and accuracy with other engineering departments	Usually poor because of competition, corresponding hostility	Fairly poor because of competition	Fair to good	Good to excellent 3E

Forces leading to accurate or distorted upward information on projects	Virtually no forces to distort and powerful forces to communicate accurately	Occasional forces to distort along with many forces to communicate accurately	Many forces to distort; also forces for honest communication	Powerful forces to distort information and deceive superiors 3D3

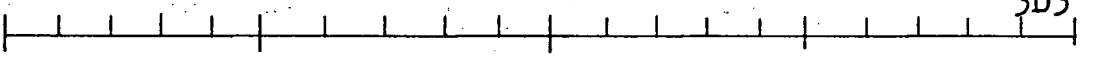


TABLE XXIII

Factor 6--PROCM - Project communications

6. PROCM--Project communications. This dimension is concerned with the extent and quality of communication outside of the department on project matters.

Labels from panel members:

1. Lateral communication
2. Communication quality
3. Communication
4. Lack of communication bias (or lateral communication)
5. Project communications

Items included in the dimension for:

1. panel	2. factor	3. dimension score
3 F	3 F	3 F
3 E	3 E	3 E
3 D 3	3 D 3	3 D 3

Extent to which there is an informal organization present and supporting or opposing goals of formal organization	Informal organization present and opposing goals of formal organization	Informal organization usually present and partially resisting goals	Informal organization may be present and may either support or partially resist goals of formal organization	Informal and formal organization are one and the same; hence all social forces support efforts to achieve organization's goals
				7C
Extent to which the review and control functions are concentrated	Highly concentrated in top management	Relatively highly concentrated, with some delegated control to middle and lower levels	Moderate downward delegation of review and control processes; lower as well as higher levels perform these tasks	Review and control done at all levels with lower units at times imposing more vigorous reviews and tighter controls than top management
				7B
Are there forces to accept, resist, or reject goals?	Goals are overtly accepted but are covertly resisted strongly	Goals are overtly accepted but often covertly resisted to at least a moderate degree	Goals are overtly accepted but at times with some covert resistance	Goals are fully accepted both overtly and covertly
				6C

TABLE XXIV

Factor 7--INFOR - Presence of informal organization

7. INFOR--Presence of informal organization. This dimension is concerned with the degree or extent to which there is an informal organization operating independently of the formal organization.

Labels from panel members:

1. Informal support
2. Hierarchical formalization
3. "Alter" organization vis formal organization
4. Organizational unity
5. Presence of informal organization

Items included in the dimension for:

1. panel	2. factor	3. dimension score
7 C	7 C	7 C
7 B	7 B	7 B
6 C	6 C	6 C

Character of decision-making process				
At what level in organization are decisions formally made?	Bulk of decisions at top of organization	Policy at top, many decisions within prescribed framework made at lower levels but usually checked with top before action	Broad policy decisions at top, more specific decisions at lower levels	Decision making widely done throughout organization, although well integrated through linking process provided by overlapping groups
				5A
Extent to which technical and professional knowledge is used in decision making	Used only if possessed at higher levels	Much of what is available in higher and middle levels is used	Much of what is available in higher, middle and lower levels is used	Most of what is available anywhere within the organization is used
				5D

TABLE XXV

Factor 8--DECMK - Locus of decision-making

8. DECMK--Locus of decision-making. This dimension is concerned with the level of decision-making particularly with respect to technical decisions related to the work in progress.

Labels from panel members:

1. ?
2. Decision-making locus
3. Decision-making participation
4. Decision diffusion
5. Level of decision-making

Items included in the dimension for:

1. panel	2. factor	3. dimension score
5 A	5 A	5 A
5 D	5 D	5 D

Analysis using Likert data. As mentioned briefly before, a factor analysis was also carried out using the correlation matrix from Likert (1967, pp. 193-5). As the FAN program is able to accept a correlation matrix as data it was a simple matter to carry out an analysis. For this purpose, only the variables which corresponded to the questions that were used in this study were used (37 out of 43) so that the results of the two analyses could be compared. Table XXVI indicates a five factor result. The other numerical output of interest along with the original matrix used is included in Appendix K. As the raw data were not available, RSQ values could not be used on the diagonal and the original values (ones) were used. In this respect the procedure was not exactly parellel to that used on the data from this study.

The problem of determining the number of factors again had to be faced. A study of the two correlation matrices or to the Fig. 9 graph of eigenvalues will indicate that the two sets of data had some distinctive differences. For example, when an attempt was made to rotate with eight factors no items loaded most heavily on the last factor. The combination of having a much faster drop-off in proportion of total variance accounted for, and a discontinuity in eigenvalues between five and six, led to a choice of five factor solution. The five factor solution also provided "sensible" dimensions while going to more factors at the same time maintaining this sensibility would likely require more knowledge about the population where the

TABLE XXVI

Correlations of each variable with factors - Likert data

MATRIX OF CORRELATIONS OF FACTORS WITH VARIABLES.
VARIABLES ARE REORDERED ACCORDING TO HIGHEST CORRELATION WITH A FACTOR.
* INDICATES A MAGNITUDE GREATER THAN OR EQUAL TO 0.70000

VARIABLE		FACTOR 1	2	3	4	5
25 9CAWAR	*	0.7744	-0.2447	-0.1480	0.2113	-0.3851
24 9BCINF	*	0.7046	-0.2924	-0.2645	0.2798	-0.1909
26 9DIEPR		0.6569	-0.2242	-0.3635	0.2969	-0.3650
23 9ABFCL		0.5640	-0.3036	-0.4242	0.4075	-0.2581
27 9EBLEV		0.4960	-0.1727	-0.4511	0.2577	-0.3741
18 4B1EAM		0.4958	-0.3019	-0.3799	0.3851	-0.3890
28 6AGOLS		0.4861	-0.3325	-0.4383	0.4190	-0.2760
4 2BRESP		0.4815	-0.2317	-0.4682	0.1703	-0.4531
32 7BCCAC		0.4520	-0.4469	-0.2851	0.4115	-0.2624
9 3C1DIN		0.4417	-0.3740	-0.3519	0.2507	-0.3781
		********	********	--------	--------	--------
35 8BABSC		0.4304	-0.6188	-0.1604	0.1602	-0.4279
34 8APROD		0.1490	-0.6225	-0.3467	0.3932	-0.3314
37 8DINSP		0.1941	* -0.7482	-0.2274	0.2700	-0.2532
36 8CHAST		0.2775	* -0.8118	-0.2607	0.1307	-0.1522
		--------	********	********	--------	--------
7 3ACCMU		0.3683	-0.3359	-0.4156	0.3926	-0.3975
17 4AAINT		0.3616	-0.3120	-0.4688	0.4169	-0.4106
6 2ESATF		0.2392	-0.3967	-0.5031	0.4952	-0.3063
1 2APCTI		0.4364	-0.2270	-0.5544	0.1173	-0.4716
21 4D1ACT		0.4648	-0.2674	-0.6019	0.2819	-0.1709
2 2BUSED		0.3357	-0.2131	-0.6573	0.2304	-0.4202
5 2EATME		0.2438	-0.2341	-0.6645	0.4663	-0.2762
3 2CATIT		0.1586	-0.3037	* -0.7181	0.2387	-0.3292
		--------	--------	********	********	--------
15 3ESADE		0.2240	-0.1486	-0.3507	* 0.7494	-0.2192
13 3D3UDS		0.2380	-0.2178	-0.1928	* 0.7118	-0.4066
16 3FPPIE		0.4080	-0.2884	-0.2659	0.6116	-0.3118
33 7C1NFO		0.3506	-0.4801	-0.2792	0.5874	-0.1675
29 6BGLEV		0.4721	-0.4028	-0.1328	0.5014	-0.3614
		--------	--------	--------	********	********
30 6CGACR		0.3947	-0.3961	-0.2998	0.3155	-0.5105
31 7ACCNA		0.4554	-0.1826	-0.2499	0.3657	-0.5185
10 3C3DAC		0.1885	-0.3615	-0.4758	0.3538	-0.5561
22 4EBFST		0.4326	-0.2516	-0.2381	0.3145	-0.5568
14 3D4UAC		0.2434	-0.4625	-0.2011	0.4641	-0.5616
8 3BORTN		0.3447	-0.3952	-0.1820	0.4047	-0.5760
12 3D2URE		0.2830	-0.2389	-0.3090	0.3589	-0.6479
20 4C2INS		0.3013	-0.2706	-0.3728	0.2505	-0.6509
11 3D1DAD		0.1756	-0.2274	-0.4002	0.2908	-0.6515
19 4C1INF		0.4088	-0.1811	-0.3058	0.1475	-0.6782
		--------	--------	--------	--------	********
SUM OF SQUARED FACTOR-LOADINGS DIVIDED BY SUM OF COMMUNALITIES		0.2140	0.1761	0.1949	0.1883	0.2266

data were collected. Also, the start from 37 items as compared to 45 items in the previous analysis might well lead one to expect fewer factors to emerge.

The brief definitions arrived at for these factors are as follows:

1. This dimension relates to the character and level of decision-making and to some extent the goal-setting process.

2. This dimension relates to the character of production.

3. This dimension relates to the identification with organizational goals and the character of processes involved in affecting this identification and/or satisfaction with goals.

4. This dimension relates to the character and friendliness of horizontal communications.

5. This dimension relates to the character of interaction-influence or more particularly with directionality and extent of vertical communications.

Note that less time and effort went into the above definitions as compared to that for the previous ones in this study. The productivity factor (2) is the only one to fall out precisely as would be indicated on the a priori categorization. The first factor is dominated by decision-making variables but the additional items bring in linkages, for that sample, between decision-making and goal-setting. The third factor is dominated by motivational force items but has a different tone from that suggested by the a priori categorization. The fourth and fifth factors are dominated by communication items but

there would appear to be sharp distinctions in the implications between friendly horizontal or friendly vertical communications.

Comparison of the two analyses results. When considering the results from both analyses some interesting similarities and contrasts can be noted. All of the factors from the Likert data can be matched up roughly, in terms of definition, with a factor from this study except for the productivity factor which has no parallel. This is true even though the individual items which constitute each of the parallel factors are often quite different. This would indicate that for the two samples there were different "rules" for categorizing the items. Even when the same general topic or dimension was being considered, a different perspective upon implications of the dimension was present.

The above finding is not surprising when one considers the two sources of data. The Likert data were gathered from managers only and was likely from manufacturing organizations. The data for this study was gathered from non-managers in an organization with many characteristics which would distinguish it from a manufacturing organization. If the factor analyses are considered as a means of deriving the mental "set" of different groups, the differences noted earlier are not too unexpected. The lack of a productivity orientation by non-managers in an organization where productivity is very difficult to measure accurately might be expected along with the possibly

subtle distinctions in types of communications in an organization, which has a very complex pattern of communication linkages.

Second Survey results - final

The analysis that follows is parallel to that done before factor analysis, but makes use of climate dimensions derived from the factor analysis. As indicated earlier a number of variables that loaded significantly on more than one dimension were eliminated from the factor dimensions for the results that follow in order to have climate dimensions that were as "clean" as possible. The following correlation matrix in Table XXVII would indicate that the new dimensions are more towards being orthogonal than the a priori dimensions and therefore more suitable for use as independent variables in a regression analysis. Of the 28 correlations between climate dimensions only three are above 0.50 as compared to twenty previously, while eight are below 0.40 as compared to three previously. The dynamic correlations amongst dimensions, when compared as a group with those for the a priori dimensions, are also found to have much lower values. The number of paired observations and means using factor dimensions will be found in Appendix L.

When the changes in dimensions between the two surveys are examined in Table XXVIII, one finds that there are again some small differences between the groups given feedback and the control group. The difference now becomes localized chiefly

** USING FACTOR DIMENSIONS **

CORRELATION MATRIX

VARIABLE	ISP1	ISP2	ISPD	CONP1	CONP2	CONPD	ISDE1	ISDE2	ISDFD	CONDE1	CONDE2
ISP1	1.0000										
ISP2	0.7927	1.0000									
ISPD	0.7489	0.7883	1.0000								
CONP1	0.4424	0.4521	0.1147	1.0000							
CONP2	0.3240	0.3265	0.3024	0.8022	1.0000						
CONPD	0.2952	0.2959	0.3669	0.2696	0.7967	1.0000					
ISDE1	0.4380	0.4711	0.2578	0.2058	0.1844	-0.1674	1.0000				
ISDE2	0.4537	0.4586	0.2501	0.4247	0.3727	0.5318	0.2615	1.0000			
ISDFD	-0.1242	-0.0777	0.1091	-0.0563	0.3117	0.5607	-0.6537	0.5455	1.0000		
CONDE1	0.2248	0.3631	-0.0389	0.6441	0.2893	-0.1243	0.3389	0.2511	-0.1443	1.0000	
CONDE2	0.2794	0.1824	-0.0484	0.2170	0.6671	-0.2778	0.1846	0.2419	-0.1672	0.6841	1.0000
CONDFD	-0.3762	-0.3536	0.3517	-0.5549	-0.4350	-0.1689	-0.3453	-0.3155	0.2153	-0.5153	-0.2714
INTAM1	0.4841	0.7663	0.7263	0.5948	0.4567	0.2405	0.3267	0.1229	-0.1722	0.6600	0.7179
INTAM2	0.5686	0.7624	0.7586	0.4874	0.5524	0.3187	0.4362	0.3445	-0.1729	0.5719	0.8053
INTAMD	0.2403	0.2765	-0.1019	0.0569	0.0762	0.1157	0.2331	0.3507	0.3365	-0.0925	-0.1256
PROCN1	0.3335	0.7349	0.5937	0.4764	0.4823	0.2357	0.4216	0.0340	-0.5060	0.4341	0.4390
PROCN2	0.2315	0.5844	0.6071	0.3887	0.5140	0.1470	0.2434	0.2426	-0.1361	0.3483	0.5737
PROCND	-0.3474	-0.3943	-0.2335	-0.2216	-0.2491	-0.1949	-0.6397	0.0564	0.6028	-0.3318	-0.2692
GLOSR1	0.6775	0.7160	0.3608	0.3317	0.4420	0.1517	0.3328	0.4774	-0.2136	0.5419	0.6705
GLOSR2	0.4939	0.6586	0.6669	0.4732	0.5350	0.2434	0.4626	0.3058	-0.1911	0.5340	0.6814
GLOSRD	-0.2982	-0.2166	0.4652	-0.0705	-0.0303	0.1331	-0.3512	-0.3672	0.0742	-0.3072	-0.2393
CONPR1	0.3315	0.6925	0.2843	0.4665	0.3819	0.0700	0.2388	0.7312	-0.2807	0.4304	0.7324
CONPR2	0.5132	0.3971	0.7952	0.4282	0.5158	0.3471	0.2596	0.4513	0.0917	0.4836	0.7800
CONPRD	-0.2386	-0.4761	0.0631	-0.0392	0.4358	0.6764	-0.2403	-0.0885	0.1751	-0.3996	-0.4709
UPCOM1	0.2280	0.8064	0.6406	0.2862	0.2563	0.0769	0.2314	0.3791	-0.0844	0.4275	0.9037
UPCOM2	0.1856	0.6791	0.1953	-0.0621	0.1333	0.2765	-0.0936	0.3282	0.2576	0.1598	0.8593
UPCOMD	-0.3529	-0.7521	-0.5212	-0.5328	-0.2857	0.1800	-0.4875	0.0263	0.4477	-0.6209	-0.5694
PROCM1	0.2611	0.7229	0.6379	0.1127	0.0821	-0.1342	0.1765	0.2103	-0.4449	0.2803	0.5698
PROCM2	0.5124	0.7018	0.7004	0.2816	0.3283	0.0336	0.1787	0.2816	-0.3963	0.4877	0.8401
PROCMD	-0.3974	-0.1845	0.1467	0.0966	0.2187	0.1973	-0.4679	0.0421	0.5155	0.1197	0.1777
INFOR1	0.1230	0.7684	0.5783	0.1085	0.4658	0.0966	0.1497	0.0371	-0.2039	0.2668	0.8945
INFOR2	0.3982	0.4707	0.6466	0.4345	0.4523	0.2392	0.1350	0.2626	-0.2443	0.3554	0.4038
INFORD	-0.5173	-0.3188	0.0365	-0.4624	-0.3046	0.0681	-0.3245	-0.0626	0.1851	-0.1112	-0.2672
DECLV1	0.2570	0.6389	0.7549	0.3252	0.3312	0.1583	0.2549	0.1282	-0.2712	0.4389	0.6624
DECLV2	0.6917	0.3836	0.6129	0.2413	0.3942	0.4444	0.0782	0.3242	0.1761	0.2614	0.6676
DECLVD	-0.1182	0.0870	0.2071	-0.0084	0.4667	0.6017	-0.2877	0.4855	0.5177	0.0447	0.2825

TABLE XXVII

Correlation matrix - leadership scores and factor dimensions with differences - both surveys

TABLE XXVII - (continued)

CORRELATION MATRIX VARIABLE	CONDEO	INTWM1	INTWM2	INTWMO	PRCON1	PRCON2	PRCONO	GLCGR1	GLCGR2	GLCGRO	CONPR1
CONDEO	1.0000										
INTWM1	0.4113	1.0000									
INTWM2	0.1016	0.8781	1.0000								
INTWMO	0.1618	-0.4765	0.0024	1.0000							
PRCON1	-0.2272	0.5339	0.7215	-0.4482	1.0000						
PRCON2	0.1253	0.8053	0.7110	-0.3249	0.7182	1.0000					
PRCONO	0.4643	-0.3314	-0.2216	0.2853	-0.6439	0.0700	1.0000				
GLCGR1	-0.2296	0.4776	0.6571	-0.1609	0.4722	0.5031	-0.4167	1.0000			
GLCGR2	0.0783	0.8259	0.7732	-0.0819	0.7473	0.7123	-0.2733	0.8368	1.0000		
GLCGRO	0.5459	0.1671	0.2757	0.1572	-0.0013	0.2778	0.3073	-0.4410	0.1224	1.0000	
CONPR1	-0.2719	0.6356	0.6232	0.1689	0.4711	0.2767	-0.3284	0.4536	0.6539	-0.1935	1.0000
CONPR2	0.3506	0.7549	0.7172	0.0373	0.5197	0.4285	-0.0479	0.5214	0.6343	0.4809	0.7794
CONPRO	0.5782	0.2443	0.2939	0.0312	0.2122	0.2724	-0.0002	-0.0890	0.1771	0.5018	-0.3228
UPCOM1	0.3686	0.5092	0.8520	0.0161	0.3163	0.6090	-0.1667	0.4590	0.6308	0.2776	0.4605
UPCOM2	0.3656	0.3137	0.4027	0.0852	0.2140	0.3404	0.1272	0.4673	0.5867	0.1347	0.4514
UPCOMO	0.3132	-0.5278	-0.5633	0.0680	-0.4486	-0.2948	0.3189	-0.3347	-0.3408	0.5485	-0.3294
PROCM1	0.0030	0.4326	0.6725	-0.0609	0.2924	0.3548	-0.3460	0.4202	0.4545	0.0163	0.3799
PROCM2	0.0066	0.6474	0.7927	0.0606	0.4974	0.7792	0.1527	0.4659	0.6355	0.3961	0.4982
PROCMO	-0.0442	0.0925	0.1861	0.1545	0.0511	0.4528	0.4958	0.1127	0.2941	0.3463	-0.0172
INFOR1	0.2138	0.4831	0.7337	-0.1659	0.4072	0.6293	-0.1291	0.3226	0.6231	0.3279	0.3488
INFOR2	0.2945	0.7220	0.6142	-0.0909	0.6573	0.4897	-0.3525	0.4317	0.5802	0.6091	0.4405
INFORO	-0.1131	-0.2630	-0.1230	0.3496	-0.1810	-0.1355	0.1160	-0.2661	-0.3825	0.3234	-0.1796
DECLV1	0.3145	0.4983	0.7601	0.0908	0.4003	0.5279	-0.2037	0.4551	0.7960	0.4082	0.3913
DECLV2	0.4127	0.7029	0.6403	-0.1547	0.5912	0.6788	-0.0803	0.6252	0.7702	0.3567	0.4602
DECLVO	0.1176	0.2573	0.1586	-0.2561	0.2308	0.3275	0.0397	0.3269	0.2438	-0.1496	0.0099

CORRELATION MATRIX VARIABLE	CONPR2	CONPRO	UPCOM1	UPCOM2	UPCOMO	PROCM1	PROCM2	PROCMO	INFOR1	INFOR2	INFORO
CONPR2	1.0000										
CONPRO	0.3547	1.0000									
UPCOM1	0.6056	0.2151	1.0000								
UPCOM2	0.4753	0.1485	0.6742	1.0000							
UPCOMO	-0.4152	-0.0906	-0.5589	0.3581	1.0000						
PROCM1	0.6319	0.0389	0.3958	-0.0521	-0.7005	1.0000					
PROCM2	0.4904	0.2650	0.7271	0.3665	-0.4764	0.5199	1.0000				
PROCMO	0.1178	0.2706	0.2429	0.4280	0.1534	-0.3956	0.5789	1.0000			
INFOR1	0.8213	0.4510	0.8235	0.2520	-0.5208	0.3416	0.5606	0.0279	1.0000		
INFOR2	0.8551	0.3691	0.7336	0.1890	-0.4361	0.3739	0.4783	0.1487	0.8182	1.0000	
INFORO	-0.2393	-0.1088	-0.0573	0.1423	0.2079	-0.3774	0.0782	0.4413	-0.5632	0.0142	1.0000
DECLV1	0.7765	0.3102	0.4196	0.5350	-0.2857	0.4115	0.4733	0.1228	0.4461	0.9077	-0.0781
DECLV2	0.5864	0.3873	0.7092	0.6318	-0.1029	0.1544	0.4950	0.3712	0.5043	0.3760	0.0502
DECLVO	0.1380	0.1903	0.1911	0.3750	0.1582	-0.2198	0.1453	0.3660	-0.1398	-0.0678	0.1468

CORRELATION MATRIX VARIABLE	DECLV1	DECLV2	DECLVO
DECLV1	1.0000		
DECLV2	0.6722	1.0000	
DECLVO	-0.1556	0.6268	1.0000

TABLE XXVIII

Means of factor dimensions - both surveys

	ALL DEPTS.	T-PROB	DEPTS. A+B	T-PROB	DEPT. A	T-PROB	DEPT. B	T-PROB	DEPT. C	T-PROB
INTMM 1	12.666		13.010		13.725		12.352		11.945	
2	12.859		13.363		13.857		12.658		11.463	
DIFF	- .065	.940	+ .353	.562	+ .134	.831	+ .306	.739	- .482	.699
P DIFF	+ .125	.688	+ .062	.859	+ .486	.493	- .362	.557	+ .214	.652
PRCUN 1	12.962		13.214		13.479		12.969		12.497	
2	12.674		13.432		13.302		13.619		11.383	
DIFF	- .306	.611	+ .218	.750	- .178	.825	+ .650	.572	-1.114	.304
P DIFF	- .052	.877	+ .195	.736	- .395	.530	+ .783	.475	- .403	.636
DECOR 1	10.263		10.143		10.642		9.663		10.559	
2	10.808		11.627		12.192		10.821		9.406	
DIFF	+ .522	.429	+1.484	.049**	+1.549	.105*	+1.158	.340	-1.151	.348
P DIFF	- .044	.882	+ .363	.543	+ .917	.099*	- .150	.792	- .655	.481
CONPR 1	11.600		11.497		11.948		11.080		11.616	
2	12.054		12.346		12.700		11.845		11.500	
DIFF	+ .454	.467	+ .851	.237	+ .752	.396	+ .765	.531	- .116	.797
P DIFF	+ .302	.533	+ .783	.163	+ .983	.173	+ .583	.562	- .500	.569
UPCUM 1	11.343		11.405		12.090		10.747		11.210	
2	11.537		11.716		11.867		11.500		11.233	
DIFF	+ .194	.764	+ .311	.720	- .224	.817	+ .753	.605	+ .020	.965
P DIFF	- .592	.580	- .767	.243	-1.533	.166	+ .000	.950	+ .143	.687
PRGCM 1	13.175		13.035		12.563		13.507		13.476	
2	12.595		13.578		13.083		14.266		10.741	
DIFF	- .582	.385	+ .543	.492	+ .521	.605	+ .779	.540	-2.738	.025**
P DIFF	- .813	.041	- .133	.851	+ .200	.848	- .467	.733	- .611	.606
INFOR 1	11.535		11.647		11.746		11.553		11.318	
2	12.015		12.412		13.133		11.381		11.259	
DIFF	+ .479	.532	+ .764	.419	+1.387	.290	- .172	.859	- .059	.916
P DIFF	- .512	.282	- .513	.511	+ .500	.489	-1.125	.036**	- .777	.445
DECLV 1	10.747		10.927		11.065		10.800		10.570	
2	10.308		10.824		11.030		10.500		9.333	
DIFF	- .438	.554	- .103	.865	- .015	.935	- .300	.810	-1.036	.306
P DIFF	- .250	.733	- .400	.575	- .400	.744	- .400	.655	- .000	.951

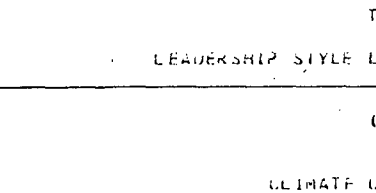
to only two dimensions: goal congruence and confidence-participation. The t-prob values when the two groups comparison is made are 0.23 and 0.19 respectively. The drop in project communications for department C is understandable if one is familiar with the time context that this department was entering. On large projects the most critical areas information-wise and schedule-wise shifts gradually as time progresses from departments concerned with outside underground service to departments concerned with inside details such as instrumentation. For several projects, department C was entering a phase where poor information or co-operation from other departments was becoming increasingly critical. The change in climate dimemsions does not help a great deal in providing more information on the possible differences between the experimental and control groups with respect to H 2. The evidence in support of H 2 is, statistically, very weak.

When the cross-lagged panels for department heads style (Table XXIX) are extracted from the correlation matrix (Table XXVII) some new general features become evident. In the previous panels (Tables XV and XVI) there were some general shifts towards higher correlations between climate and style dimension between survey I and survey II but the factor-dimension panels show a more consistent pattern in this regard (i.e. (2)> (1)) (For explanation of numbers in parentheses see p. 99). This trend could possibly give more indication that there were some qualitative differences between the "populations" being sampled on the two surveys.

TABLE XXIX

Cross-lagged correlational panels - factor dimensions, dept. heads

CROSS-LAGGED CORRELATIONAL PANEL RESULTS: FACTOR DIMENSIONS - DEPT. HEADS



CRITERIA FOR CAUSAL RELATIONSHIP:

1. LEADERSHIP STYLE TO CLIMATE

   5 > (1 = 2) > 6

2. CLIMATE TO LEADERSHIP STYLE

   6 > (1 = 2) > 5

3. WHEN SIGNIFICANT DYNAMIC CORRELATION PRESENT, THEN MORE LIKELIHOOD OF CAUSAL RELATIONSHIP.

CONSIDERATION - INTERACTION-WARMTH

(3) .0841
(5) .5710
(1) .6000 (2) .6053 (7) .1618
(6) .7179
(4) .8761

INIT. OF STRUCT. - INTERACTION-WARMTH

(3) .2615
(5) .4362
(1) .3267 (2) .3445 (7) .0355
(6) .1229
(4) .8761

CONSIDERATION - PERF. & CONTR. COMM.

(3) .0841
(5) .3480
(1) .4341 (2) .5737 (7) .4643
(6) .4590
(4) .7182

INIT. OF STRUCT. - PERF. & CONTR. COMM.

(3. .2615
(5) .2434
(1) .4215 (2) .2426 (7) .0026
(6) .0340
(4 .7182

CONSIDERATION - GOAL CONGRUENCE

(3) .0841
(5) .5340
(1) .5419 (2) .6014 (7) .5459
(6) .0705
(4) .8368

INIT. OF STRUCT. - GOAL CONGRUENCE

(3) .2615
(5) .4626
(1) .3538 (2) .3058 (7) .0742
(6) .4774
(4) .8368

CONSIDERATION - CONFID.-PARTICIPATION

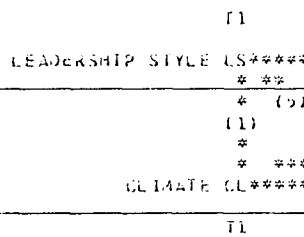
(3) .0841
(5) .4836
(1) .5504 (2) .7800 (7) .5082
(6) .7524
(4) .7704

INIT. OF STRUCT. - CONFID.-PARTICIPATION

(3) .2615
(5) .2596
(1) .2888 (2) .4513 (7) .0751
(6) .7312
(4) .7704

TABLE XXIX - (continued)

CROSS-LAGGED CORRELATIONAL PANEL RESULTS: FACTOR DIMENSIONS - DEPT. HEADS



CRITERIA FOR CAUSAL RELATIONSHIP:

1. LEADERSHIP STYLE TO CLIMATE

   5 > (1 = 2) > 6

2. CLIMATE TO LEADERSHIP STYLE

   6 > (1 = 2) > 5

T1 T2

(7) = DYNAMIC CORRELATION

3. WHEN SIGNIFICANT DYNAMIC CORRELATION PRESENT, THEN MORE LIKELIHOOD OF CAUSAL RELATIONSHIP.

CONSIDERATION - UPWARD COMMUNICATIONS

(3) .6841

(5) .1098

(1) .4275 (2) .5593 (7) .3152

(6) .9037

(4) .5742

INIT. OF STRUCT. - UPWARD COMMUNICATIONS

(3) .2615

(5)-.0936

(1) .2314 (2) .3282 (7) .4477

(6) .3791

(4) .5742

CONSIDERATION - PROJECT COMM.

(3) .6841

(5) .4877

(1) .2803 (2) .6401 (7)-.0442

(6) .5698

(4) .5199

INIT. OF STRUCT. - PROJECT COMM.

(3) .2615

(5) .1767

(1) .1765 (2) .2610 (7) .3155

(6) .2103

(4) .5199

CONSIDERATION - INFORMAL ORG.

(3) .6841

(5) .3534

(1) .2666 (2) .4038 (7)-.1131

(6) .9942

(4) .8182

INIT. OF STRUCT. - INFORMAL ORG.

(3) .2615

(5) .1350

(1) .1487 (2) .2620 (7) .1651

(6) .0371

(4) .8182

CONSIDERATION - LOCUS OF DEC.-MAKING

(3) .6841

(5) .2614

(1) .4549 (2) .6070 (7) .1176

(6) .6034

(4) .6722

INIT. OF STRUCT. - LOCUS OF DEC.-MAKING

(3) .2615

(5) .0782

(1) .2549 (2) .3242 (7) .5177

(6) .1282

(4) .6722

TABLE XXX

Cross-lagged correlational panels - factor dimensions, project leaders

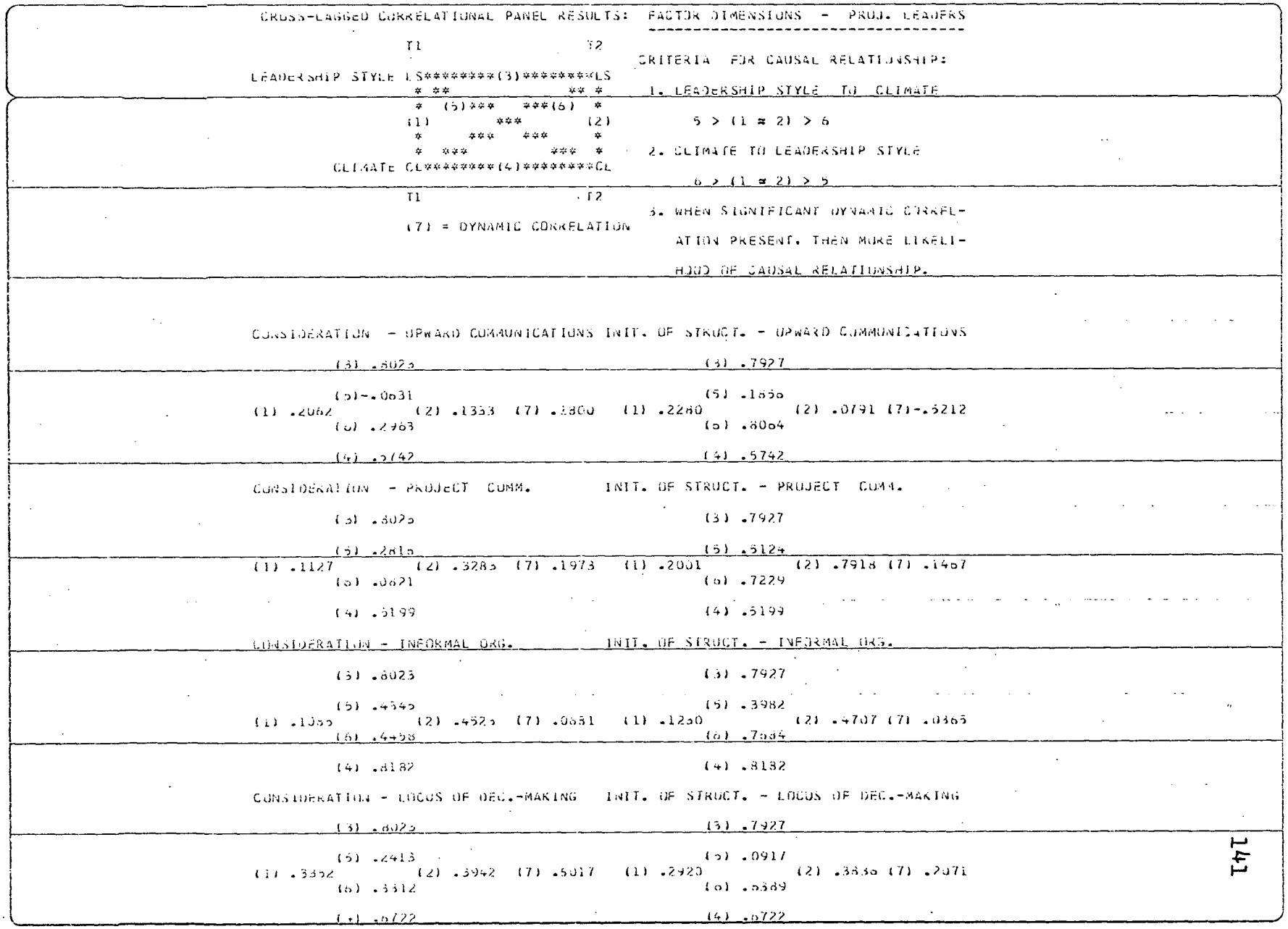
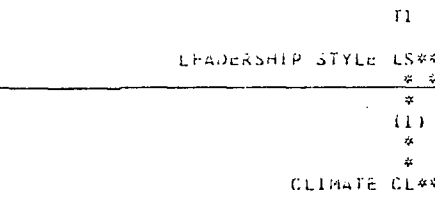


TABLE XXX - (continued)

CROSS-LAGGED CORRELATIONAL PANEL RESULTS: FACTOR DIMENSIONS - PROJ. LEADERS



CRITERIA FOR CAUSAL RELATIONSHIP:

1. LEADERSHIP STYLE TO CLIMATE

   5 > (1 = 2) > 6

2. CLIMATE TO LEADERSHIP STYLE

   6 > (1 = 2) > 5

3. WHEN SIGNIFICANT DYNAMIC CORRELATION PRESENT, THEN MORE LIKELIHOOD OF CAUSAL RELATIONSHIP.

CONSIDERATION - INTERACTION-WARMTH

(3) .8023

(5) .4874
(1) .5948 (2) .5524 (7) .1157
(6) .4567

(4) .6781

INIT. OF STRUCT. - INTERACTION-WARMTH

(3) .7927

(5) .5400
(1) .4841 (2) .7524 (7)-.1009
(6) .7663

(4) .8781

CONSIDERATION - PERF. & CONTR. COMM.

(3) .8023

(5) .3687
(1) .4764 (2) .5130 (7)-.1949
(6) .4823

(4) .7183

INIT. OF STRUCT. - PERF. & CONTR. COMM.

(3) .7927

(5) .2305
(1) .3436 (2) .5544 (7)-.2335
(6) .7349

(4) .7182

CONSIDERATION - GOAL CONGRUENCE

(3) .8023

(5) .4732
(1) .5317 (2) .5350 (7) .1331
(6) .4420

(4) .8368

INIT. OF STRUCT. - GOAL CONGRUENCE

(3) .7927

(5) .4989
(1) .4775 (2) .6586 (7) .4552
(6) .7100

(4) .8368

CONSIDERATION - CONFID.-PARTICIPATION

(3) .8023

(5) .4282
(1) .4805 (2) .5158 (7) .0764
(6) .3639

(4) .7704

INIT. OF STRUCT. - CONFID.-PARTICIPATION

(3) .7927

(5) .5032
(1) .3805 (2) .3971 (7) .6651
(6) .6925

(4) .7704

The trend is so dominant that fewer panels can meet the criterion (6)>(1≈2)>(5) that would indicate a lagged relationship because (2) is greater than (1) and in several instances greater than (6). Several of the new climate dimensions are more dynamic than any of the a priori ones as five of them have (4) values lower than 0.75 which is the lowest (4) value for any of the a priori dimensions. As with the a priori dimensions there is a consistent pattern of (6) being higher than (5) except for initiation of structure with presence of an informal organization, performance and control communications, and interaction-warmth.

The panels which most closely meet the cross-lagged criteria and have substantive dynamic correlations are as follows: Consideration--goal congruence, Consideration--upward communications, and Initiation of Structure--upward communication. If one were able to reconcile the lowering of correlation (2) several other panels would also indicate definite rather than vague lagged relationships. As before, there are a few panels where both (1) and (2) are greater than (5) or (6) while having a relatively high dynamic correlation(7). These are: initiation of structure with locus of decision making, and with performance and control communications. Again this may indicate that these particular changes in style or climate are more directly associated timewise rather than having a lagged relationship.

The cross-lagged panels for project leaders (Table XXX) indicate even more pronounced distortions from the cross-lagged panel requirements that may be due to a change in the population and the decrease in sample size. There is also the increased possibility that there were changes in project leaders between surveys which resulted in more short-run impressions of leadership style. As indicated earlier, the decline in work and in the size of the company would also mean more short term shifting of personnel as major projects were completed. Though some interesting conclusions can be inferred from some of these results they depend heavily upon an intimate knowledge of the particular departments and firm being studied as well as unsubstantiated assumptions and are therefore not included. Though the trend of (5) and (6) values would indicate causal linkages from climate to leadership style there are some indications that the direction of causality may be in the opposite direction for first-level supervision with respect to some climate dimensions.

With the accumulated evidence that leadership style is dependent upon climate dimensions, it was decided to carry out regressions with the first data set using style dimensions as dependent variables. The regression results are shown in Table XXXI on the following two pages. These are the results when all climate dimensions are retained as independent variables irrespective of their significance.

TABLE XXXI

Regression results - leadership scores dependent, all climate dimension independent

REGRESSION RESULTS ** ALL DEPTS. **

DEPENDENT VARIABLE IS ISP1

RSQ =	0.2467
FPROB. =	0.0016
STD ERR Y =	0.2647

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.3083	0.3591		
1INTWM	0.0819	0.0323	6.4236	0.0136
2PRCON	0.8914D-02	0.0278	0.1029	0.7449
3GLOOR	0.0688	0.0260	7.0113	0.0102
4CONPR	0.2191D-02	0.0274	0.6388D-02	0.8957
5UPCOM	-0.0205	0.0216	0.8569	0.3504
6PRCOM	-0.0130	0.0245	0.2827	0.6034
7INFOR	-0.0219	0.0209	1.1030	0.2988
8DECLV	0.7104D-02	0.0248	0.0819	0.7677

DEPENDENT VARIABLE IS CONP1

RSQ =	0.4943
FPROB. =	0.0000
STD ERR Y =	0.3200

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	1.1887	0.4341		
1INTWM	0.1415	0.0391	13.1037	0.0008
2PRCON	0.0601	0.0336	3.1967	0.0757
3GLOOR	0.0153	0.0314	0.2361	0.6342
4CONPR	0.0555	0.0331	2.8079	0.0956
5UPCOM	-0.0334	0.0262	1.6285	0.2046
6PRCOM	-0.0498	0.0296	2.8341	0.0941
7INFOR	-0.0486	0.0253	3.7120	0.0562
8DECLV	0.0302	0.0300	1.0151	0.3195

TABLE XXXI - (continued)

REGRESSION RESULTS ** ALL DEPTS. **

DEPENDENT VARIABLE IS ISDE1

RSQ = 0.2151
FPROB. = 0.0808
STD ERR Y = 0.3469

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.0030	0.4707		
1INTWM	0.0194	0.0424	0.2106	0.6523
2PRCCN	0.0737	0.0364	4.0949	0.0454
3GLCCR	0.0239	0.0341	0.7169	0.4055
4CCNPR	0.9588D-02	0.0359	0.0712	0.7802
5UPCCM	0.4125D-02	0.0284	0.0212	0.8565
6PRCCM	-0.4417D-02	0.0321	0.0190	0.8612
7INFCR	-0.0176	0.0274	0.4132	0.5303
8DECLV	0.0109	0.0325	0.1115	0.7362

DEPENDENT VARIABLE IS CONDE1

RSQ = 0.5773
FPROB. = 0.0000
STD ERR Y = 0.2752

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.8026	0.3733		
1INTWM	0.1026	0.0336	9.3218	0.0036
2PRCCN	-0.4166D-02	0.0289	0.0208	0.8873
3GLCCR	0.0592	0.0270	4.7984	0.0310
4CCNPR	0.0797	0.0285	7.8168	0.0070
5UPCCM	-0.1963D-02	0.0225	0.7772D-02	0.8908
6PRCCM	-0.0302	0.0254	1.4063	0.2391
7INFCR	-0.0162	0.0217	0.5588	0.4642
8DECLV	0.0225	0.0258	0.7600	0.3913

If the results for department head style and project leader style are compared, there are marked contrasts and similarities. For both there is a higher predictive power (i.e. RSQ values) for Consideration style than there would be for Initiation of Structure style, but IS for project leaders would be more predictable than for department heads. (RSQ values of 0.35 and 0.49). For department head IS there is only one significant coefficient, performance and control communications, while for project leader IS, performance and control is relatively unimportant while interaction-warmth and goal congruence are significant with one or two others climate dimensions tending towards significance.

While interaction-warmth is the most significant variable for both project leader and department head consideration, the remaining significant variables are different. For department heads, confidence-participation and goal congruence are most important, while for project leaders, performance and control communications and presence of an informal organization are most significant with participation-confidence and project communications also tending to be significant. The following Tables and Figures show the results of stepwise regression when only variables with concluding F-prob values of less than 0.05 are retained in the regression equations.

TABLE XXXII

Stepwise regression -- IS dependent climate dimensions independent, Project leaders

STEPWISE REGRESSION RESULTS ** ALL DEPTS. **

FPROB LEVEL
ACCEPT 0.05000 REJECT 0.05001

DEPENDENT VARIABLE IS ISP1

STEP NO. 1

RSQ = 0.2343
FPROB. = 0.0001
STD ERR Y = 0.2695

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.3718	0.2873		
1INTWM	0.0981	0.0225	18.9736	0.0001

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.1156	0.7160	0.3703
3GLCOR	0.3205	0.7719	0.0101
4CONPR	0.0537	0.6333	0.6784
5UPCOM	0.0246	0.7407	0.8279
6PRCOM	0.0119	0.8129	0.8886
7INFOR	0.0900	0.8375	0.4899
8DECLV	0.0669	0.7517	0.6086

STEP NO. 2

RSQ = 0.3129
FPROB. = 0.0000
STD ERR Y = 0.2678

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.1662	0.2852		
1INTWM	0.0672	0.0245	7.5385	0.0078
3GLCOR	0.0581	0.0220	6.9810	0.0101

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.0241	0.6546	0.8314
4CONPR	0.0235	0.5983	0.8340
5UPCOM	0.1492	0.6559	0.2458
6PRCOM	0.1076	0.7537	0.4097
7INFOR	0.1518	0.8156	0.2372
8DECLV	0.0269	0.6906	0.8174

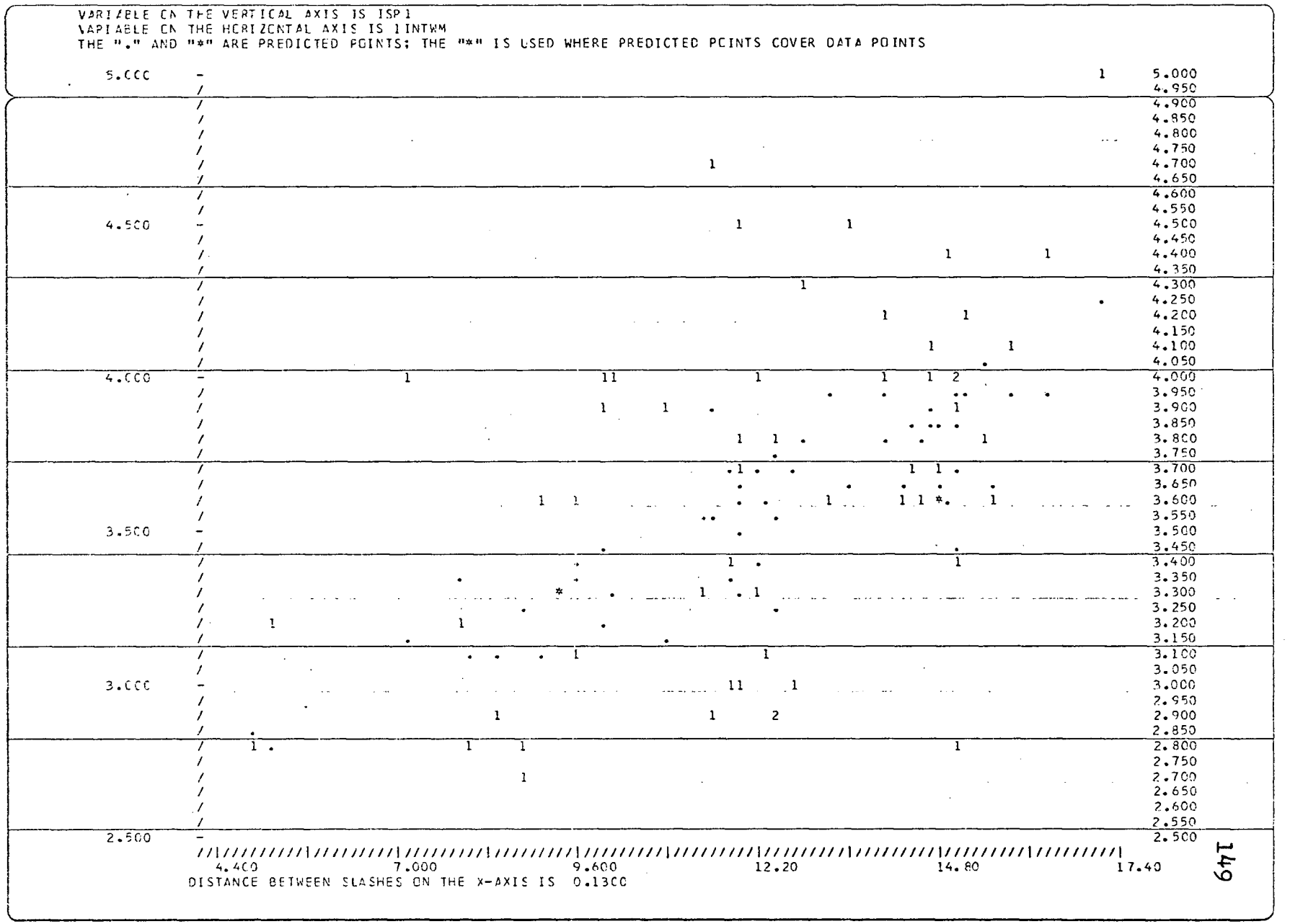


FIGURE 10

Initiation of structure vs Interaction-warmth - Project leaders

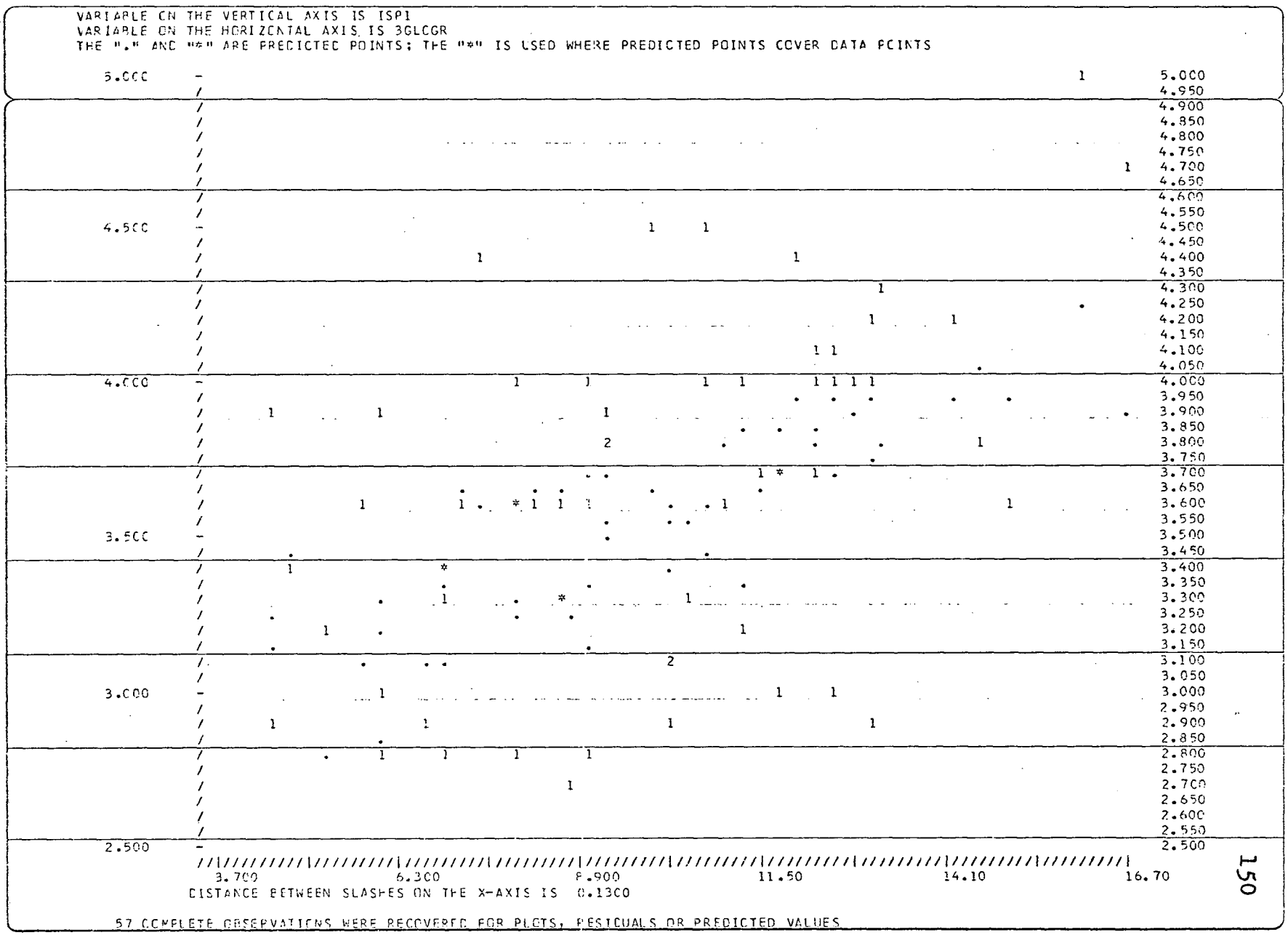


FIGURE 11

Initiation of structure vs Goal congruence - Project leaders

TABLE XXXIII

Stepwise regression -- Consideration dependent, climate dimensions independent, Project leaders

STEPWISE RECRESSICN RESULTS ** ALL DEPTS. **

DEPENDENT VARIABLE IS CONP1

STEP NC. 1

RSQ = 0.3568
FPROB. = 0.0000
STD ERR Y = 0.3427

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CCNST.	1.1375	0.3792		
1INTWM	0.1575	0.0326	23.4023	0.0000
3GLCGR	0.0154	0.0292	0.2784	0.6060

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.2250	0.6546	0.0752
4CONPP	0.1775	0.5983	0.1639
5UPCCM	0.1732	0.6559	0.1748
6PRCCM	0.2267	0.7537	0.0730
7INFOR	0.1923	0.8156	0.1302
8CECLV	0.0381	0.6906	0.7616

STEP NC. 2

RSQ = 0.3538
FPROB. = 0.0000
STD ERR Y = 0.3407

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CCNST.	1.1921	0.3627		
1INTWM	0.1657	0.0284	33.9518	0.0000

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.2344	0.7160	0.0613
3GLCGR	0.0674	0.7719	0.6060
4CONPP	0.1880	0.6333	0.1362
5UPCCM	0.1398	0.7407	0.2741
6PRCCM	0.1996	0.8129	0.1128
7INFOR	0.1765	0.8375	0.1579
8CECLV	0.0557	0.7517	0.6681

FIGURE 12

Consideration vs Interaction-warmth - Project Leaders

TABLE XXXIV

Stepwise regression -- IS dependent, climate dimensions independent, Dept. heads

STEPWISE REGRESSION RESULTS ** ALL DEPTS. **

DEPENDENT VARIABLE IS ISDE1

STEP NO. 1

RSQ =	0.1067
FPROB. =	0.0082
STD ERR Y =	0.3486

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.5139	0.3711		
1INTNM	0.0792	0.0291	7.4063	0.0082

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.3095	0.7160	0.0131
3GLCGR	0.2141	0.7719	0.0881
4CONPR	0.1210	0.8333	0.3473
5UPCOM	0.0799	0.7407	0.5408
6PROCM	0.0413	0.8129	0.7432
7INFCR	0.0198	0.8375	0.8511
8DECLV	0.1125	0.7517	0.3841

STEP NO. 2

RSQ =	0.1923
FPROB. =	0.0016
STD ERR Y =	0.3342

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.0167	0.4059		
1INTNM	0.0345	0.0330	1.0372	0.2996
2PRCON	0.0818	0.0322	6.4599	0.0131

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
3GLCGR	0.1359	0.7058	0.2927
4CONPR	0.0570	0.6025	0.6637
5UPCOM	0.0641	0.7379	0.6261
6PROCM	0.0172	0.8075	0.8640
7INFCR	0.0620	0.7858	0.6370
8DECLV	0.0569	0.7240	0.6639

TABLE XXXIV - (continued)

STEP NO. 3

RSQ = 0.1777
FPROB. = 0.0006
STD ERR Y = 0.3345

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	2.2208	0.3564		
2PRCON	0.0998	0.0273	13.4002	0.0006

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
1INTWM	0.1329	0.7160	0.2996
3GLCCR	0.1686	0.7771	0.1833
4CCNPR	0.1128	0.7781	0.3825
5UPCCM	0.1140	0.9000	0.3775
6PRCCM	0.0615	0.9145	0.6374
7INFCR	0.0277	0.8342	0.8125
8DECLV	0.1010	0.8349	0.4367

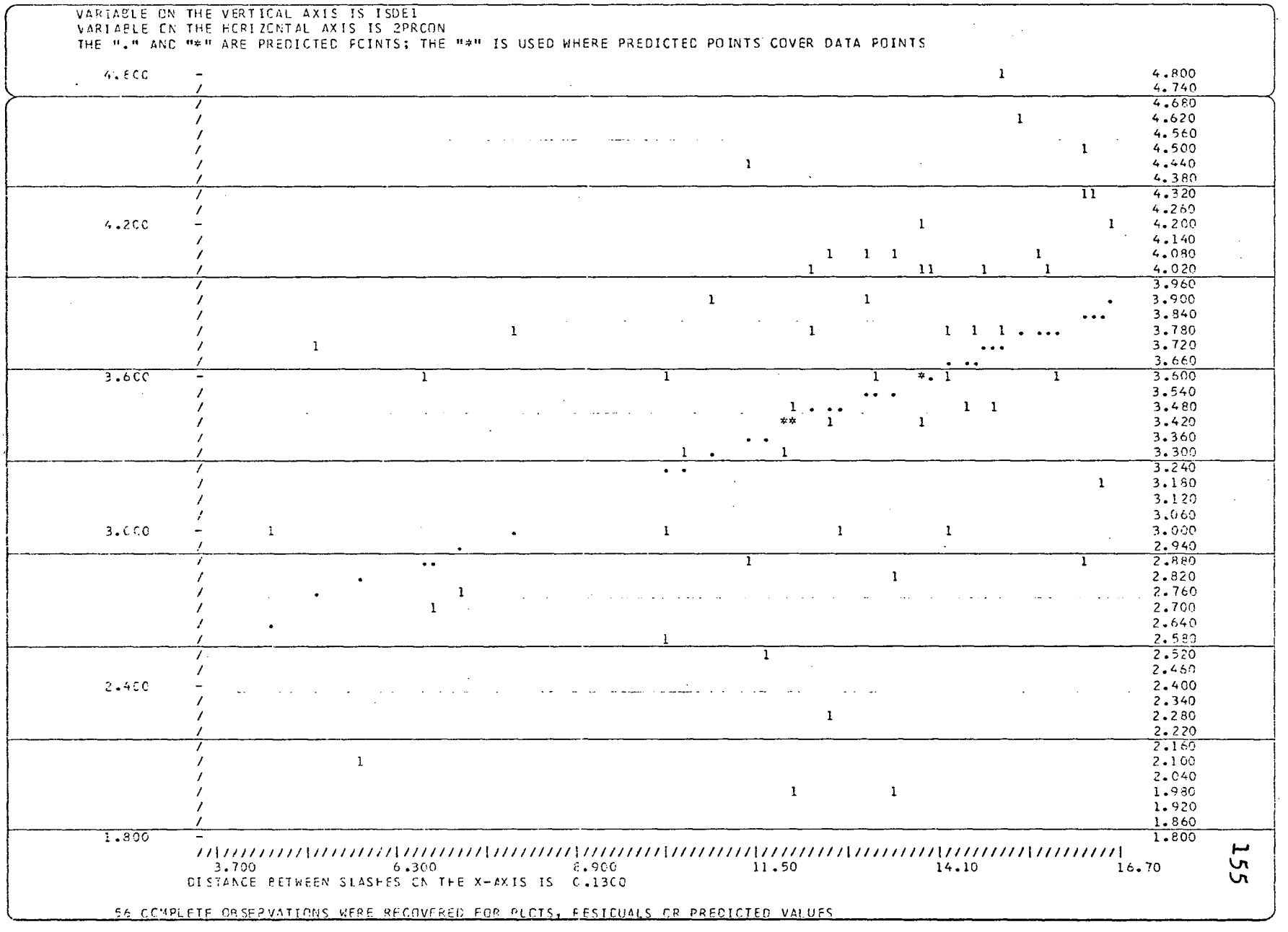


FIGURE 13

IS vs Performance and control communications - Dept. heads

STEPWISE REGRESSION RESULTS ** ALL DEPTS. **

DEPENDENT VARIABLE IS CONDEI

STEP NO. 1

RSQ	=	0.1884
FPROB.	=	0.0004
STD ERR Y =		0.3591

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	1.7743	0.3827		
2FRCCN	0.1111	0.0293	14.3956	0.0004

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
1INTRV	0.5623	0.7160	0.0000
3OTHCR	0.4243	0.7771	0.0006
4CCNPR	0.3359	0.7781	0.0000
5UPCCM	0.3396	0.9000	0.0064
6PROCM	0.1781	0.9145	0.1588
7INFCR	0.1094	0.8342	0.3979
ACECLV	0.3189	0.8349	0.0105

TABLE XXXV

Stepwise regression -- Consideration dependent, climate dimensions independent, Dept. heads

TABLE XXXV - (continued)

STEP NO. 2

RSQ = 0.4451
FPROB. = 0.0000
STD ERR Y = 0.2994

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.8474	0.3636		
1INTWM	0.1569	0.0295	28.2105	0.0000
2PRCON	0.0294	0.0288	1.0412	0.3127

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
3GLCOR	0.3222	0.7058	0.0103
4CONPR	0.3694	0.6025	0.0032
5UPCOM	0.1248	0.7379	0.2968
6PRCOM	0.0184	0.8075	0.8585
7INFOR	0.0324	0.7858	0.7904
8EECLV	0.1480	0.7240	0.2497

STEP NO. 3

RSQ = 0.4356
FPROB. = 0.0000
STD ERR Y = 0.2995

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	1.0261	0.3108		
1INTWM	0.1729	0.0250	47.8511	0.0000

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.1295	0.7160	0.3127
3GLCOR	0.3434	0.7719	0.0058
4CONPR	0.3858	0.6333	0.0019
5UPCOM	0.1414	0.7407	0.2685
6PRCOM	0.0076	0.8129	0.9077
7INFOR	0.0011	0.8375	0.9409
8EECLV	0.1686	0.7517	0.1825

TABLE XXXV - (continued)

STEPWISE REGRESSION RESULTS ** ALL DEPTS. **

STEP NO. 4

RSQ = 0.5196
FPROB. = 0.0000
STD ERR Y = 0.2785

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.7293	0.3101		
1INTWM	0.1151	0.0292	15.5271	0.0003
4CONPR	0.0687	0.0271	10.6702	0.0019

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.0495	0.6812	0.7028
3GLOGR	0.2818	0.7293	0.0251
5UPCON	0.0618	0.7041	0.6381
6PRCON	0.0781	0.7909	0.5535
7INFGR	0.0596	0.8202	0.6498
8DECLV	0.1299	0.7390	0.3156

STEP NO. 5

RSQ = 0.5578
FPROB. = 0.0000
STD ERR Y = 0.2695

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.5872	0.3065		
1INTWM	0.0959	0.0295	10.5758	0.0020
3GLOGR	0.0538	0.0236	5.1772	0.0251
4CONPR	0.0742	0.0270	7.5454	0.0078

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
2PRCON	0.0239	0.6372	0.8332
5UPCON	0.0254	0.6399	0.8258
6PRCON	0.1568	0.7450	0.2254
7INFGR	0.1021	0.8057	0.4392
8DECLV	0.0595	0.6875	0.6509

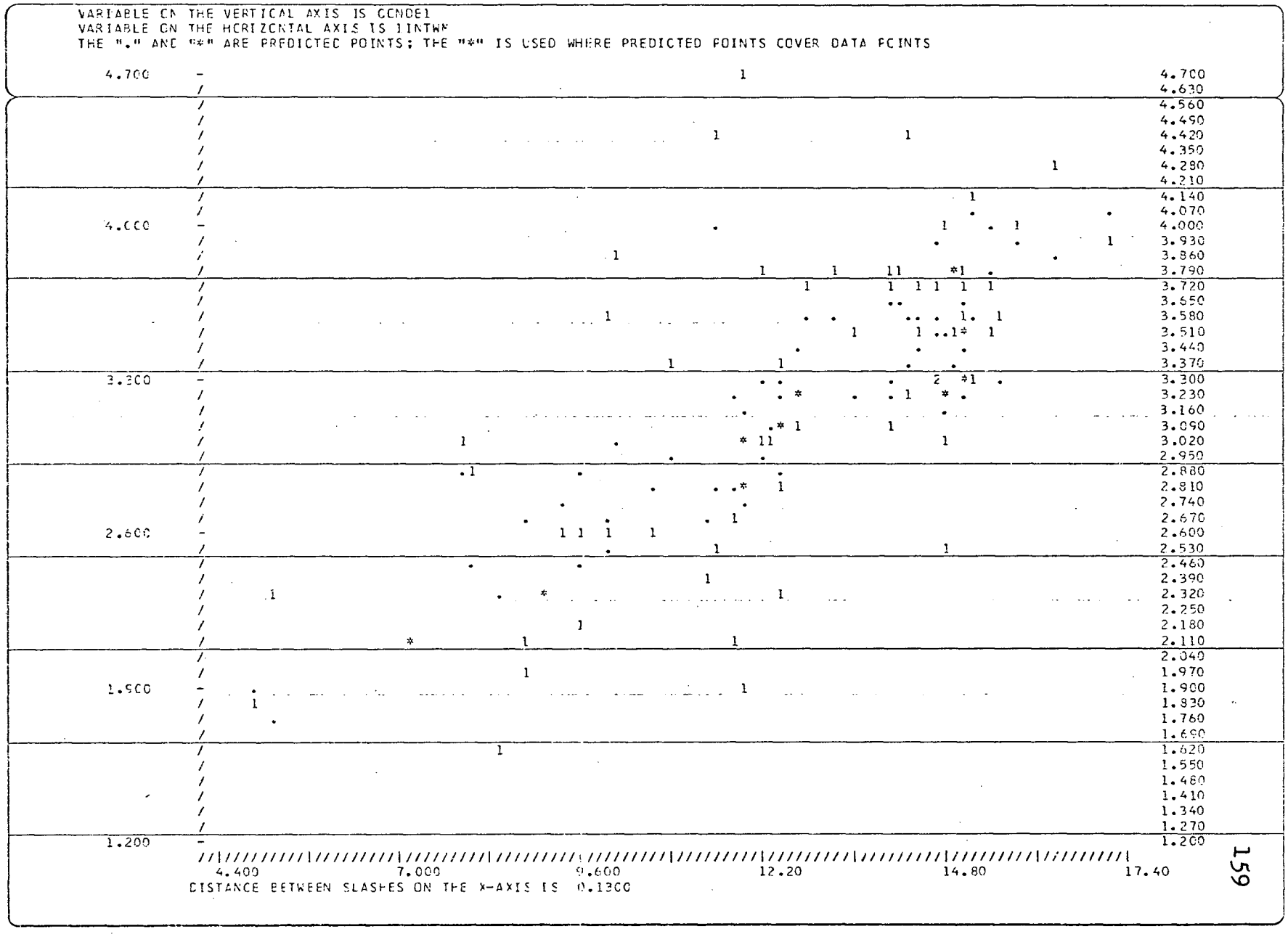


FIGURE 14

Consideration vs Interaction-warmth - Dept. heads

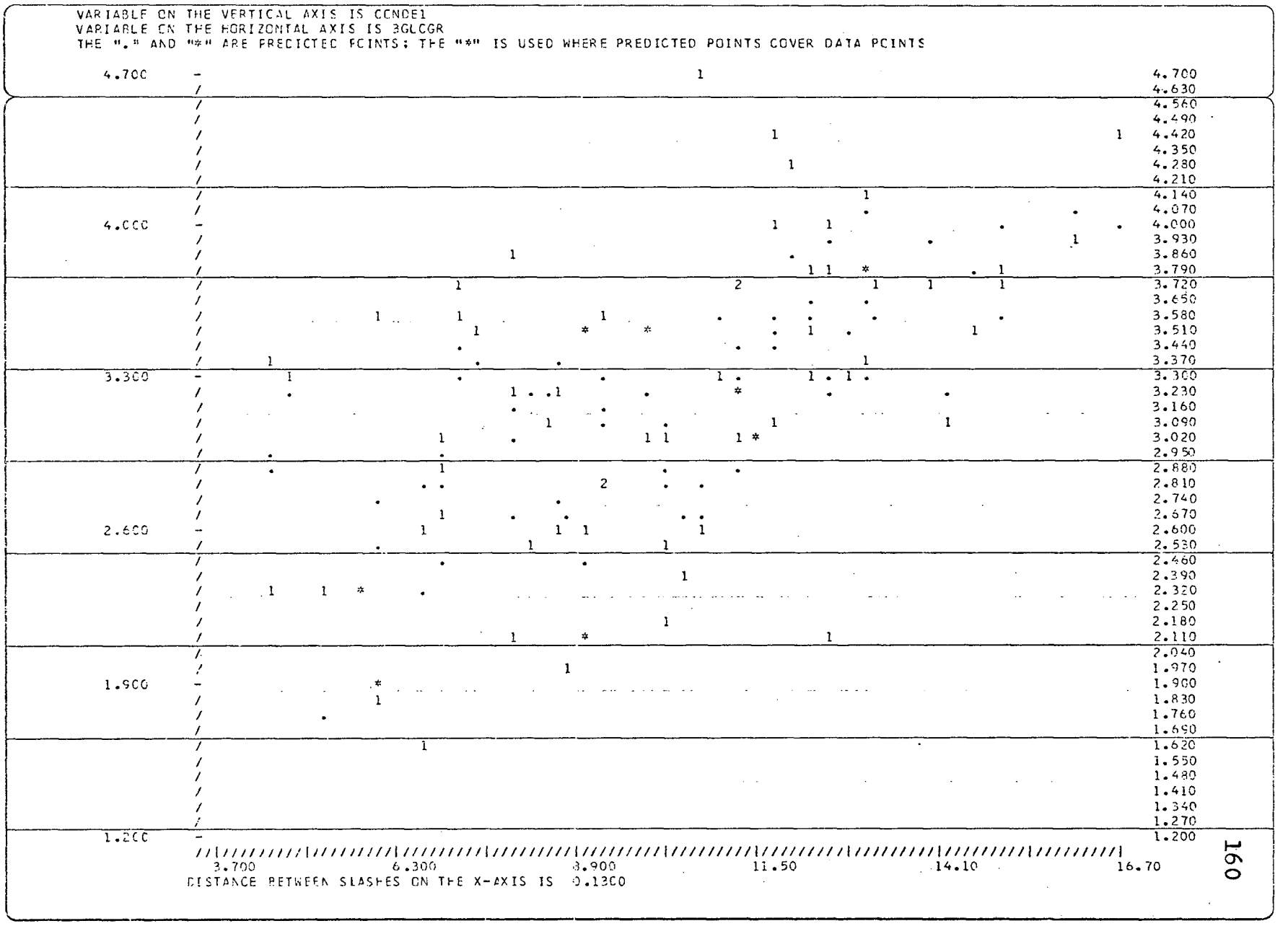


FIGURE 15

Consideration vs Goal congruence - Dept. heads

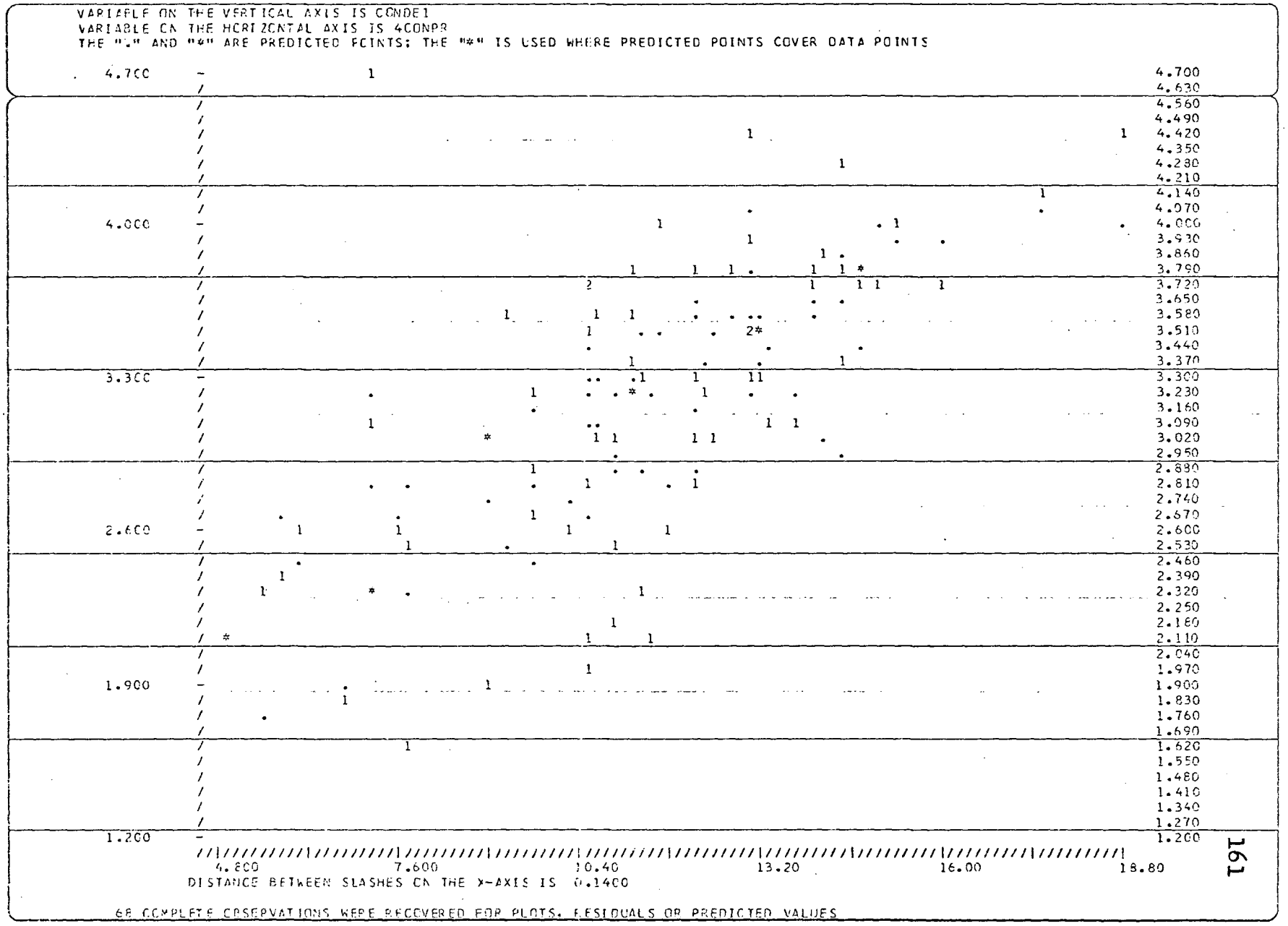


FIGURE 16

Consideration vs Confidence-participation

The stepwise regression for project leader IS leaves only interaction-warmth and goal congruence as significant variables with no other climate variables coming close to statistical significance. Though the RSQ value is marginally lower than for the complete regression (0.313 compared to 0.347) the lower standard error and higher F-prob combined with the convenience of fewer variables would make the stepwise result more useful. The subsequent printer plots of the dependent variable against each of the independent variables help to provide a "feel" for the relevance of the coefficients, F-ratios, and F-probs.

The stepwise regression for project leader C leaves interaction-warmth as the only significant variable though the reduction of the RSQ value from 0.49 to 0.35 along with three or four variables tending toward significance (F-prob below 0.16 or 0.14) it may be appropriate to include at least performance and control communications as a predictive variable.

The stepwise results for department head IS provide a sharp contrast to that of project leaders. In this case performance and control communication is the only significant variable retained in the equation though goal congruence would tend to significance (e.g. step 1 F-prob of 0.08) as is the case for project leaders. This contrasts with the result for project leaders where interaction-warmth is the most important variable.

The stepwise regression results for department head Consideration provide three significant variables as opposed to only one for project leaders. These variables, in order of importance are interaction-warmth, confidence-participation, and goal congruence. This combination of variables provides the very high RSQ value of 0.56 which is only marginally less than 0.58 for the regression with all eight climate variables retained.

For all these results the exceptionally low coefficient F-probs, and overall equation F-probs along with observation of the printer plots leave little doubt of the statistical significance of these results.

With previously mentioned indications (p. 143) that there is a time lag in the response of leadership style to organizational climate variables, an attempt was made to develop regression equations with Time 2 leadership style dimensions as dependent variables and Time 1 climate dimensions as independent ones. When this was attempted using the original correlation matrix developed from all results from both surveys, some improbable results were generated. With the combination of large portions of missing data (survey 2 with roughly one-third the response rate of survey 1) and very high correlation values it is possible to generate theoretically impossible results (i.e. standard error equal 0.0 or RSQ values equal to or greater than 1.0). In order to circumvent this problem, regressions were run using a correlation matrix

developed using only the data from the second survey and matching or paired data from survey one. The following Tables show the results of regressions carried out on this basis.

TABLE XXXVI

Regression results -- Time 2 leadership scores dependent, Time 1 climate dimensions independent, Dept. heads

DEPENDENT VARIABLE IS ISDE2

RSQ = 0.7352
FPROB. = 0.1294
STD ERR Y = 0.6209

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	1.9665	0.9803		
1INTWM	0.0904	0.1635	0.3058	0.6018
2PRCON	-0.1444	0.1305	1.2240	0.3060
3GLCGR	0.0437	0.1085	0.1624	0.6979
4CCNPR	0.2606	0.0914	8.1217	0.0242
5UPCOM	0.4859D-02	0.1127	0.1860D-02	0.9186
6PRCOM	-0.0573	0.1033	0.3079	0.6006
7INFOR	-0.8707D-02	0.1221	0.5089D-02	0.9021
8DECLV	-0.0975	0.1026	0.9020	0.3766

DEPENDENT VARIABLE IS CONDE2

RSQ = 0.9889
FPROB. = 0.0000
STD ERR Y = 0.1073

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.9227	0.1694		
1INTWM	0.1554	0.0283	30.2558	0.0011
2PRCON	-0.1717	0.0225	57.9711	0.0002
3GLCGR	0.0496	0.0188	7.0024	0.0324
4CCNPR	0.0692	0.0158	19.1875	0.0034
5UPCOM	0.1131	0.0195	33.7536	0.0008
6PRCOM	-0.0349	0.0179	3.8094	0.0899
7INFOR	0.1152	0.0211	29.8433	0.0011
8DECLV	-0.0821	0.0177	21.4064	0.0026

TABLE XXXVII

Stepwise regression -- Time 2 IS dependent, Time 1 climate dimensions independent, Dept. heads

```
FPROB LEVEL
   ACCEPT          REJECT
0.05000          0.05001

DEPENDENT VARIABLE IS  ISDE2

STEP NO.  1

      RSQ        =    0.5347
      FPROB.     =    0.0013
      STD ERR Y  =    0.5820

      VAR            COEFF        STD ERR        F-RATIO        FPROB.
    CONST.          0.6980         0.6003
    4CONPR          0.1958         0.0488        16.0884        0.0013

POTENTIAL INDEPENDENT VARIABLES:
              PARTIAL CORR.     TOLERANCE     FPROB
    1INTWM        0.3625         0.7818     0.1816
    2PRCON        0.4717         0.8053     0.0732
    3GLCGR        0.0675         0.5128     0.7971
    5UPCOM        0.2535         0.5243     0.3648
    6PRCOM        0.3154         0.7126     0.2512
    7INFCR        0.4802         0.7969     0.0675
    8DECLV        0.5022         0.6835     0.0542
```

TABLE XXXVII - (continued)

DEPENDENT VARIABLE IS CONDE2

STEP NO. 1

RSQ = 0.5365
FPROB. = 0.0013
STD ERR Y = 0.4909

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	1.5018	0.5063		
4CONPR	0.1657	0.0412	16.2022	0.0013

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
1INTWM	0.6242	0.7813	0.0125
2PRCON	0.1856	0.8053	0.5048
3GLCOR	0.3266	0.5128	0.2333
5UPCOM	0.8083	0.5243	0.0003
6PROCM	0.3083	0.7126	0.2631
7INFOR	0.5996	0.7969	0.0175
8DECLV	0.3399	0.6835	0.2135

STEP NO. 2

RSQ = 0.8393
FPROB. = 0.0000
STD ERR Y = 0.2949

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	0.9314	0.3301		
4CONPR	0.0471	0.0347	1.8394	0.1958
5UPCOM	0.1709	0.0345	24.5672	0.0003

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
1INTWM	0.2123	0.4466	0.4696
2PRCON	0.2065	0.6567	0.3042
3GLCOR	0.1519	0.4144	0.6370
6PRCOM	0.0889	0.6377	0.7691
7INFOR	0.2954	0.5370	0.3241
8DECLV	0.2387	0.4660	0.4155

TABLE XXXVII - (continued)

STEP NO. 3

SSC = C.0166
FPROB. = C.0000
STD ERR Y = C.3048

VAR	COEFF	STD ERR	F-RATIO	FPROB.
CONST.	1.1183	0.3088		
5UPCOM	C.2030	0.0257	62.3373	0.0000

POTENTIAL INDEPENDENT VARIABLES:

	PARTIAL CORR.	TOLERANCE	FPROB
1INTWM	0.1667	0.4503	0.5587
2PRCCN	0.2536	C.4596	0.3646
3OLCOP	0.0999	0.4680	0.7207
4CONPR	C.3521	0.5243	C.1458
6PPCOM	0.1606	0.6775	0.5736
7INFOR	C.2548	0.5376	0.3621
8DECLV	0.1778	C.4734	0.5324

The results from these regressions are nothing short of startling. Even with the reduced degrees of freedom, the significance levels for the equations and coefficients can leave little doubt that there is a strong though lagged causal linkage from climate variables to leadership style thus providing support for the opposite of hypothesis H 3. For example, the RSQ value for the stepwise regression for department head IS is 0.53 along with an F-prob of .0013 while for department head C the RSQ value is 0.82 with an F-prob of less than 0.0000!

Of interest are the shifts as to which climate dimensions are more important when a time lag is taken into consideration. For Initiation of Structure style by department heads the shift is from performance and control communications to confidence-participation though level of decision making, presence of an informal organization, and performance and control communications had significance levels less than 0.075. For Consideration style by department heads the important variables would appear to be upward communication rather than interaction-warmth or goal congruence, though confidence-participation may also be important. The circumstances of the study may well have placed undue emphasis upon the importance of upward communications.

CHAPTER IV

Conclusions and Discussion

Though a large volume of results has been presented in the previous chapter, few conclusions have been drawn. In this chapter there will be a review of the results with the presentation of conclusions. In particular there will be an attempt to relate the findings of various portions of the data analysis to the hypotheses presented earlier as well as relating conclusions to broader implications in the study and organizations and their management. In drawing these conclusions reference will be made to the validity of the findings from experimental, statistical, and practical viewpoints.

The problems of interpretation are such, however, that a number of different conclusions may be drawn from the same information. Though an effort has been made to present a consistent viewpoint in interpreting the results, there has been enough information and background provided so that others may make their own analysis and interpretation. The foregoing should by no means be considered an exhaustive analysis of all the data gathered. A more extensive integration of part I, III and IV results with those of parts II (A) and (B) would certainly be possible as well as more study of the company and ideal climate scores in relation to other portions of the surveys. Results and conclusions concerning each hypothesis will

be considered in turn, followed by review of other results and supplemental conclusions which flowed from the analysis before discussing possible broad implications of the results of the study and the needs for further research in this area.

Hypothesis 1

> H 1. There are high positive relationships between organizational climate dimensions for departments and the leadership styles of department heads.

Strong support for this hypothesis is seen in the regression results of Table XIII. All of the a priori climate dimensions were found to have a statistically significant (0.05 level) relationship with Consideration. With Initiation of Structure there are generally less significant relationships as compared to those above, but for character of performance, and of communications with F-probs less than 0.05 and character of decision making and of goal-setting (less than 0.1) support for the hypothesis is still clear.

Support is also found in Tables XXXI, XXXIV, and XXXV when factor climate dimensions are used in regression equations rather than a priori ones. Again the relationships with Consideration are more common and generally more significant than with Initiation of Structure. With the factor dimensions "orthogonal" it becomes clear that there is almost no support for the hypothesis when certain dimensions are considered.

With Consideration there is little relationship with performance and control communications, upward communications, locus of decision-making, and presence of informal organization, while only performance and control communications clearly related to Initiation of Structure. Figures 13, 14, 15 and 16 are also helpful in illustrating the relationships.

Though the evidence will not support a conclusion that all climate dimensions are strongly related to both aspects of leadership style considered, it definitely can support the conclusion that there are very significant positive relationships between Consideration or Initiation of Structure and several organizational climate dimensions. More specifically, it can be concluded that there are positive relationships between Consideration leadership style and interaction-warmth, confidence-participation, and goal congruence. It can also be concluded that there is a positive relationship between Initiation of Structure leadership style and performance and control communication.

Though the foregoing conclusions are based upon a strong test of predictability it should be noted that almost all of the correlations between leadership style and climate dimensions are positive and significant. It would also appear that, generally, expectations of relationships with Consideration would be higher than those with Initiation of Structure.

Hypothesis 1A

> H 1A. There are high positive relationships between organizational climate dimensions and the leadership style dimensions of "project leaders". However, these relationships will not be as great as the relationships of Hypothesis 1.

General support for this hypothesis is found in the regression results of Table IX. Because of the potential multicollinearity problems indicated, this evidence is not very useful.

The regression results of Tables XXXI, XXXII, and XXXIII where factor climate dimensions are used, rather than a priori ones, are much more useful. The relationship between Consideration and interaction-warmth is clearly supported, though a less significant relationship with performance and control communications, project communications, confidence-participation, and presence of informal organization is also indicated. For project leaders, the relationships with Initiation of Structure are again less common though the resultant RSQ (or predictive) values are higher than they were for department heads. The important climate dimensions in this case are interaction-warmth and goal congruence.

As with the previous hypothesis the evidence provides only for support of the hypothesis in certain instances. It can be concluded that there are high positive relationships

between Consideration and interaction-warmth, performance and control communications, and project communications. It can also be concluded that there are high positive relationships between Initiation of Structure and interaction-warmth, and goal congruence.

With respect to the latter statement in the hypothesis (H 1A) a simple statement can not be made. As well as quantitative differences between the relationships for project leaders and project leaders the evidence indicates qualitative differences. That is to say, the climate dimensions most strongly associated with Consideration or Initiation of Structure are dependent upon the relative position of the leader. With the evidence shown it would be hazardous to make comparative generalizations about relationships of leadership style to organizational climate dimensions without first considering in detail the relative position of a leader and possibly serious consideration of structural and other components of the organization under consideration.

Hypothesis 2

> H 2. There will be a positive change in organizational climate resulting from the feedback to a group of the results from a suggestion-box type questionnaire.

Rather weak support for the hypothesis is found in the comparison of Time 1 and Time 2 results for a priori dimensions

in Table XIV and the results discussion related to it. As indicated, support comes only when character of leadership processes is considered and only vaguely when character of communications and of control processes used are considered.

When the same comparison is made with factor dimensions (Table XXVIII) the evidence is still statistically weak. Confidence-participation and goal congruence are the only dimensions where any difference between the experimental and control group changes can be noted.

On a less scientific basis, the comparison of differences between the control and experimental group changes is generally consistent through all a priori or factor dimensions even though, as indicated above, the statistical tests of these differences leaves many doubts as to their significance.

If one considers that not all of any change in climate would occur within the time period used (110-130 days) a slightly more optimistic position may be taken. The investigator is of the opinion that definite changes in climate resulted directly from the distribution of results, and that they continued for some time after the second measure of climate dimensions was taken.

Hypothesis 3

H 3. There is a high positive relationship between the leadership style of department heads in one time period and the organizational climate of departments in a following time period.

In making any conclusions with the use of the second survey it would be necessary to discuss the loss of a large portion of the original sample. The evidence indicated earlier (Table XI) could easily lead to a conclusion that the second survey respondents were not representative of the first survey population. This conclusion, of course, colours all further conclusions to be made from the results. For the time being, this major point will be ignored.

The preliminary results from the two surveys would indicate that this hypothesis was entirely refuted. The cross-lagged correllational panel results with a priori climate dimensions (Table XV and XVI) lead to the conclusion that some organizational climate dimensions were causal variables affecting leadership style, particularly that of department heads. The most important climate dimension for both leadership styles is character of interaction-influence. Other climate dimensions that affected Consideration are character of performance, of communications, and of motivational forces being tapped. Even when the cross-lagged panel criteria are not fully met, there is no hint that leadership style is a causal variable affecting organizational climate over the time period considered. As found with hypothesis H 1A the results with project leaders are considerably less clear cut though most of these results indicate support for the following conclusions.

When the cross-lagged correlational panels with factor climate dimensions (Tables XXIX and XXX) are examined, similar

results are found. The best fits to the panel criteria for department heads are Consideration with goal congruence and upward communications, and Initiation of Structure with upward communications. The results for project leaders are much less clear with a few marginal indications of support for the hypothesis.

The usefulness of the hypothesized relationship, of course, arises when predictions concerning cause and effect can be made. When the regression equation results using Time 1 climate dimensions as independent variables and Time 2 leadership style dimensions as dependent variables (Tables XXVI and XXXVII) the most dramatic evidence in support of the opposite conclusion from that of the hypothesis is found. The high RSQ values and low F-probs for both the full and stepwise regressions provide excellent statistical support of the following conclusions.

Again, the evidence will not provide definite support for the conclusion with respect to all climate dimensions. The evidence does provide very strong support for a conclusion that certain organizational climate dimensions in one time period are related in a positive way with leadership style in a following time period. In particular, it can be concluded that current upward communications and confidence-participation are predictive variables for future Consideration leadership. Similarly it can be concluded that current confidence-participation (and probably level of decision making, presence of

informal organization, and performance and control communications) are predictive variables for future Initiation of Structure leadership. The shift, when a time lag is considered, from interaction-warmth as the most significant variable for Consideration and from performance and control communications for Initiation of Structure should also be noted. It can be concluded that there can and will be qualitative as well as quantitative shifts as to what are the most important or significant predictive variables for leadership style when a time lapse in measurement is taken into consideration.

Ignored up to now, the drop in sample size should be discussed and taken into account. The low F-probs would indicate that the regressions from paired results were significant. The question would remain as to whether the response of department head style was to the climate as felt by the entire population of the department or to the climate as felt by the "loyal" employee. It is probable that the latter is the case. The high loyalty employee is likely to have more contact with and influence upon the department heads (perhaps one source of loyalty). The attrition of the sample may well have been fortunate. If the entire population had responded on both surveys these interesting results might not have come to light. There interest would demand that they be verified in further study to determine whether or not the climate as perceived by a special group of employees, as opposed to the entire population of employees, was important. Further study would also

be required to determine if these findings could be generalized to other types of organizations and other levels of supervision.

Supplementary Findings

The following review of results will concentrate on those topics and findings not specifically related to the tests of original hypotheses. For more complete discussion of results in any particular portion the section in the results chapter with the same title should be referred to.

First survey. The main research value of the general questionnaire (parts III and IV) was bringing to light possible dimensions of climate that should be considered in future study. There were several topics brought up on a regular basis in response to open-end questions (Appendices D & E) which are not included in any manner in the climate dimension used in the study. Of particular interest in this regard are the open-end questions asking what respondents considered good or needed improvement in their department or company.

The most pertinent of these is the topic of job security. As indicated earlier, the firm under study was in a contracting phase and the open-end questions revealed some degree of personal concern with job security which likely affected even those quite secure about their own continued employment as well as those who saw a declining situation as a direct threat. If there is comparison with other studies along parallel lines it would be well to account for differences amongst expanding,

stable or contracting firms and the effects upon general climates of personal employment security, organizational stability, or various interaction and communications dimensions.

Another topic that might be worth exploring is general feelings about physical facilities and working environment. Though these may only be important where there are extremes beyond current norms, it may well be worth exploring the climate aspects of super-luxurious facilities or dingy quarters. Possibly related to this would be concerns for equity. In a world becoming ever more conscious of inequities and disparities there may well need to be concern for levels of climate dimensions which relate to senses of equity in salary, fringe benefits, security, physical working facilities, and et cetera, as well as psychological payments of status, influence, freedom of expression, and et cetera. A general sense of equity with respect to the employment and/or psychological contract may well have pervasive effects upon performance levels and superior-subordinate interaction as well as satisfaction levels.

The last of possible climate dimensions to be discussed is difficult to define. In the open-end question responses as well as some closed-end items there was a general eagerness for more education and personal growth. Associated with this was an eagerness for more participation in goal-setting and goal-implementation as well as partaking in the rewards of success. The level of participation and interaction-influence is probably reflected in the climate dimension indicated above

but, this has not usually included a component concerned with willingness to work at self-improvement. The high reliance by most employees in the firm upon technical expertise and the high average education level may well have accentuated the receptiveness found in this firm, but it may well prove fruitful to develop a climate dimension which measures this receptiveness in less extreme circumstances.

Though most of the climate and leadership style aspects derived from survey one are discussed elsewhere in relation to survey two results, some points are worth noting now. One of the possible hazards in a non-equivalent control group design is the interaction of selection and maturation, et cetera. The results from the ideal (I) climate profiles (Figures 1, 3, 5 & 7) of the departments studied would allow a conclusion that the control group was essentially equivalent to the experimental group insofar as the underlying characteristics of the individuals. The small differences could certainly be attributed to the context of the department concerned. Ideal climate scores would need to reflect ideal in the context of what the actual duties of the department concerned were and the restraints and actual leadership personnel of the departments concerned. A comparison of demographic items for the three departments also leads to a conclusion that the control group was very close to equivalent in terms of personnel. There were similar ranges and distribution in education, age, position, length of service, and experience.

The response rate of 35% on the first survey would lead one to question the possibility of a bias in the sample. As indicated earlier, the opinion was that the respondents were indeed somewhat older, more experienced, and more highly educated than the overall population of the departments. There is also the inference that more "loyal" employees would be more likely to respond. As already discussed, this bias, rather than being detrimental to the study, may have been an asset.

From the cross-lagged correlation panel results (Tables XV & XVI) several interesting findings should be noted. From the figures which indicate the stability of various dimensions it can be concluded, at least for this sample, that the style of leadership of department heads was more dynamic than the climate dimensions measured, particularly Initiation of Structure. On the other hand, it can be concluded that the leadership style of project leaders collectively was much less dynamic than that of department heads. From the panel results it also becomes apparent that some climate dimensions may be more directly associated with leadership style rather than having lagged relationships. Of note in this regard is the positive relationship between Initiation of Structure and character of control processes, of goal setting and of decision-making.

Factor analyses. The decision to accept the factor dimensions as being meaningful has, of course, already been

made. One interesting aspect of the two factor analyses is the differences between the a priori categorization, the factor result from the Likert (1967) data (Table XXVI), and the factor result from the current study data (Table XVII). Only one of the a priori dimensions came out precisely in a factor analysis and that was character of performance with the manager data. Though all of the other manager factors had rough parallels in the employee factors, there was definitely no parallel for character of performance.

The comparison of parallel factors with apparently similar labels bring out rather interesting points. Though there are some items common to parallel dimensions, there are sufficient noncommon items which indicate that there was a different orientation or viewpoint by which these items would be categorized. Even though similar labels may be applied to parellel dimension it would appear that there are various "rules" or mental sets amongst different groups or amongst different firms. In other words, we may conclude that there was a different mental set for ordinary employees in one type of organization as opposed to that of managers in another organization. A better test, perhaps, would be to have a target factor-analysis performed on both matrices where an attempt to influence the rotation of each matrix is made. In this way a more definitive statement on differences between groups or firms could be made.

Also of interest is a comparison of the factor dimensions derived in this study with dimensions cited in the introduction. There would appear to be little commonality with, for example, the synthesis dimensions as set out by Campbell et al (1970). The difference in orientation may well account for lack of commonality. The attempt at synthesis was to find common dimensions across varied groups and with a variety of instruments while an attempt was made in this study to find climate dimensions which were of particular interest and relevance in the study of a specialized group. The presence of three communication dimensions rather than the expected two (horizontal and vertical) is certainly a function of the task-force structure and the extreme complexity of communications patterns in the firm studied. There is also the important fact that many of the dimensions developed on previous studies would not be measurable with the items used on this study. The reverse, of course, is also true. The final point that should be noted, however, is that most previous studies generally reflect management orientation to climate rather than general employee orientation. Despite the lack of commonality, one similarity occurs. The definition of interaction-warmth dimension from this study compares well with the consideration, warmth, and support dimension from the synthesis (p.21).

The synthesis dimensions though interesting, certainly would leave much to be desired in studying relationships between organizational climate and other organizational factors

of interest. If meaningful relationships are to be derived, the climate dimensions used must reflect the predominant aspects of the organization under study, not the generalized aspects derived from a composite of other types of organizations. This would be particularly true where interpretation for consulting purposes is involved.

The cross-lagged correlational panel results using factor dimensions (Tables XXIX & XXX) generally support the findings found using a priori dimension though it is also found that the factor dimensions are somewhat more volatile than the a priori dimensions. Although the source of volatility could be open to debate, the investigator is of the opinion that this increased volatility indicates the tapping of more sensitive and important dimensions than was the case with a priori dimensions.

Future Study - technical considerations

This brief portion will discuss technical improvements that could be made in studies using the LBDQ or Likert questionnaires. The use of more of the LBDQ dimensions may be appropriate to a study. With hindsight it was seen that at least one other dimension could have been useful in this study as it was believed to be an important variable in the firm being studied. This would be particularly true if one was trying to find out if any of the dimensions were causal variables affecting organizational climate dimensions either in the long or short run.

If at all possible, the name of the person being described should be included as indicated in the instructions (Stogdill, 1963). The omission of this information for project leaders made these responses from the second survey of little value in the analysis.

If the Likert questionnaire items are to be used for measurement, several points should be taken into consideration. If the respondents are general employees rather than managers, considerable effort should be made to simplify the wording of the items. There were many complaints about the difficulty and length of the climate portion of the questionnaire. The effect upon the response rate was probably quite substantial. In simplifying the items consideration might also be given to changing the emphasis of some items so that they would have less tendency to load on more than one factor. In the foregoing consideration, one should also decide if the dimensions to be used are those from this study, those from other studies, or new a priori dimensions. In simplifying, particular care should be taken with those items which received a lower response rate in this study.

Discussion

There are two items from the previous conclusions that warrant further discussion as to their implication in terms of organizational theory and as to the direction of future research. The first of these items to be discussed will be the

results and conclusions from the factor-analyses followed by a discussion of the causal linkage results.

The comparison of the factor result for two sets of data was not truly satisfactory. Though both analyses were done with essentially parallel techniques it may have been possible to find greater similarity in the factor dimensions if a suitable target rotation technique had been used. There is more than one such technique, but there is little study to indicate which one is most suitable. The selection of a target matrix also poses very real problems in terms of others accepting results which could be substantially biased by the form of a target matrix. These problems should be reduced, however, when pairs of results are subjected to target rotation with the same technique and the same target matrix in order to make comparisons in results. Despite any misgivings about not carrying out such a comparison procedure, some conclusions were drawn.

Essentially the comparison yielded the conclusion that there were some marked differences between climate orientations for two levels of employees (or two different types of organization). The character of performance dimension was persistent with the manager data for fewer or greater than five factors while nothing resembling a character of performance dimension was evident from the employee data for five, eight, or ten-factor solutions. The implication for future research is very clear. There must be careful checks made in any further development of climate dimensions as to the validity of dimensions for

different levels of employee as well as possible checks on suitability of particular dimensions for use in organizations with various structures, technologies, and et cetera. The development of a project communication dimension on this study is an example. It could only be used in organizations with a task-force structure. The difference in outlook on similar topics between employees and managers in the same organization should come as no surprise. For this reason, great care should be taken in future studies that checks be made on the suitability of a dimension (or individual items associated with a dimension) for the category of respondent where climate dimensions are being measured.

The value of a factor analysis for determining dimensions should also be noted. In a recent study (Golembiewski & Munsenrider et al, 1971) 18 Likert items were used to measure a change in openness or a shift towards or away from Likert System IV. The implicit presumption of the study and of Likert is that all items are related to a single factor. There might have been a great deal more information derived from the study if the 18 items had been categorized into dimension. Being able to publish more numerical results and possibly find out which particular dimensions were sensitive in various circumstances would have been more useful than vague comments on individual item score changes that were not able to be published because of space limitations.

The complete lack of support for H 3 concerning the causal linkage from leadership style to organizational climate was somewhat of a surprise to the investigator. The development of the hypothesis depended upon a presumption that leadership style was independent of climate and that the style of leadership would influence climate. This presumption is implicit in most leadership or management training courses. The assumption is made as well that "better" style will result in better performance, satisfaction, morale, or what have you. These assumptions are certainly implicit in the reasoning used to develop and use the LBDQ, Wofford and other leadership style dimensions. When it is discovered "what" good leaders did and "how" they do them the implicit assumption was that others could be taught the "what" and the "how" with expectations of similar outcomes.

The results from this study would indicate that these assumptions may have been presumptuous. If change in leadership style is, generally, a <u>response</u> to organizational climate the contradictory and weak results from a host of studies attempting to tie leadership style to work group performance or other variables (Korman, 1966) would be expected. The variance in performance could be related to style, but not in a simple manner as previously assumed.

The results of this study would certainly provide support for the argument against unidirectional views on the role of leadership behaviour as expressed by Campbell et al (1970, Ch. 17).

> The basic factor that is missing from these unilateral views is that persons who interact undoubtedly behave as if relationships were reciprocal rather than unilateral. . . . The argument here is that descriptions of managerial initiation have unidirectional overtones, and this has diverted attention from the basic fact that expectancies concerning exchange affect the relationship between a manager and a subordinate (pp. 422-423).

In a small way, this study has pointed towards the mechanisms of exchange that surround leader behaviour which certainly should be explored in a more detailed study. The state of certain organizational climate dimensions may well provide the cues that leaders depend upon to guide their behaviour with subordinates.

An attempt was made to find other studies which would help to explain or verify the findings of this study. Zdep's (1969) study of reinforcement effects upon leadership behaviour provides complementary and explanatory findings. As the title would indicate Zdep found that the type of reinforcement received by a leader had marked effects upon his behaviour. The relationship to this study is quite clear. If the climate as felt by employees had reinforcement effects (directly or indirectly) upon the leader a response could be expected. The previous assumptions with regard to the influence of "loyal" employees would also be strengthened. The group of employees with which the leader had most contact and inter-action would provide the most effective reinforcements to his style of leadership. The less clear cut results for project leaders

could also be predicted. The project leaders of this study were exposed to a much wider variety of reinforcement stimuli than the department heads. They have more every-day contact with individuals in other departments (including other project leaders and employees), peers and others in their own department, and project staff, as well as with their own subordinates.

Lowin and Craig's (1968) study of influences upon managerial style also relates to this study. It indicates that performance levels of subordinates could have a marked effect upon the managerial style. The study gives little comfort to those who wish to maintain the presumption that style affects performance or other outcomes.

In one sense the results from this study provide answers to the old classical arguments concerning the source of authority. The responsiveness of leadership style to the desires of subordinates would weaken the argument that any leader would act freely without concern for his subordinates because of legitimized authority.

The concept of the inducements-contributions contract (March & Simon, 1958, Ch. IV) is given new meaning as a result of this study. Now leadership style by a manager can be seen as an inducement by the employee and a contribution by the manager. The current state of organization climate dimensions can then be seen as indicators of future inducements or contributions by leaders and subordinates. As reflections of past and current (or trends in states of balance) contribution-

-inducement relationships the future state of inducements of contributions would thus be predictable. If performance is seen (consciously or unconsciously) by employees as an inducement (to managers) and by managers as a contribution similar predictions from suitable climate dimensions should be possible.

Thus far, the assumption has been made that the results of this study are totally generalizable and that similar relationships between climate dimensions and other outcome variables can be derived. Such is not the case. The implications are interesting enough, however, to demand further study in a wider variety of circumstances. To this end, development of climate questionnaire items which are simpler and easier to use than the Likert items is required. There also needs to be some study of which dimensions will be apparent in different technologies (i.e. unit, mass production, process) or in organizations with different structural characteristics (i.e. task-force, centralized, bureaucratic). The usefulness of several important dimensions may be restricted to particular types of organizations.

The time-lag aspects of the relationships studied as well as a great number of other relationships need to be more thoroughly investigated. The lag effect of some relationships could be much longer or shorter than the three to four month period used in this study. When appropriate lags are used for several climate dimensions the proportion of variance in leadership style (or other variables) accounted for could be much

higher than shown in this study. Of particular interest as well would be the determination of causal variables affecting climate dimensions. Again the time lag aspects would need to be considered. Fiedler's studies (1967, 1970) could provide some help in analysing leadership style results for larger samples of managers. The 1970 study indicated that previous leadership experience had little or no bearing upon group performance while the earlier book (1967) indicated that high or low LPC leaders could be successful or unsuccessful depending upon the task and role situation. His latest studies also indicate that high LPC leaders might be expected to respond with high IS style in a situation where a low LPC leader might respond with high C style. If the same type of situation was true in relationships between style and organizational climate we may find that different climate dimensions are important for high or low LPC leaders or that opposite relationships may be true for high and low LPC leaders. In larger studies it may therefore be prudent to split the data between that for low and for high LPC leaders to avoid cancelling out of opposite but possibly large effects. In this study no split was made but it is possible that all three department heads had similar LPC scores.

Another aspect of "good" leadership should also be investigated. The results indicated that the leadership style of the department heads was more dynamic than that of the project leaders. The observation could also be made that the three department heads who participated in the study are generally

recognized by peers, superiors, and subordinates as being comparatively (within the firm) superior managers. Though they have widely differing approaches to managing their departments, consistency and a knowledge by subordinates of the type of relationship with the department head which will be most successful is a common feature for all three. It should also be noted that the relationship of style to organizational climate for department heads was more clearly defined to fewer climate dimensions than was the case with project leaders. It would be interesting to test the hypothesis that superior leaders or managers were those who were most sensitive to, and responded most readily to, specific organizational climate shifts. If such sensitivity was associated with superior leadership, it could certainly give credence to ideas concerned with T-group or sensitivity training though major alterations in objectives and/or procedures may be required before "effective" leadership training becomes an outcome of such training. If we returned to the inducements-contributions concept and reinforcement theory it would not be difficult to explain that the most effective "leader" was in effect the most responsive follower of group pressures reflected by organizational climate dimensions. Biological studies would indicate that the most successful species or individuals are those who are most flexible and adaptable. In other words, is the most effective leader one who clarifies or recognizes the psychological and other contract arrangements with his subordinates and interacts

and adapts in a suitable manner to pressures generated by his subordinates?

This study while providing a few clues in the tracking down of organizational relationships, though by no means proving them, has possibly opened up more areas of relevant study. Hopefully these areas will receive their justified attention and provide more definite information on that elusive characteristic known as "good leadership".

CHAPTER V

Summary

For those who have read all of the previous chapters there is no new information being presented in this chapter. The following will be a summary of the more important aspects of the study for the benefit of those who are not disposed to read the entire thesis. The headings will parallel those in the previous chapters so that any requirements for further information or numerical data can be met by referring to the same heading in the main text. As the introduction is essentially an informational rather than an analytic review of the literature on leadership style and organizational climate it will not be summarized.

Design of the Study

Description of the subject company. The firm in which the study was conducted is a large engineering firm providing a comprehensive range of engineering services. The structure of the company is well characterized by Thompson's (1967, p. 80) definition of a task-force organization. That is to say, there are a large number of functional departments with their own geographical space while groups in many departments will work on common projects under the direction of relatively small project staffs.

The department heads have a great deal of autonomy and, within budget constraints, have full control of hiring and firing, staffing for each project, physical arrangements and layout within their department, and control over the product that leaves their department. Though there are few formal rules concerning communication channels, a very complex matrix of accepted norms of communication and priorities have evolved which preclude extensive policing of organizational effort.

Circumstances of initiation of the study. Through contact with the personnel manager, the investigator became aware of a desire to conduct a suggestion-box questionnaire survey throughout the company. The intention was to provide feedback of results to all participants rather than to just the management. In order to test for change generated by the survey and distribution of results, an organizational climate questionnaire was to be added to the survey. In order to check on a causal relationship from leadership style to organizational climate a leadership style questionnaire was also added. Once approval from the chief executive officer was gained, the development of the suggestion-box questionnaire with two department heads and the personnel manager was begun. Arrangements were also made to have the organizational climate and leadership style portion completed in a third department which would act as a control group.

Survey questionnaire design, a description. As may be seen in Appendix M, the survey was divided into four major portions. Part I--Background was used to provide demographic information on respondents so that the opportunity of splitting the data set would be available as well as providing a basis of comparison between the respondents and the total population.

Part II consisted of the two research questionnaires. Part II(A) consisted of 45 items derived from Likert's (1967) The Human Organization: Its Management and Value. Though the items had been developed as a means of evaluating a firm or department in terms of Likert's four categories of organization, the intention was to use these items to measure eight organizational climate dimensions within each department. Part II(B) consisted of 20 items derived from the Initiation of Structure and Consideration dimensions of the Leadership Behaviour Description Questionnaire (LBDQ). The respondents were asked to provide the style of their project leader as well as their department head. Parts III and IV consisted of the suggestion-box items as developed with the department heads. Part III was oriented towards items under the jurisdiction or control of department heads while Part IV was directed at more general items as well as several of direct interest to the personnel manager.

Procedure for distribution and return of the questionnaire. The initial survey was issued to all three departments

on the same day while the second survey with only the research portions was issued 110 to 130 days later. The initial survey to the control group did not contain the suggestion-box questions and the instructions to the control group were modified. In all cases a stamped, addressed envelope was provided with the survey so that it could be returned to the investigator at the university without passing through company hands.

Hypotheses to be tested. There were three major hypotheses to be tested in the study, the first of which was divided into two statements.

> H 1. There are high positive relationships between organizational climate dimensions for departments and the leadership styles of department heads.
>
> H 1A. There are high positive relationships between organizational climate dimensions and the leadership style of "project leaders". However, these relationships will not be as great as the relationships of hypothesis 1.
>
> H 2. There will be a positive change in organizational climate resulting from the feedback to a group of the results from a suggestion-box type questionnaire.

H 3. There is a high positive relationship between the leadership style of department heads in one time period and the organizational climate of departments in a following time period.

A brief discussion of experimental validity was oriented around arguments presented by Campbell and Stanley (1963) concerning "nonequivalent control group design".

Results

First survey. The response rate was just over 35% and was felt to be biased away from representing the total population by having respondents with higher age, education, and service length as well as "loyalty". Appendix F gives a summary of the results of the general portion of the questionnaire. It was noted that while Initiation of Structure (IS) and Consideration (C) were relatively independent ($r = 0.34$) for department heads, that there were high correlations ($r > 0.6$) between IS and C for project leaders and between project leader styles and department head C.

The regression results using department head styles as independent variables demonstrated the positive relationship between style and climate particularly for Consideration. The interpretation of results where project leader styles were included was hampered by possible multicollinearity problems though there were indications that positive relationships existed.

Second survey - preliminary. The combination of a lengthy questionnaire, turnover in the department, and the imminent decline of the firm contributed to the disastrously low response rate on the second survey of only 14%. The low response rate prompted a comparison of differences between Time 1 and 2 on all dimensions. There was one difference between mean scores at Time 1 and 2 and an average of paired differences between Time 1 and 2. This comparison indicated that there could be some underlying differences in the sample of respondents on the two surveys. Though statistically weak, there was a consistent pattern of larger changes in the experimental group and department heads when compared with the control group.

In order to test hypothesis H 3 on direction of causality, cross-lagged correlational panels (Lawler, 1968) were used. As well as indicating that the organizational climate dimensions were relatively stable as compared to leadership style dimensions there were several instances of very good fits to the cross-lagged panel criteria. Even for those panels where the criteria were not met, there was no evidence to indicate that the direction of causality was from leadership style to organizational climate. The panels indicated that character of inter-action influence, of performance, of communications, and of motivational forces being tapped will have effects upon leadership Consideration in the near future. The above findings indicated that our earlier regressions should have been performed with climate dimensions as independent

variables. As there were many high correlations amongst the a priori climate dimensions it was decided to factor analyse the data in order to develop orthogonal climate dimensions.

Factor analyses. A varimax orthogonal rotation from a principal components solution was performed in each case. For the data from this study multiple R^2 values were used on the diagonal while for the correlation matrix data taken from Likert's (1967) book the matrix was unaltered. Eight factors were extracted from the study data while five factors were extracted from Likert's data which was gathered from managerial staff and most likely in manufacturing organizations.

In order to derive appropriate labels for the factors the items in each factor were presented to an expert panel for evaluation. The resulting labels and definitions will be found on pages 114 through 129. A panel was not used for the Likert data results but definitions for the five factors is on page 132.

Character of performance was the only factor to fall out precisely in the form of an a priori dimension. This was true for the Likert data only and there was no parallel dimension in the factors from this study. For all other factors in the Likert data there was a dimension from this study which was roughly parallel, though there would appear to be different orientations or areas of concern even when both dimensions were concerned with the same broad topic.

Of interest was a dimension concerned with project communications which would only be found in a task-force structured organization.

Second survey result - final. The attempt to derive orthogonal climate dimension was fairly successful with inter--dimension correlation being much lower than with the a priori dimensions. The change in climate between Time 1 and 2 becomes localized to only two dimensions: goal congruence and confidence-participation. The factor dimensions are more dynamic than the a priori ones, but fewer cross-lagged panels are able to meet the causal criteria because of a more persistent trend for Time 2 correlations between style and climate to higher than for Time 1. Again there is little indication that there are causal links from leadership style to organization climate. The relationship for department head results were much clearer than those for project leaders. The panels meeting both the cross-lagged and dynamic correlation criteria are: Consideration -- goal congruence, Consideration -- upward communications, and Initiation of Structure --upward communications.

Standard and stepwise regressions were performed using climate dimensions as independent variables. The most significant climate dimensions were as follows:

project leader IS	-	Interaction-warmth
	-	goal congruence
project leader C	-	interaction-warmth
	-	performance and control communications

department head IS	-	performance and control communications
	-	goal congruence
department head C	-	interaction-warmth
	-	confidence-participation
	-	goal congruence

As a lagged relationship had been indicated, regressions with Time 1 climate dimensions as independent variables and Time 2 leadership style dimensions as dependent variables were performed. With the combined action of high correlation and large segments of missing data (second survey response only 1/3 that of first survey) severe distortions in regression results were possible. Further regressions were performed using all data from the second survey and all matching results from the first survey. The results in this case showed a shift in the important variables as follows:

department head IS	-	confidence-participation
	-	level of decision making
	-	presence of informal organization
	-	performance and control communications
department head C	-	upward communications
	-	confidence-participation

The R^2 (RSQ) values for these regressions were substantially higher than those for the previous regressions.

Conclusions and Discussion

The following sections are fairly difficult to summarize as the main text presents the discussion of corroborating results in condensed form. Only the major conclusions will be stated.

for development and discussion of many of these conclusions the main text should be referred to.

Hypothesis 1. Strong selective support for the hypothesis is provided in regression analyses with both a priori and factor climate dimensions. That is to say, a conclusion that certain climate dimensions have a positive relationship with leadership style dimensions is made. It was also noted that generally the relationships would be stronger and more common with Consideration.

Hypothesis 1A. Support for the hypothesis allowed a conclusion that it was true, though it was noted that the qualitative as well as quantitative differences as to significant climate dimensions would make generalization about relationships between leadership style and climate, without first taking account of the position power of the leader, difficult.

Hypothesis 2. The results concerning this hypothesis were statistically very weak, though the investigator was of the opinion that a positive change in organizational climate had been brought about as a result of the feedback of first survey results.

Hypothesis 3. Evidence from the cross-lagged correlational panels using both a priori and factor climate dimensions provides absolutely no support for the hypothesis. In fact, the evidence supported a reverse conclusion that

certain organizational climate dimensions were causal variables with respect to leadership style. The regression results with Time 1 climate dimensions independent and Time 2 leadership style dimensions with high RSQ values and low F-probs provided excellent statistical support for the conclusion. It was concluded that upward communications and confidence-participation, and probably level of decision making, presence of informal organization, and performance and control communications are predictive variables for future Initiation of Structure leadership. In view of the large drop in survey results there was a discussion as to whether the results were indicative of relationships between "loyal" employee impressions of climate and leadership style.

Supplementary findings. From the first survey general questionnaire results it was possible to derive dimensions that may be of value in further studies of climate. Dimensions concerning job security, physical facilities, and a desire for self-improvement of employees as related to participation in goal-setting, goal-implementation, and sharing of rewards were described.

From the cross-lagged correlational panels in second survey--preliminary results, conclusions on the stability of various dimensions were derived. The leadership style dimensions of department heads were more dynamic than climate dimension measured. On the other hand, the leadership style of project leaders was found to be much less dynamic than that of department heads.

With the causal relationship turning out as it did it was considered essential to develop orthogonal climate dimensions with the use of factor analysis so that the regression model could be reversed. For comparison purposes a similar factor analysis was conducted using Likert's (1967) correlation matrix developed from another data set. In both these analyses only one factor came out as the a priori categorization would suggest. This was character of performance for the Likert data which was gathered from management personnel. There was no parallel for character of performance in the study factors though for the remainder of the five management data factors there was a rough similarity to one factor of the eight extracted from study data though there appeared to be different orientations to similarly labelled factors. This led to a conclusion that there could be different mental sets for ordinary employees as compared to that of managerial personnel. There was an argument put forward that organizational climate dimensions should be developed for particular types of organization or classes of employee rather than wide synthesis dimensions.

The factor climate dimensions were found to be more volatile than the a priori dimensions. Although open to debate, the investigator concluded that the increased volatility indicated the tapping of more sensitive and important dimensions.

Future study - technical considerations. The discussion oriented around the need to simplify the climate dimension items

and the care needed in selecting leadership dimension as well as organizational climate dimensions in future studies.

Discussion. The discussion was oriented around implications of the factor analyses results and the causal linkage results.

The factor analyses discussion indicated a need for a generally accepted target-rotation technique for comparing data from different studies. There was also a statement of the need for careful checks of applicability of climate dimensions for various types of organization or levels of employee.

The complete lack of support for hypothesis H 3 was discussed in terms of the presumptions implicit in the development of the hypothesis and much of the effort in the study and research of leadership, as well as the "training" of managers. The presumption is that once a "pattern" of "good" management is discovered others could be taught the pattern. The discovery that, at least for two style dimensions considered, style is more of a response to a situation rather than an initiating factor gives little support for the presumptions. The results support the arguments of Campbell et al (1970, Ch. 17) against the unidirectional views on the role of leadership.

A brief review in search of supporting evidence indicates that such factors as intra-group reinforcement or subordinate performance could have marked effects upon leader style. The conclusions with respect to "loyal" employee influence are also

strengthened by this evidence. When the inducement-contributions contract is considered the results of this study become more credible. The organizational climate dimensions can be interpreted as indications of the state of these contracts which will reflect future states.

A discussion of Fiedler LPC studies in relation to this study would lead to a need to split high and low LPC data sets when checking for many relationships between leadership style and other variables as otherwise meaningful results may be obscured.

The final discussion oriented around the possibility of checking for a new criteria for "good" management. This would involve comparing the flexibility and responsiveness of leadership style to various climate dimensions.

Admittedly, this study lacks the requirements for making wide generalizations, but the important implications of the conclusions of the study point to questions that should be resolved in future research.

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APPENDIX A

Schedule of events

Schedule of Events

Day		
0	-	Survey issued to three departments
7	-	Follow-up memo issued to encourage response
27	-	Part IV open-end and part III & 4 closed-end question results given to dept. head A + company management
28	-	Results as above given to dept. head B
34	-	Part III open-end question results returned to dept. heads A & B; dept. head B had begun distribution of results to his department
49	-	Meeting with two chief executive officers, personnel dept. head, and dept. heads A & B
56	-	Written report given to firm (see Appendix F)
75	-	Part II(A) (Likert climate items) results in graph form given to dept. heads A & B (see Figures 1, 3, 5, and 7)
82	-	Part II(A) difference graphs given to dept. heads A & B (see Figures 2, 4, 6, and 8)
	-	Discussion with dept. head A concerning survey results and leadership style scores
89	-	Corrected combined results graphs given to firm
90	-	Discussion with dept. head B concerning survey results and leadership style scores
112	-	Second survey issued to departments A & C
124	-	Follow-up memo to encourage response (?)
128	-	Presentation of first survey results to dept. head C
130	-	Second survey issued to dept. B
146	-	Follow-up memo to all departments to encourage response

APPENDIX B

Modified introduction to First Survey for control group

Introduction to Second Survey

Modified introduction to First Survey for control group

SURVEY INTRODUCTION

The following questionnaire has been prepared for several reasons.

The first portion is background information. Its value is in interpreting the results for the following sections. If for example in Part II we ask a question and exactly 50% said "no" and 50% "yes", reasonable inferences could not be drawn, but if on further checking, it is found that 95% of male clerical under 25 and 80% of engineers over 40 said "yes" while only 15% in other groups said "yes", some logical inference as to reasons for saying "yes" or "no" might be drawn.

Part II consists essentially of measurement tools which have been used by other researchers to find, among other things, profiles of leadership styles, decision-making processes, etc. It is intended to repeat the questionnaire some time later to see if there have been any changes in these characteristics. The main benefit of the two surveys will be of research benefit in connection with the survey being carried out in the Structural and Woodroom Departments. The results will also be used as part of Dave Young's Masters level thesis in Business Administration. For best results, as large a response as possible from throughout the Department is required.

Your participation is, however, purely voluntary. No one will know if you answer or not. The questionnaires themselves will never be made available to the company. The only results to be given to the company will be of a general nature indicating what responses were made and percentage or other statistical information covering the whole department or results combining the responses from all departments. Besides Dave's personal word for this, you may feel better to know that rather severe sanctions by the University could be imposed on him and possibly on his advisor at U. B. C. for any inappropriate disclosure of confidential information.

If you feel strongly that you do not wish to participate, you are free to dispose of the survey. The completed questionnaire should be placed in the stamped envelope supplied and mailed.

SURVEY II

INTRODUCTION

As with the previous survey, we would hope that as many people as possible would complete all parts of the survey.

We expect that those who had difficulty with the wording of the research portion previously, will have much less difficulty doing it the second time.

We would like to emphasize, however, that if you do have difficulty on any one question or set of questions, skip on to others and complete as many as you are able to.

If you sent in the previous survey, be sure to use the same nom de plume. If you did the first survey, it is not necessary to complete the background information on Page 1 except for your Department.

APPENDIX C

Computational procedures

APPENDIX C

Computational Procedures

Introduction

As similar techinques and programs will be referred to more than once in the results chapter, it was deemed appropriate to consolidate all information on computational procedures and programs into this Appendix. Virtually all calculations were performed with the use of the U.B.C. computer facility. A brief description of this facility will be followed by descriptions of major programs and the particular options used in this study. As detailed computation formulae and techniques are either given or referenced in the user manuals referred to and available through the U.B.C. Computing Centre, formulae will only be used in the following descriptions to clarify distinctions or options.

The U.B.C. Computing Centre

The major component of hardware in the centre is a full duplex (2 CPU) IBM 360, model 67 computer. The 67 designation indicates adaptations for university use, the principal ones being the addition of substantial memory (virtual memory $>10^6$ bytes) or storage units and the provision for a large number of terminals including remote terminals in various campus locations and 16 visual display terminals. There is also an array of peripheral equipment including high-speed card readers and line

printers, magnetic tape units, disk storage and drives, a data cell, magnetic drums, Calcomp plotters, and et cetera.

The major or governing software component is the Michigan Terminal System (MTS) which allows fully shared operation of the system which can support approximately 45 conversational terminals and from 1 to 7 batch streams. As well as the basic software system there are a variety of compilers and package programs that are available. FORTRAN IV, PLOT, TRIP, MVTAB, and FAN were used for this study though a large number of other compilers and programs are available.

FORTRAN IV

As FORTRAN compiler operation is well documented no description will be given here. The main use of FORTRAN was in computing and setting up data for use in statistical programs. The computation of IS and C scores from the 10 items or question scores on each of these dimensions provides an example. In these and all averaging procedures, account was made of missing data. If there were only 9 responses the average score computed was based only on the 9 responses given. The same procedure was used in computing scores for the climate dimensions both on the a priori dimensions and the factor analytically derived dimensions. These programs also indicated in the output if no data was available from a subject on a particular dimension so that it would be accounted for properly in later statistical programs rather than being treated as zero.

For initial debugging of programs, use was also made of the WATFIV fortran compiler (University of Waterloo Fortran IV compiler). This compiler, which was especially designed for student use, provides extensive syntax, logic, and operational diagnostics not available on standard compilers and aids substantially in reducing the time required to debug a new program. All operational runs on real data, however, made use of the Fortran IV(G) compiled programs.

MVTAB

The MVTAB program (Bjerring et al, 1970) is designed to handle multivariate contingency tabulations. In the bivariate case responses to two questions will be counted along with missing responses and a bivariate frequency table can be produced. A choice of horizontal, vertical and total percentage tables can also be produced and if desired the chi-square statistic (and probability) for indicating independence of the variables can be produced. Though the above options were available no serious use was made of them, but the univariate frequency and percentage tables were used to provide information from parts I, III, and IV of the survey. This program also provides means for grouping data and checking sequencing of input data. Unfortunately much of the data prepared for use in MVTAB is not compatible for use in the TRIP program. This substantially increased the burden of directly incorporating the general survey results with the analysis of the research portion of the survey on organizational climate and was not attempted.

TRIP

The TRIP program (Bjerring & Seagreaves, 1972), described as a triangular regression package, consists of a control routine and a set of 15 callable routines. This program was used for most of the statistical calculations. Among the routines used were those which perform t-statistic tests, multiple and stepwise regression as well as producing probability (or significance) levels for t and F values, confidence intervals, means, standard deviations, and correlations as well as other statistical information. The printer plots of data were also produced using this package. Other routines available include those for backward stepwise regression, or producing autocorrelation coefficients, Durbin-Watson statistics, partial correlations, orthogonal polynomials, residuals and et cetera.

An important feature of this program is the ability to handle missing data. As most of the routines use a correlation matrix rather than raw data, the problem is essentially one of creating the best possible correlation matrix while accounting for any missing data. Once this matrix is formed all further results using it will be the best possible. Where results depend on the use of degrees of freedom (i.e. standard errors) the results are an approximation as an estimate of degrees of freedom has had to be made. The degrees of freedom would be correct, however, for simple regression and t-tests.

The formulae used in the calculation of the t-statistic are given at the end of this Appendix. Formula (2) was, of

course, used on all paired comparisons. Formulae (1) and (3) can be selected by the investigator, or an option to provide automatic selection of formulae can be made. This automatic selection is performed by computing the F-probability of the variances of the samples. If this probability is less than 0.05 (or any value preset by the programmer) it is concluded that the sample variances are significantly different and that formula (3) should not be used. In general, the results in this study unless noted otherwise make use of this automatic decision rule.

With missing data runs the initial calculation of means, standard deviations, and correlations was done with single--precision while all further calculations were done with double-precision.

FAN

The FAN program (Halm, 1971) is an extensively modified version of the UCLA BMDX72 program for doing factor analysis. This program provides a wide range of options as to procedures to be used in the analysis. The data input may be raw data with missing data values allowed, a covariance matrix, a correlation matrix, a factor-loading matrix, or regression coefficients for factor scores. The minres initial factor solution may be used instead of the principle components initial solution. Initial communality estimates may be squared multiple correlations, maximum absolute raw values, or read-in values. The rotations

may be orthogonal or oblique and may be carried out under a variety of rotations criteria including quartrimax, varimax, quartimin, bi-quartimin, covarimin, or direct quartimin. All calculations in this program are performed using double--precision.

For this study only varimax orthogonal rotations were performed. When raw data was input, squared multiple correlations were used for initial communality estimates while, when a correlation matrix was used for input, the original diagonal values (ones) were used.

PLOT

The PLOT program (Coulthard et al, 1972) is a package of routines for building plot commands for producing plots or graphs with the use of the electromechanical Calcomp plotters. As may be seen in the text, alphanumeric symbols along with 13 special symbols can be plotted in various sizes along with scale and graph lines. The neat appearance of the finished graphs is apparent. Not apparent is the ease and assured accuracy of plotting up to 135 two-dimensional points on a single graph.

Calculation Formulas

i. Formulas (1) and (3)

Let X_1 and X_2 denote the two variables whose sample means $\bar{x}_1$ and $\bar{x}_2$ are being compared. Let s_i^2 denote the sample variance of X_i. Let M_i denote the number of nonmissing values of X_i. Let df denote the degrees of freedom of the t-value.

Formula (1):

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{M_1} + \frac{s_2^2}{M_2}}}$$

$$df = \frac{\left[\frac{s_1^2}{M_1} + \frac{s_2^2}{M_2}\right]^2}{\frac{\left[\frac{s_1^2}{M_1}\right]^2}{M_1 - 1} + \frac{\left[\frac{s_2^2}{M_2}\right]^2}{M_2 - 1}}$$

Formula (3):

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{(M_1 - 1)\, s_1^2 + (M_2 - 1)\, s_2^2}{M_1 + M_2 - 2} \left[\frac{1}{M_1} + \frac{1}{M_2}\right]}}$$

$$df = M_1 + M_2 - 2$$

Note that when $M_1 = M_2$, the t-values produced by formulas (1) and (3) are identical. Moreover, in this case ($M_1 = M_2$) the two degrees of freedom are almost equal, so that the two tests are pretty well equivalent. In general, as M_1 approaches M_2, the degrees of freedom for formula (1) approaches $M_1 + M_2 - 2$. As M_1 and M_2 become more and more disparate without limit, the degrees of freedom for formula (1) approaches the minimum of M_1 and M_2. Thus for M_1 quite different from M_2, formula (3) provides a more sensitive test than formula (1).

ii. Formula (2) -- (Paired Comparison)

Let $\bar{x}$ denote the mean of the differences, s the standard deviation of the differences, and df the number of degrees of freedom of the t-value.

Then:

$$t = \frac{\bar{x}\sqrt{M}}{s}$$

$$df = M-1$$

where M is the number of nonmissing differences (Bjerring & Seagreaves, 1972, p. 82).

APPENDIX D

Coding information and MVTAB results for open-end questions of Section III

(NAME) LTD. IMPROVEMENT SURVEY CODING INFORMATION

Q 4-RE PROCEEDURE FOR CHANGING DESIGN STANDARDS

ON REFLECTION IT TURNS OUT THAT THIS QUESTION WILL GENERATE ANSWERS WHICH ARE DIFFICULT IF NOT IMPOSSIBLE TO CODE IN A MEANINGFUL WAY. THEREFORE I WILL SIMPLY GIVE MY GENERAL IMPRESSIONS FROM REVIEWING THE ANSWERS GIVEN BY 26 INDIVIDUALS.

1 A SPECIFIC PERSON(OR GROUP) SHOULD BE IN CHARGE OF CHANGES AND REGULAR REVIEWS.

2 OTHERS SHOULD BE ADISED THAT REVIEWS ARE IN PROGRESS AND IDEAS INVITED.

3 MORE SUGGESTIONS SHOULD BE SOLICITED FROM FIELD,VENDORS,CONTRACTORS,ETC.

4 ONCE REVISIONS OR NEW STANDARDS ARE MADE ALL!! PERSONS AFFECTED SHOULD BE ADVISED PROMPTLY.

PLEASE NOTE :- THE FOLLOWING CODING IS AN ATTEMPT TO FIT MANY DIVERSE RESPONSES INTO SOMEWHAT CONFINING SLOTS. TAKE NOTE THAT SOME DISCRETION WAS REQUIRED , BUT I FEEL THE CODING GIVEN IS REPRESENTATIVE OF OPINIONS EXPRESSED BY SURVEY RESPONDENTS THOUGH, OF COURSE, THERE MIGHT BE SOME MINOR ERRORS OR DIFFERENCES OF OPINION ON DETAILS.
ALSO NOTE THAT THAT SEVERAL ANSWERS WERE CODED AS IS EVEN THOUGH THEY WERE NOT CLEAR TO ME.(I.E. YOUR GUESS IS AS GOOD AS MINE)

DAVE YOUNG

Q 5- WHAT DO YOU FEEL IS GOOD ABOUT WORKING IN THIS DEPARTMENT ?

1 = FRIENDLY ATMOSPHERE, PLEASANT COMPANIONSHIP, ETC.

2 = GOOD MANAGEMENT,BUSINESSLIKE

3 = PROFESSIONAL ATTITUDE (OR KNOWLEDGE)

4 = NO UNDUE PRESSURE

5 = HIGH STANDARDS HERE

6 = STEADY EMPLOYMENT

7 = CO-OPERATION AND/OR HELP (ON DESIGN PROBLEMS ,ETC.)

8 = PAY GOOD,ADEQATE,ETC

9 = REASONABLE OPPORTUNITY,ALLOWED RESPONSIBILITY

A = PRODUCTIVE GROUP

B = INTERESTING WORK,ADEQUATE CHALLENGE

C = LOTS OF FREEDOM

D = FEEL LIKE AN INDIVIDUAL,SELF-DISCIPLINE POSSIBLE

E = RESPECT &/OR ADMIRATION FOR DEPT. HEAD & SOME CO-WORKERS

F = GREAT POTENTIAL

G = DEPT. IS PROGRESSIVE

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF DEPT::GOOD(CC 116)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7	8	9	B	C	D	E*	
*	6	15	2	2	4	3	1	2	1	2	8	1	2	4*	53
*	6	15	2	2	4	3	1	2	1	2	8	1	2	4*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8	9	B	C	D	E*	
*	11.32	28.30	3.77	3.77	7.55	5.66	1.89	3.77	1.89	3.77	15.09	1.89	3.77	7.55*	100.00
*	11.32	28.30	3.77	3.77	7.55	5.66	1.89	3.77	1.89	3.77	15.09	1.89	3.77	7.55*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF DEPT::GOOD(CC 116)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	B	C	D	E*	
*	31.91	4.26	4.26	8.51	6.38	2.13	4.26	2.13	4.26	17.02	2.13	4.26	8.51*	100.00
*	31.91	4.26	4.26	8.51	6.38	2.13	4.26	2.13	4.26	17.02	2.13	4.26	8.51*	47

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF DEPT::GOOD(CC 116)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F*	
*	27.63	7.89	7.89	6.58	3.95	1.32	5.26	5.26	5.26	1.32	14.47	3.95	2.63	5.26	1.32*	100.00
*	27.63	7.89	7.89	6.58	3.95	1.32	5.26	5.26	5.26	1.32	14.47	3.95	2.63	5.26	1.32*	76

Q 6- WHAT DO YOU FEEL IS GOOD ABOUT WORKING FOR THIS COMPANY IN GENERAL ?

1 = LACK OF RED TAPE

2 = CO-OPERATIVE ATMOSPHERE

3 = NO RACIAL DISCRIMINATION

4 = FRINGE BENEFITS

5 = VARIED WORK,NO ROUTINE

6 = REASONABLE STABILITY,SECURITY

7 = THE PEOPLE

8 = BEING IN THIS DEPT.

9 = FAIR WORK ASSESSMENT

A = GOOD OPPORTUNITIES

B = LOTS OF CHALLENGE

C = FAIR WITH EMPLOYEES

D = WELL ESTABLISHED,GOOD REPUTATION

E = RECOGNITION OF ABILITY

F = REASONABLE MANAGEMENT

G = LOCATION

H = HAS GIVEN NEW ARRIVALS IN COUNTRY A CHANCE

I = GOOD PAY &/OR POSITION

J = SOCIAL & SPORTS ACTIVITIES

K = LARGE PROJECTS,P & P PROJECTS,SIZE,CAPABILITIES

L = POTENTIAL

M = INTERESTING WORK

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF COMP:GOOD(CC 121)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7	8	9	A	C	D	E	F	H
*	13	2	4	1	1	2	2	1	2	2	2	4	4	1	1	1
*	13	2	4	1	1	2	2	1	2	2	2	4	4	1	1	1

FREQUENCY TABLE (CONTINUED)

*	I	J	K	M*	
*	5	1	3	1*	53
*	5	1	3	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8	9	A	C	D	E	F	H
*	24.53	3.77	7.55	1.89	1.89	3.77	3.77	1.39	3.77	3.77	3.77	7.55	7.55	1.89	1.89	1.89
*	24.53	3.77	7.55	1.89	1.89	3.77	3.77	1.89	3.77	3.77	3.77	7.55	7.55	1.89	1.89	1.89

TOTAL PERCENTAGE (CONTINUED)

*	I	J	K	M*	
*	9.43	1.89	5.66	1.89*	100.00
*	9.43	1.89	5.66	1.89*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF COMP:GOOD(CC 121)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	C	D	E	F	H	I
*	5.00	10.00	2.50	2.50	5.00	5.00	2.50	5.00	5.00	5.00	10.00	10.00	2.50	2.50	2.50	12.50
*	5.00	10.00	2.50	2.50	5.00	5.00	2.50	5.00	5.00	5.00	10.00	10.00	2.50	2.50	2.50	12.50

TOTAL PERCENTAGE (CONTINUED)

*	J	K	M*	
*	2.50	7.50	2.50*	100.00
*	2.50	7.50	2.50*	40

COMBINED RESULTS

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 5)
UNIVARIATE TABLE OF COMP:GOOD(CC 121)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
*	3.64	7.27	1.82	3.64	7.27	7.27	3.64	3.64	3.64	3.64	1.82	9.09	7.27	1.82	3.64	3.64
*	3.64	7.27	1.82	3.64	7.27	7.27	3.64	3.64	3.64	3.64	1.82	9.09	7.27	1.82	3.64	3.64

TOTAL PERCENTAGE (CONTINUED)

*	H	I	J	K	L	M*	
*	1.82	10.91	3.64	5.45	1.82	3.64*	100.00
*	1.82	10.91	3.64	5.45	1.82	3.64*	55

EXECUTION TERMINATED

$SIG

Q 7-WHAT DO YOU FEEL NEEDS IMPROVEMENT IN THIS DEPT ?

1 = CONTROL OF OFFICE RECORDS
2 = CLOSER CONTACT WITH MANAGEMENT
3 = ORGANIZATION
4 = TEAM SPIRIT, TEAMWORK
5 = MORE RESPONSIBILITY FOR INDIVIDUALS
6 = MORE OPPORTUNITY FOR FIELD EXPERIENCE
7 = WORKING CONDITIONS (FURNITURE, OFFICES, AIR COND., SPACE, ETC.)
8 = LEADERSHIP
9 = BETTER COMMUNICATIONS (WITH FIELD)
A = RECOGNITION, ON DESIGNS & OPINIONS
B = ETIQUETTE
C = REQUIRE A GOAL
D = STANDARDIZATION OF PROCEDURES
E = MORE ESTIMATIMATING, TECHNICAL, ECONOMIC INFORMATION
F = LESS FAVORITISM
G = MORE SOCIAL & SPORT ACTIVITIES
H = PERSONAL REMARK RE HEAD DRAFTSMAN
I = SOMETHING TO GENERATE INITIATIVE (PREVENT NON-PRODUCTIVE ACTIVITY)
J = UPGRADING OF EDUCATION & PROFESSIONAL STANDARDS
K = ATTENDENCE CONTROL
L = NOISE LEVEL
M = MAIL SYSTEM
N = SECRETARY OR CLERK FOR EACH PROJECT LEADER
O = LIBRARY FACILITIES (PROJECT HISTORIES)
P = MORE MONEY
Q = TRAINING & RECOGNITION
R = TYPING
S = ELIMINATION OF SLACKERS
T = ASSESSMENT OF EMPLOYEES
U = JUNIOR TRAINING

COMBINED RESULTS

THIS TABLE IS FOR FIRST CR ONLY RESPONSES
UNIVARIATE TABLE OF DEPT:IMPROVE(CC 126)

FREQUENCY TABLE

*	0	1	2	3	4	6	7	8	9	A	D	E	G	H	I	K
*	8	2	1	4	4	2	5	1	9	1	2	1	1	1	2	1
*	8	2	1	4	4	2	5	1	9	1	2	1	1	1	2	1

FREQUENCY TABLE (CONTINUED)

*	L	N	O	P	S	T	U*	
*	1	1	2	1	1	1	1*	53
*	1	1	2	1	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	6	7	8	9	A	D	E	G	H	I	K
*	15.09	3.77	1.89	7.55	7.55	3.77	9.43	1.89	16.98	1.89	3.77	1.89	1.89	1.89	3.77	1.89
*	15.09	3.77	1.89	7.55	7.55	3.77	9.43	1.89	16.98	1.89	3.77	1.89	1.89	1.89	3.77	1.89

TOTAL PERCENTAGE (CONTINUED)

*	L	N	O	P	S	T	U*	
*	1.89	1.89	3.77	1.89	1.89	1.89	1.89*	100.00
*	1.89	1.89	3.77	1.89	1.89	1.89	1.89*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF DEPT:IMPROVE(CC 126)

TOTAL PERCENTAGE

*	1	2	3	4	6	7	8	9	A	D	E	G	H	I	K	L
*	4.44	2.22	8.89	8.89	4.44	11.11	2.22	20.00	2.22	4.44	2.22	2.22	2.22	4.44	2.22	2.22
*	4.44	2.22	8.89	8.89	4.44	11.11	2.22	20.00	2.22	4.44	2.22	2.22	2.22	4.44	2.22	2.22

TOTAL PERCENTAGE (CONTINUED)

*	N	O	P	S	T	U*	
*	2.22	4.44	2.22	2.22	2.22	2.22*	100.00
*	2.22	4.44	2.22	2.22	2.22	2.22*	45

COMBINED RESULTS

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF DEPT:IMPROVE(CC 126)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
*	2.82	1.41	11.27	11.27	1.41	2.82	12.68	2.82	14.08	2.82	1.41	1.41	2.82	2.82	1.41	1.41
*	2.82	1.41	11.27	11.27	1.41	2.82	12.68	2.82	14.08	2.82	1.41	1.41	2.82	2.82	1.41	1.41

TOTAL PERCENTAGE (CONTINUED)

*	H	I	J	K	L	M	N	O	P	Q	R	S	T	U*	
*	1.41	4.23	1.41	1.41	2.82	1.41	1.41	2.82	1.41	1.41	1.41	1.41	1.41	1.41*	100.00
*	1.41	4.23	1.41	1.41	2.82	1.41	1.41	2.82	1.41	1.41	1.41	1.41	1.41	1.41*	71

Q 8-WHAT DO YOU FEEL NEEDS IMPROVEMENT IN THIS COMPANY ?

1 = MORE STABILITY,AVOIDANCE OF MASS LAYOFFS
2 = RELATIONS BETWEEN PERS. DEPT. & EMPLOYEES
3 = ORGANIZATION
4 = TEAM SPIRIT,TEAMWORK
5 = MORE RESPONSIBILITY
6 = DIVERSIFICATION
7 = PUBLIC RELATIONS
8 = SALESMANSHIP
9 = BETTER COMMUNICATIONS
A = WORKING CONDITIONS (OFFICES,FURNITURE,SPACE,AIR COND.,ETC.)
B = LOCATION
C = SANITATION
D = REQUIRE GOALS AND POLICIES,OR INFORMATION ON SAME
E = MODERNIZATION
F = BETTER INDUSTRIAL RELATIONS
G = KNOWLEDGE OF POLLUTION (NOISE) CONTROL
H = TRAINING
I = PROFIT SHARING PLAN (FOR BETTER EFFICIENCY)
J = PAY KEY(THAT GROUP MEMBERS RESPECT) GOOD MONEY
K = MORE SOCIAL & SPORT ACTIVITY
L = MORE RESPONSIBILITY IN OTHER DEPTS. RE ENGINEERING TO SCHEDULES & BUDGETS
M = RETIRE SOME EXECUTIVES
N = STOP EMPIRE BUILDING
O = ESTABLISH FINANCE, CONSTRUCTION, & START-UP DEPTS.
P = BONUSES FOR GOOD PROJECTS
Q = FIELD CONDITIONS (HOUSING,ALLOWANCES,ETC.)
R = MORE OPPORTUNITIES TO CHANGE DEPTS.
S = INTEROFFICE MAIL
T = HIGHER QUALITY WORK
U = SALARIES

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF COMP:IMPROVE(CC 131)

FREQUENCY TABLE

*	0	1	2	3	4	6	7	9	A	B	D	F	G	H	I	K
*	9	4	2	3	1	4	2	5	2	3	4	3	2	1	4	1
*	9	4	2	3	1	4	2	5	2	3	4	3	2	1	4	1

FREQUENCY TABLE (CONTINUED)

*	P	R	U*	
*	1	1	1*	53
*	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	6	7	9	A	B	D	F	G	H	I	K
*	16.98	7.55	3.77	5.66	1.89	7.55	3.77	9.43	3.77	5.66	7.55	5.66	3.77	1.89	7.55	1.89
*	16.98	7.55	3.77	5.66	1.89	7.55	3.77	9.43	3.77	5.66	7.55	5.66	3.77	1.89	7.55	1.89

TOTAL PERCENTAGE (CONTINUED)

*	P	R	U*	
*	1.89	1.89	1.89*	100.00
*	1.89	1.89	1.89*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF COMP:IMPROVE(CC 131)

TOTAL PERCENTAGE

*	1	2	3	4	6	7	9	A	B	D	F	G	H	I	K	P
*	9.09	4.55	6.82	2.27	9.09	4.55	11.36	4.55	6.82	9.09	6.82	4.55	2.27	9.09	2.27	2.27
*	9.09	4.55	6.82	2.27	9.09	4.55	11.36	4.55	6.82	9.09	6.82	4.55	2.27	9.09	2.27	2.27

TOTAL PERCENTAGE (CONTINUED)

*	R	U*	
*	2.27	2.27*	100.00
*	2.27	2.27*	44

COMBINED RESULTS

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF COMP:IMPROVE(CC 131)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
*	8.97	3.85	3.85	3.85	1.28	7.69	2.56	1.28	7.69	8.97	6.41	1.28	5.13	3.85	5.13	2.56
*	8.97	3.85	3.85	3.85	1.28	7.69	2.56	1.28	7.69	8.97	6.41	1.28	5.13	3.85	5.13	2.56

TOTAL PERCENTAGE (CONTINUED)

*	H	I	J	K	L	M	N	O	P	Q	R	S	T	U*	
*	2.56	6.41	1.28	1.28	1.28	1.28	1.28	1.28	1.28	2.56	1.28	1.28	1.28	1.28*	100.00
*	2.56	6.41	1.28	1.28	1.28	1.28	1.28	1.28	1.28	2.56	1.28	1.28	1.28	1.28*	78

Q 9—WHAT ADVANTAGES OR DISADVANTAGES DO YOU SEE IN WORKING FOR A CONSULTING FIRM OF THIS SIZE ?

ADVANTAGES

1 = DIFFERENT CHALLENGES
2 = WIDE SCOPE OF PROJECTS & PROBLEMS
3 = MORE CHANCE FOR ADVANCEMENT
4 = LARGE PROJECTS
5 = RELATIVE SECURITY, STABILITY
6 = ASSOCIATION WITH OTHERS IN PROFESSION
7 = FIELD TRIPS
8 = FLEXIBILITY
9 = CHANCE TO WORK IN DIFFERENT DEPTS.
0 = POTENTIAL ABILITY TO TACKLE ANY LARGE ENGINEERING PROJECT
P = EASIER TO FORM SOCIAL RELATIONS
Q = BEAUTIFUL CITY

DISADVANTAGES

A = ROUTINE WORK TASK, REDUCED CHALLENGE
B = IMPERSONAL, LOSS OF INDIVIDUALITY
C = EXPERIENCE IS LIMITED TO ONE AREA
E = LACK OF SECURITY
F = LITTLE PARTICIPATION IN CONSTRUCTION OR SEEING RESULTS
G = LACK OF COMPANY SPIRIT
H = RED TAPE (EFFICIENCY LOSS)
I = LESS CHANCE FOR ADVANCEMENT
J = LACK OF INCENTIVE
K = DEPARTMENTALIZATION (LITTLE APPRECIATION OF PROBLEMS IN OTHER DEPARTMENTS)

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF SIZE:COMMENTS(CC 137)

FREQUENCY TABLE

*	0	1	2	5	6	7	8	9	B	C	E	I	K	O	P	Q*	
*	14	4	10	6	2	1	1	2	3	1	2	2	1	2	1	1*	53
*	14	4	10	6	2	1	1	2	3	1	2	2	1	2	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	5	6	7	8	9	B	C	E	I	K	O	P	Q*	
*	26.42	7.55	18.87	11.32	3.77	1.89	1.89	3.77	5.66	1.89	3.77	3.77	1.89	3.77	1.89	1.89*	100.00
*	26.42	7.55	18.87	11.32	3.77	1.89	1.89	3.77	5.66	1.89	3.77	3.77	1.89	3.77	1.89	1.89*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF SIZE:COMMENTS(CC 137)

TOTAL PERCENTAGE

*	1	2	5	6	7	8	9	B	C	E	I	K	O	P	Q*	
*	10.26	25.64	15.38	5.13	2.56	2.56	5.13	7.69	2.56	5.13	5.13	2.56	5.13	2.56	2.56*	100.00
*	10.26	25.64	15.38	5.13	2.56	2.56	5.13	7.69	2.56	5.13	5.13	2.56	5.13	2.56	2.56*	39

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 4) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF SIZE:COMMENTS(CC 137)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
*	5.06	18.99	1.27	1.27	10.13	3.80	2.53	1.27	2.53	1.27	10.13	7.59	1.27	7.59	1.27	1.27
*	5.06	18.99	1.27	1.27	10.13	3.80	2.53	1.27	2.53	1.27	10.13	7.59	1.27	7.59	1.27	1.27

TOTAL PERCENTAGE (CONTINUED)

*	H	I	J	K	O	P	Q*	
*	1.27	11.39	2.53	1.27	3.80	1.27	1.27*	100.00
*	1.27	11.39	2.53	1.27	3.80	1.27	1.27*	79

Q 11-WHAT SHOULD EMPLOYEE COURSE INCLUDE ?

1 = WORK EFFICIENCY

2 = COMPANY POLICIES,ORGANIZATION, PROCEDURES

3 = COMPANY GOALS AND PLANS

4 = SCOPE OF DEPTS.

5 = DESIGN STANDARDS AND USE OF SAME

6 = SUPERVISORY TRAINING

7 = GENERAL REVIEW OF MAJOR PROJECTS,WHAT THINGS WERE GOOD OR BAD(WITH NO BLAME BEING ATTACHED)

8 = NEW MACHINERY & TECHNIQUES

9 = SOCIAL BENEFITS

A = CPM SCHEDULING

B = RETRAINING

C = TRAINING PEOPLE HOW TO SEARCH FOR INFORMATION

Q 15-WHAT FURTHER INFORMATION ABOUT THIS DEPARTMENT WOULD YOU FIND HELPFUL ?

1 = HOW IT HAS EXISTED THIS WAY SO LONG

2 = GOALS & PLANS(WORK LOAD)

3 = ORGANIZATION & COMMUNICATION OF LETTERS,WIRES,ETC.

4 = PERSONNEL ASSIGNMENT, PERSONNEL EVALUATION SYSTEM

5 = POWER WITHIN COMPANY

6 = ORGANIZATION, OFFICE PROCEDURES

7 = ESTIMATING HANDBOOK

8 = CLIENT NEGOTIATIONS

9 = RESUME OF SERVICE,APTITUDES,EXPERIENCE OF OTHER PERSONNEL TO HELP IN CONSULTATIONS ETC.

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF COURSE:COMMENTS(CC 142)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7	A	B	C*	
*	31	1	13	1	1	1	1	1	1	1	1*	53
*	31	1	13	1	1	1	1	1	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	A	B	C*	
*	58.49	1.89	24.53	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89*	100.00
*	58.49	1.89	24.53	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89*	53

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 4) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF COURSE:COMMENTS(CC 142)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C*	
*	3.33	50.00	6.67	6.67	6.67	6.67	3.33	3.33	3.33	3.33	3.33	3.33*	100.00
*	3.33	50.00	6.67	6.67	6.67	6.67	3.33	3.33	3.33	3.33	3.33	3.33*	30

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 4) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF DEPT:INFO:REQUIRED(CC 149)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9*	
*	14.29	28.57	7.14	7.14	7.14	14.29	7.14	7.14	7.14*	100.00
*	14.29	28.57	7.14	7.14	7.14	14.29	7.14	7.14	7.14*	14

Q 16-WHICH DEPTS.NEED MORE INFO. ABOUT YOUR DEPT. FUNCTION AND REQUIREMENTS IN ORDER TO FACILITATE COMMUNICATIONS AND CO-OPERATION ?

Q 17-WHICH DEPTS. DO YOU NEED TO FIND OUT MORE ABOUT IN ORDER TO FACILITATE COMMUNICATIONS AND CO-OPERATION ?

1 = ELECTRICAL	D = MANAGEMENT
2 = MACHINE RCCM	E = PROJECT CONTROL
3 = PULPING GROUP	F = ESTIMATING
4 = MATERIALS HANDLING	G = EXPEDITING
5 = PURCHASING	H = ACCOUNTING
6 = STRUCTURAL	I = FIELD
7 = INSTRUMENTATION	J = MECHANICAL
8 = SCHEDULING	K = COMPUTING
9 = SITE DEVELOPMENT	
A = CONTRACTS	M = ALL
B = STEAM	
C = HEATING & VENTILATION	

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF NEED:INFO:ABOUT:YOUR:DEPT(CC 153)

FREQUENCY TABLE

*	0	1	3	4	5	6	A	B	C	D	J	K	M*	
*	29	3	1	2	2	3	1	1	1	1	3	1	5*	53
*	29	3	1	2	2	3	1	1	1	1	3	1	5*	53

TOTAL PERCENTAGE

*	0	1	3	4	5	6	A	B	C	D	J	K	M*	
*	54.72	5.66	1.89	3.77	3.77	5.66	1.89	1.89	1.89	1.89	5.66	1.89	9.43*	100.00
*	54.72	5.66	1.89	3.77	3.77	5.66	1.89	1.89	1.89	1.89	5.66	1.89	9.43*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF NEED:INFO:ABOUT:YOUR:DEPT(CC 153)

TOTAL PERCENTAGE

*	1	3	4	5	6	A	B	C	D	J	K	M*	
*	12.50	4.17	8.33	8.33	12.50	4.17	4.17	4.17	4.17	12.50	4.17	20.83*	100.00
*	12.50	4.17	8.33	8.33	12.50	4.17	4.17	4.17	4.17	12.50	4.17	20.83*	24

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF NEED:INFO:ABOUT:YOUR:DEPT(CC 153)

TOTAL PERCENTAGE

*	1	3	4	5	6	A	B	C	D	E	G	J	K	M*	
*	21.05	2.63	5.26	7.89	15.79	2.63	7.89	2.63	2.63	2.63	2.63	10.53	2.63	13.16*	100.00
*	21.05	2.63	5.26	7.89	15.79	2.63	7.89	2.63	2.63	2.63	2.63	10.53	2.63	13.16*	38

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF YOU:NEED:INFO(CC 158)

FREQUENCY TABLE

*	0	1	5	6	7	8	9	A	H	J	M*	
*	24	4	3	4	1	1	1	1	1	6	7*	53
*	24	4	3	4	1	1	1	1	1	6	7*	53

TOTAL PERCENTAGE

*	0	1	5	6	7	8	9	A	H	J	M*	
*	45.28	7.55	5.66	7.55	1.89	1.89	1.89	1.89	1.89	11.32	13.21*	100.00
*	45.28	7.55	5.66	7.55	1.89	1.89	1.89	1.89	1.89	11.32	13.21*	53

THIS TABLE IS FOR FIRST OR ONLY RESPONSES NOT INCLUDING NIL RESPONCES
UNIVARIATE TABLE OF YOU:NEED:INFO(CC 158)

TOTAL PERCENTAGE

*	1	5	6	7	8	9	A	H	J	M*	
*	13.79	10.34	13.79	3.45	3.45	3.45	3.45	3.45	20.69	24.14*	100.00
*	13.79	10.34	13.79	3.45	3.45	3.45	3.45	3.45	20.69	24.14*	29

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF YOU:NEED:INFO(CC 158)

TOTAL PERCENTAGE

*	1	5	6	7	8	9	A	E	F	G	H	I	J	K	M*	
*	21.15	7.69	11.54	5.77	3.85	5.77	7.69	1.92	1.92	1.92	1.92	1.92	11.54	1.92	13.46*	100.00
*	21.15	7.69	11.54	5.77	3.85	5.77	7.69	1.92	1.92	1.92	1.92	1.92	11.54	1.92	13.46*	52

Q 24—WHAT ITEMS WOULD YOU SUGGEST THAT THE CLIENT BE INFORMED ABOUT ?

1 = PROGRESS DELAYS THAT RESULT FROM LACK OF INFORMATION &/OR DECISIONS

2 = PRIORITY OF ITEMS OR DECISIONS

3 = AS MANY AS POSSIBLE

4 = COMPANY PROCEDURES

5 = NEW DEVELOPMENTS (THAT COULD SAVE MONEY OR NEW PROBLEMS)

6 = HAS - CLIENT RESPONSIBILITIES

7 = COSTS & ENGINEERING COSTS

8 = ENOUGH TO KEEP HIM HAPPY

COMBINED RESULTS

THIS TABLE IS FOR FIRST CP ONLY RESPONSES
UNIVARIATE TABLE OF CLI:BE:INFORMED:OF(CC 169)

FREQUENCY TABLE

*	0	1	2	3	4	5	7	8*	
*	31	6	2	4	4	3	2	1*	53
*	31	6	2	4	4	3	2	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	7	8*	
*	58.49	11.32	3.77	7.55	7.55	5.66	3.77	1.89*	100.00
*	58.49	11.32	3.77	7.55	7.55	5.66	3.77	1.89*	53

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF CLI:BE:INFORMED:OF(CC 169)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8*	
*	25.93	7.41	18.52	14.81	18.52	3.70	7.41	3.70*	100.00
*	25.93	7.41	18.52	14.81	18.52	3.70	7.41	3.70*	27

Q 25-WHAT ITEMS ABOUT CLIENT OR PROJECT REQUIREMENTS DO YOU FEEL SHOULD BE MORE CAREFULLY EXPLAINED TO YOU ?

1 = GENERAL AND DETAILED REQUIREMENTS

2 = REQUIRED SCHEDULING

3 = EXPLANATION, REASONS, BACKGROUND OF CLIENT REQUESTS OR DECISIONS (WHICH DECISIONS ARE CLIENTS & WHICH HAS MGT. , ACTION TAKEN BY OTHERS INTERFERING WITH MY AREA OF RESPONSIBILITY)

4 = EQUIPMENT PREFERENCES & EXPERIENCE

5 = MATERIALS AVAILABLE

6 = CONTRACTS

7 = COMMERCIAL &/OR LEGAL RESPONSIBILITIES

8 = CLIENT DECISIONS (UP TO DATE)

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF BE:EXPLAINED:TO:YOU(CC 174)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7	8*	
*	27	14	3	3	1	2	1	1	1*	53
*	27	14	3	3	1	2	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8*	
*	50.94	26.42	5.66	5.66	1.89	3.77	1.89	1.89	1.89*	100.00
*	50.94	26.42	5.66	5.66	1.89	3.77	1.89	1.89	1.89*	53

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF BE:EXPLAINED:TO:YOU(CC 174)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8*	
*	53.33	16.67	10.00	3.33	6.67	3.33	3.33	3.33*	100.00
*	53.33	16.67	10.00	3.33	6.67	3.33	3.33	3.33*	30

Q 33-WHAT DO YOU FEEL CONTRIBUTES MOST TO POOR WORK EVALUATION ?

1 = LACK OF KNOWLEDGE OF INDIVIDUALS BY EVALUATORS

2 = POOR WORK, THE MAN HIMSELF

3 = SHIFTING FROM JOB TO JOB, TEAM TO TEAM

4 = LACK OF INTEREST (IN DULL WORK, REVISIONS)

5 = LACK OF COMMUNICATION (TO INFORM POOR WORKER WHERE HE IS GOING WRONG)

6 = LACK OF COMMUNICATION BETWEEN 1ST LINE SUPERISOR & DEPT. HEAD

7 = PRIDE IN WORK NOT ENCOURAGED

8 = MORE THAN 1 PERSON WORKING ON A DWG.

9 = COMMUNICATION PROBLEMS, LARGE SIZE OF DEPT.

A = LACK OF RATING SYSTEM, EVALUATION PROCEDURE

B = PREJUDICE

C = RIVALRY, POOR JUDGEMENT

D = WORK POORLY DISTRIBUTED

E = LITTLE TIME ALLOWED FOR EVALUATION

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF REASONS:FOR:POOR:EVAL(CC 221)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	8	9	A	B	C	D	E*	
*	18	4	3	1	3	2	2	1	12	3	1	1	1	1*	53
*	18	4	3	1	3	2	2	1	12	3	1	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	8	9	A	B	C	D	E*	
*	33.96	7.55	5.66	1.89	5.66	3.77	3.77	1.89	22.64	5.66	1.89	1.89	1.89	1.89*	100.00
*	33.96	7.55	5.66	1.89	5.66	3.77	3.77	1.89	22.64	5.66	1.89	1.89	1.89	1.89*	53

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 4) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF REASONS:FOR:POOR:EVAL(CC 221)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	8	9	A	B	C	D	E*	
*	13.16	7.89	2.63	7.89	5.26	5.26	2.63	31.58	10.53	2.63	5.26	2.63	2.63*	100.00
*	13.16	7.89	2.63	7.89	5.26	5.26	2.63	31.58	10.53	2.63	5.26	2.63	2.63*	38

Q 38-WHAT SPECIFIC TYPES OF REFERENCE MATERIAL DO YOU FEEL NEEDS IMPROVEMENT ?

1 = EVALUATION OF PRODUCTS

2 = DESIGN DATA,-STANDARD CRITEREA

3 = PROJECTS OUTSIDE NORTH AMERICA

4 = TECHNICAL LIBRARY

5 = CONSTRUCTION COST INFO

6 = CATALOGUES, TECHNICAL HANDBOOKS

7 = ADVANCED STRUCTURAL ANALYSIS & DESIGN OUTSIDE P & P INDUSTRY

8 = FOREIGN CODES OF PRACTICE

9 = REF. MATERIAL FOR UNUSUAL PROBLEMS

A = SET OF CLASSICAL BOOKS

B = JOURNALS, PROCEEDINGS, ETC.

C = STICKFILES & VENDORS REF.

D = NEW EQUIPMENT,FOREIGN EQUIPMENT

E = SPECIFIC PROBLEMS ON PREVIOUS JOBS

F = ESTIMATING, OPERATING COST DATA, ENG. COST DATA

G = MANUFACTURERS DWGS.

H = CROSS-REFERENCE SYSTEMS

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF REF:MAT:NEEDED(CC 229)

FREQUENCY TABLE

*	0	1	3	4	5	6	7	8	9	B	C	D	E	F	G*	
*	34	1	1	1	1	1	1	2	1	1	1	3	1	3	1*	53
*	34	1	1	1	1	1	1	2	1	1	1	3	1	3	1*	53

TOTAL PERCENTAGE

*	0	1	3	4	5	6	7	8	9	B	C	D	E	F	G*	
*	64.15	1.89	1.89	1.89	1.89	1.89	1.89	3.77	1.89	1.89	1.89	5.66	1.89	5.66	1.89*	100.00
*	64.15	1.89	1.89	1.89	1.89	1.89	1.89	3.77	1.89	1.89	1.89	5.66	1.89	5.66	1.89*	53

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 5) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF REF:MAT:NEEDED(CC 229)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
*	4.00	4.00	4.00	4.00	4.00	8.00	4.00	8.00	4.00	4.00	4.00	4.00	16.00	8.00	12.00	4.00
*	4.00	4.00	4.00	4.00	4.00	8.00	4.00	8.00	4.00	4.00	4.00	4.00	16.00	8.00	12.00	4.00

TOTAL PERCENTAGE (CONTINUED)

*	H*	
*	4.00*	100.00
*	4.00*	25

Q 41-IF YOU HAD BEEN ASKED TO CONTRIBUTE ONE QUESTION TO THIS SURVEY,WHAT WOULD IT BE ?

1 = IS THERE SUFFICIENT LAYOUT PLANNING & LEAD TIME AHEAD OF STRUCT. ENG. ?
2 = QUESTIONS CONCERNING QUALITY OF PHYSICAL WORKING CONDITIONS (FURNITURE, BUILDING,AIR COND.,SPACE,ETC.)
3 = SHOULD STAFF BE EMPLOYED TO IMPROVE DESIGN STANDARDS ?
4 = HOW CAN CO. CONTRIBUTE TO ELEVATING THE IMAGE OF ENG. PROFESSION ?
5 = IS SUFFICIENT TIME ALLOCATED FOR SOLVING REPETITIVE PROBLEMS,IMPROVE & CONSOLIDATE DESIGN CONCEPTS OR APPROACHES ?
6 = DO YOU THINK IT WOULD BE A GOOD IDEA FOR (PRESIDENT)TO SPEND A COUPLE OF HOURS/YEAR IN EACH DEPT. TO INTRODUCE HIMSELF AND PUT RELATIONSHIP ON A MORE PERSONAL BASIS ?
7 = WHY SO MANY DRAWING REVISIONS ?
8 = IF OFFERED MORE MONEY OR MORE JOB SECURITY WHICH WOULD YOU CHOOSE ?
9 = DO YOU HAVE A SENSE OF ACHIEVEMENT (FEEL FULFILLED)FROM WORKING HERE ?
A = DO YOU FEEL EVERYONE SHOULD HAVE A CHANCE TO GO TO THE FIELD ?
B = DO YOU FEEL A PART OF THIS CO. ?
C = ARE YOU FRUSTRATED IN YOUR JOB ?
D = WHICH DEPT. NEEDS IMPROVEMENT ?
E = HOW MANY HOURS SHOULD BE WORKED ?
F = DO YOU THINK A SUGGESTION OR QUESTION BOX WOULD BE USEFUL ?
G = WHAT IMPROVEMENTS WOULD YOU INITIATE ?
H = WOULD YOU AGREE TO A GRIEVENCE COMMITTEE TO SETTLE PERSONNEL AND WAGE PROBLEMS ?
J = IS CURRENT PAYROLL METHOD OBSOLETE ?
K = DO YOU LIKE THIS LOCATION ?
L = HOW WOULD YOU RATE THIS CO. AS A WHOLE ?
M = IS YOUR SALARY ADEQUATE ?

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF NEW:QUESTION(CC 236)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
*	28	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1
*	28	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1

FREQUENCY TABLE (CONTINUED)

*	G	H	J	K	L	M*	
*	2	1	1	1	1	1*	53
*	2	1	1	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
*	52.83	1.89	5.66	1.89	1.89	1.89	1.89	1.89	1.89	3.77	1.89	1.89	1.89	1.89	1.89	1.89
*	52.83	1.89	5.66	1.89	1.89	1.89	1.89	1.89	1.89	3.77	1.89	1.89	1.89	1.89	1.89	1.89

TOTAL PERCENTAGE (CONTINUED)

*	G	H	J	K	L	M*	
*	3.77	1.89	1.89	1.89	1.89	1.89*	100.00
*	3.77	1.89	1.89	1.89	1.89	1.89*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 2)
UNIVARIATE TABLE OF NEW:QUESTION(CC 236)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
*	4.00	12.00	4.00	4.00	4.00	4.00	4.00	4.00	8.00	4.00	4.00	4.00	4.00	4.00	4.00	8.00
*	4.00	12.00	4.00	4.00	4.00	4.00	4.00	4.00	8.00	4.00	4.00	4.00	4.00	4.00	4.00	8.00

TOTAL PERCENTAGE (CONTINUED)

*	H	J	K	L	M*	
*	4.00	4.00	4.00	4.00	4.00*	100.00
*	4.00	4.00	4.00	4.00	4.00*	25

Q 42-WHAT WOULD BE YOUR ANSWER TO THAT QUESTION ? (SEE Q 41)

1 = YES (OR POSITIVE COMMENT)

2 = NO (OR NEGITIVE COMMENT)

3 = NEW NEW LOCATION NEEDED

4 = INSIDE CONDITIONS GOOD

5 = RAISE SALARIES

6 = BETTER CONDITIONS

7 = DESIRE TO GET CONSTRUCTION UNDERWAY BEFORE EQUIPMENT KNOWN

8 = JOB SECURITY

9 = UNCODED ANSWER

A = 36 HOURS/WEEK + 4 DAY WEEK

B = COMPREHENSIVE TRAINING PROG. WITH LECTURES,FIELD TRIPS,ETC. (BOTH TECHNICAL & GENERAL)

C = YES - SHOULD HAVE BANK DEPOSIT SYSTEM

D = BETTER ORGANIZATION OF PROJECTS

E = FAIR

COMBINED RESULTS

BIVARIATE TABLE OF ANSWER:TO(CC 238) VS NEW:QUESTION(CC 236)

FREQUENCY TABLE

* /	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
1*	0	0	1	0	0	1	0	0	0	1	0	1	0	0	1	0
2*	1	2	0	0	1	0	0	0	2	0	1	0	0	0	0	0
3*	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5*	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7*	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8*	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
9*	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
A*	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
B*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
D*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
E*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1	2

FREQUENCY TABLE (CONTINUED)

*	H	J	K	L	M*	
1*	1	0	0	0	0*	6
2*	0	0	1	0	1*	9
3*	0	0	0	0	0*	1
5*	0	0	0	0	0*	1
7*	0	0	0	0	0*	1
8*	0	0	0	0	0*	1
9*	0	0	0	0	0*	1
A*	0	0	0	0	0*	1
B*	0	1	0	0	0*	2
D*	0	0	0	0	0*	1
E*	0	0	0	1	0*	1
*	1	1	1	1	1*	25

Q 43-COMMENTS ON SURVEY

1 = GOOD SURVEY,(QUITE COMPLETE)

2 = POOR SURVEY

3 = PART II(A) TOO COMPLEX

4 = WE NEEDED SURVEY

5 = DOUBT VALUE OF SURVEY

6 = OTHER COMMENTS ABOUT SPECIFIC QUESTIONS

7 = TOO LONG

8 = QUESTIONS UNCLEAR,COMPLICATED

9 = INTERESTING

A = HOPEFUL OF RESULTS

B = ANYONE WHO COMPLETES THIS SURVEY SHOULD BE CONSIDERED A DEDICATED EMPLOYEE

C = LONG OVERDUE

D = WORRIED ABOUT IDENTIFICATION THROUGH PART 1

E = PART II COULD NOT BE ANSWERED HONESTLY FOR THIS CO. SITUATION

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COMBINED RESULTS

THIS TABLE IS FOR FIRST CR ONLY RESPONSES
UNIVARIATE TABLE OF COMMENTS:CN:SURVEY(CC 241)

FREQUENCY TABLE

*	0	1	3	5	6	7	8	9	B	C	D*	
*	25	5	10	1	1	2	5	1	1	1	1*	53
*	25	5	10	1	1	2	5	1	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	3	5	6	7	8	9	B	C	D*	
*	47.17	9.43	18.87	1.89	1.89	3.77	9.43	1.89	1.89	1.89	1.89*	100.00
*	47.17	9.43	18.87	1.89	1.89	3.77	9.43	1.89	1.89	1.89	1.89*	53

THIS TABLE FOR ALL RESPONSES(UP TO FIRST 3) NOT INCLUDING NIL RESPONSES
UNIVARIATE TABLE OF COMMENTS:ON:SURVEY(CC 241)

TOTAL PERCENTAGE

*	1	3	5	6	7	8	9	A	B	C	D	E*	
*	14.29	30.95	9.52	2.38	9.52	19.05	2.38	2.38	2.38	2.38	2.38	2.38*	100.00
*	14.29	30.95	9.52	2.38	9.52	19.05	2.38	2.38	2.38	2.38	2.38	2.38*	42

EXECUTION TERMINATED

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APPENDIX E

Coding information and MVTAB results for open-end questions of Section IV

(NAME) LTD. IMPROVEMENT SURVEY CODING INFORMATION

Q 4-....WHAT DO YOU FEEL SHOULD BE CHANGED RE STAFF NEWS

1 = TO BLAND (INOFENSIVE)

2 = MORE ON PLANS,GOALS,POLICY

3 = LIBRARY NEWS-NEWS BOOKS,ETC.

4 = EDITORIAL COMMENT,SOUNDING BOARD,LETTERS TO EDITOR

5 = CHEAPER QUALITY--MORE OFTEN

6 = HOBBY,TRAVEL INTERESTS OF OTHER EMPLOYEES

7 = HOME FIXIT INFORMATION

8 = WOULDN'T BE MISSED

9 = MORE FREQUENT

A = MORE PERSONAL HISTORIES

B = MORE DETAILS &ILLUSTRATIONS ON CO. PROJECTS

C = LESS CENSORSHIP

D = LESS "SMALL-TOWN" TALK

E = DEPARTMENTAL REPORTERS

F = MORE TECHNICAL NEWS

FOR APPENDIX

NAME) LTD IMPROVEMENT SURVEY RESULTS COMBINED COMPILED BY DAVE YOUNG

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF CHANGES:WANTED::STAFF:NEWS(CC 248)

FREQUENCY TABLE

*	0	2	3	6	8	9	A	B	C	D	E	F*	
*	32	4	1	1	2	1	2	5	1	1	1	2*	53
*	32	4	1	1	2	1	2	5	1	1	1	2*	53

TOTAL PERCENTAGE

*	0	2	3	6	8	9	A	B	C	D	E	F*	
*	60.38	7.55	1.89	1.89	3.77	1.89	3.77	9.43	1.89	1.89	1.89	3.77*	100.00
*	60.38	7.55	1.89	1.89	3.77	1.89	3.77	9.43	1.89	1.89	1.89	3.77*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 5)
UNIVARIATE TABLE OF CHANGES:WANTED::STAFF:NEWS(CC 248)

TOTAL PERCENTAGE

*	2	3	4	5	6	7	8	9	A	B	C	D	E	F*	
*	17.65	2.94	5.88	2.94	11.76	2.94	5.88	2.94	5.88	17.65	11.76	2.94	2.94	5.88*	100.00
*	17.65	2.94	5.88	2.94	11.76	2.94	5.88	2.94	5.88	17.65	11.76	2.94	2.94	5.88*	34

Q 6 7 8 RE FRINGE BENEFITS

1 = EXTENDED HEALTH CARE PLAN

2 = MEDICAL PLAN (MSA)

3 = PENSION PLAN

4 = EDUCATION SUPPLEMENT

5 = SICK LEAVE

6 = HOLIDAY

7 = GROUP LIFE INSURANCE

8 = SALARY PROTECTION

9 = CANADA PENSION

A = UNEMPLOYMENT INSURANCE

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF VALUE:MOST(CC 259)

FREQUENCY TABLE

*	0	1	2	4	5	7	8*	
*	20	4	20	1	5	1	2*	53
*	20	4	20	1	5	1	2*	53

TOTAL PERCENTAGE

*	0	1	2	4	5	7	8*	
*	37.74	7.55	37.74	1.89	9.43	1.89	3.77*	100.00
*	37.74	7.55	37.74	1.89	9.43	1.89	3.77*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 4)
UNIVARIATE TABLE OF VALUE:MOST(CC 259)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A*	
*	18.18	38.18	5.45	3.64	10.91	1.82	9.09	9.09	1.82	1.82*	100.00
*	18.18	38.18	5.45	3.64	10.91	1.82	9.09	9.09	1.82	1.82*	55

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF NOT:VALUE(CC 263)

FREQUENCY TABLE

*	0	1	3	7*	
*	34	2	13	4*	53
*	34	2	13	4*	53

TOTAL PERCENTAGE

*	0	1	3	7*	
*	64.15	3.77	24.53	7.55*	100.00
*	64.15	3.77	24.53	7.55*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 4)
UNIVARIATE TABLE OF NOT:VALUE(CC 263)

TOTAL PERCENTAGE

*	1	3	7*	
*	16.67	66.67	16.67*	100.00
*	16.67	66.67	16.67*	24

Q 9-WHAT CHANGES IN FRINGE BENEFITS WOULD YOU SUGGEST ?

1 = LONGER HOLIDAYS (WITH SENIORITY)

2 = 1.5 TIME FOR ALL OVERTIME

3 = SICK TIME ACCUMULATION PLAN

4 = VACATION BASED ON TOTAL SERVICE (BROKEN OR NOT)

5 = EXPANDED HEALTH COVERAGES

6 = BETTER INSURANCE &/OR PENSION PLANS

7 = OPPORTUNITY TO INCREASE LIFE INS. OR PENSIONCOVERAGE

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF SUGGESTED:CHANGES(CC 267)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7*	
*	37	8	1	2	1	2	1	1*	53
*	37	8	1	2	1	2	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7*	
*	69.81	15.09	1.89	3.77	1.89	3.77	1.89	1.89*	100.00
*	69.81	15.09	1.89	3.77	1.89	3.77	1.89	1.89*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 4)
UNIVARIATE TABLE OF SUGGESTED:CHANGES(CC 267)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7*	
*	47.37	10.53	10.53	5.26	10.53	10.53	5.26*	100.00
*	47.37	10.53	10.53	5.26	10.53	10.53	5.26*	19

Q 10-SUGGESTED ADDITIONS TO FRINGE BENEFIT PLAN

1 = DENTAL CARE

2 = PROFIT SHARING

3 = TAX DEFERRED TRUST ACCOUNTS

4 = GROUP CAR INSURANCE

5 = PARKING

6 = WHOLESALE OUTLET PURCHASING

7 = OPTICAL COVERAGE

8 = DRUGS COVERAGE

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF SUGGESTED:ADDITIONS(CC 271)

FREQUENCY TABLE

	0	1	2	5	8*	
*	21	28	2	1	1*	53
*	21	28	2	1	1*	53

TOTAL PERCENTAGE

	0	1	2	5	8*	
*	39.62	52.83	3.77	1.89	1.89*	100.00
*	39.62	52.83	3.77	1.89	1.89*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 4)
UNIVARIATE TABLE OF SUGGESTED:ADDITIONS(CC 271)

TOTAL PERCENTAGE

	1	2	3	4	5	6	7	8*	
*	69.77	6.98	2.33	2.33	6.98	4.65	4.65	2.33*	100.00
*	69.77	6.98	2.33	2.33	6.98	4.65	4.65	2.33*	43

Q 12-WHAT OTHER TRAINING OF INTEREST ?

1 = MANAGEMENT PROGRAM ,BUSINESS COURSES

2 = DESIGN COURSE

3 = ORIENTATION COURSE ON PULP & PAPER

4 = JOB PROMOTION (SALES)

5 = SHORT PERIODS IN OTHER DEPTS.

6 = TECHNICAL SEMINARSS,COURSES (@LUNCH TIME)

7 = EFFICIENCY TIME STUDIES

8 = ANYTHING TO INCREASE EARNING POWER

9 = ESTIMATING,DRAFTING

A = GOALS,POLICIES OF DEPTS & CO.

B = REVIEW PAST ERRORS

$SIG

COMBINED RESULTS

THIS TABLE IS FOR FIRST OR ONLY RESPONSES
UNIVARIATE TABLE OF OTHER:TRAINING(CC 276)

FREQUENCY TABLE

*	0	1	2	3	5	6	7	8	9	A	B*	
*	29	6	3	6	1	3	1	1	1	1	1*	53
*	29	6	3	6	1	3	1	1	1	1	1*	53

TOTAL PERCENTAGE

*	0	1	2	3	5	6	7	8	9	A	B*	
*	54.72	11.32	5.66	11.32	1.89	5.66	1.89	1.89	1.89	1.89	1.89*	100.00
*	54.72	11.32	5.66	11.32	1.89	5.66	1.89	1.89	1.89	1.89	1.89*	53

THIS TABLE IS FOR ALL RESPONSES (UP TO FIRST 3)
UNIVARIATE TABLE OF OTHER:TRAINING(CC 276)

TOTAL PERCENTAGE

*	1	2	3	4	5	6	7	8	9	A	B*	
*	26.92	11.54	23.08	3.85	3.85	11.54	3.85	3.85	3.85	3.85	3.85*	100.00
*	26.92	11.54	23.08	3.85	3.85	11.54	3.85	3.85	3.85	3.85	3.85*	26

COMBINED RESULTS

AGE 1=<20 2=20-25 3=26-30 4=31-35 5=36-40 6=41-45 7=46-50 8=51-55 9=5 6-60 A=61-65 B=>65
BIVARIATE TABLE OF AGE(CC 16) VS VALUE:MOST(CC 259)

FREQUENCY TABLE

*	0	1	2	3	4	5	6	7	8	9	A*	
0*	7	0	1	0	0	0	0	0	0	0	0*	8
3*	22	0	4	0	0	2	0	0	0	0	0*	28
4*	38	3	5	0	1	1	0	2	4	1	1*	56
5*	28	5	5	0	0	1	0	1	0	0	0*	40
6*	35	1	4	0	1	1	0	1	1	0	0*	44
7*	27	1	2	3	0	1	1	1	0	0	0*	36
*	157	10	21	3	2	6	1	5	5	1	1*	212

HORIZONTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8	9	A*	
0*	87.50	.00	12.50	.00	.00	.00	.00	.00	.00	.00	.00*	8
3*	78.57	.00	14.29	.00	.00	7.14	.00	.00	.00	.00	.00*	28
4*	67.86	5.36	8.93	.00	1.79	1.79	.00	3.57	7.14	1.79	1.79*	56
5*	70.00	12.50	12.50	.00	.00	2.50	.00	2.50	.00	.00	.00*	40
6*	79.55	2.27	9.09	.00	2.27	2.27	.00	2.27	2.27	.00	.00*	44
7*	75.00	2.78	5.56	8.33	.00	2.78	2.78	2.78	.00	.00	.00*	36
*	74.06	4.72	9.91	1.42	.94	2.83	.47	2.36	2.36	.47	.47*	212

VERTICAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8	9	A*	
0*	4.46	.00	4.76	.00	.00	.00	.00	.00	.00	.00	.00*	3.77
3*	14.01	.00	19.05	.00	.00	33.33	.00	.00	.00	.00	.00*	13.21
4*	24.20	30.00	23.81	.00	50.00	16.67	.00	40.00	80.00	100.00	100.00*	26.42
5*	17.83	50.00	23.81	.00	.00	16.67	.00	20.00	.00	.00	.00*	18.87
6*	22.29	10.00	19.05	.00	50.00	16.67	.00	20.00	20.00	.00	.00*	20.75
7*	17.20	10.00	9.52	100.00	.00	16.67	100.00	20.00	.00	.00	.00*	16.98
*	157	10	21	3	2	6	1	5	5	1	1*	212

TOTAL PERCENTAGE

*	0	1	2	3	4	5	6	7	8	9	A*	
0*	3.30	.00	.47	.00	.00	.00	.00	.00	.00	.00	.00*	3.77
3*	10.38	.00	1.89	.00	.00	.94	.00	.00	.00	.00	.00*	13.21
4*	17.92	1.42	2.36	.00	.47	.47	.00	.94	1.89	.47	.47*	26.42
5*	13.21	2.36	2.36	.00	.00	.47	.00	.47	.00	.00	.00*	18.87
6*	16.51	.47	1.89	.00	.47	.47	.00	.47	.47	.00	.00*	20.75
7*	12.74	.47	.94	1.42	.00	.47	.47	.47	.00	.00	.00*	16.98
*	74.06	4.72	9.91	1.42	.94	2.83	.47	2.36	2.36	.47	.47*	212

COMBINED RESULTS

AGE 1=<20 2=20-25 3=26-30 4=31-35 5=36-40 6=41-45 7=46-50 8=51-55 9=5 6-60 A=61-65 B=>65
BIVARIATE TABLE OF AGE(CC 16) VS NOT:VALUE(CC 263)

FREQUENCY TABLE

*	0	1	3	7*	
0*	7	0	1	0*	8
3*	27	0	1	0*	28
4*	48	3	5	0*	56
5*	33	0	6	1*	40
6*	39	0	3	2*	44
7*	34	1	0	1*	36
*	188	4	16	4*	212

HORIZONTAL PERCENTAGE

*	0	1	3	7*	
0*	87.50	.00	12.50	.00*	8
3*	96.43	.00	3.57	.00*	28
4*	85.71	5.36	8.93	.00*	56
5*	82.50	.00	15.00	2.50*	40
6*	88.64	.00	6.82	4.55*	44
7*	94.44	2.78	.00	2.78*	36
*	88.68	1.89	7.55	1.89*	212

VERTICAL PERCENTAGE

*	0	1	3	7*	
0*	3.72	.00	6.25	.00*	3.77
3*	14.36	.00	6.25	.00*	13.21
4*	25.53	75.00	31.25	.00*	26.42
5*	17.55	.00	37.50	25.00*	18.87
6*	20.74	.00	18.75	50.00*	20.75
7*	18.09	25.00	.00	25.00*	16.98
*	188	4	16	4*	212

TOTAL PERCENTAGE

*	0	1	3	7*	
0*	3.30	.00	.47	.00*	3.77
3*	12.74	.00	.47	.00*	13.21
4*	22.64	1.42	2.36	.00*	26.42
5*	15.57	.00	2.83	.47*	18.87
6*	18.40	.00	1.42	.94*	20.75
7*	16.04	.47	.00	.47*	16.98
*	88.68	1.89	7.55	1.89*	212

APPENDIX F

Results Summary for Sections III and IV as given the company

Sample of responses

RESULTS SUMMARY-IMPROVEMENT SURVEY

by D. R. Young

The following is a brief summary, pointing out results and in places giving comments on relationships to other parts of the survey and relevant literature on the topics. Perhaps a word of advice on interpreting open-end question responses is in order. Though more common responses will be emphasized in this summary it should be remembered that many responses, though numerically low, might find higher degrees of agreement from others if presented as a choice in a closed-end question.

Types of respondent: Though a broad spectrum of people responded it would appear that there were biases in the pattern away from being perfectly representative on the following factors:

1. more high education personnel
2. more longer service personnel
3. more genuinely concerned individuals

Comment: Though a biased representation, the results come from those persons whose continued employment in the firm would be most desirable and advantageous.

Question 1-4--re design standards.

Though there was general recognition of the theoretical value of design standards there was some evidence of believed inadequacy of, and lack of design standards. There appeared to be interest in knowing how D.S. were to be changed but suggestions on procedures were rather divergent. There was also

an interest shown in having better notification of changes once they were made.

Question 5-9--good and improvable aspects of depts. and firm.

The favourable comments made about the departments substantially outnumbered those about the firm and tended to emphasize satisfaction with personal and individual relations while those about the firm emphasized pay and advantageous capabilities (real and potential) of the firm. Requests for improvement were more numerous than the favourable comments. The department requests emphasized factors that would derive from similar shifts in philosophy of management re communications, teamwork, and organizations as well as above average comments on physical facilities. The requests for improvement in the firm in many cases were similar though the emphasis shifts more to concerns with security and physical facilities.

Comment: One could consider requests for goals and policies, profit sharing, better working facilities, and diversification as requests for specific items which are related to long-term commitment of management on important concerns of employees with stability of the firm and job security. (i.e. announced policies and goals, as well as being informative and nice in themselves, would express management confidence in longer term prospects for the firm.)

The advantages and disadvantages of the firm size reflected consistent considerations though there were some

contradictory opinions on such items as chances for advancement or routine and reduced challenge versus different challenges. The wider scope of projects was generally appreciated while the impersonality or loss of individuality were considered disadvantages.

Questions 10-13, general 11, 12--re company courses.

There were generally favourable responses to questions about having more courses available. One of the more enthusiastic responses (82%) was for an orientation course for new employees. The highest response (88%) indicated high interest in technical and management courses. This coincided generally with comments of subordinates and with requests for management, business, and technical seminars or courses in question 12 (general). There also appears to be interest in an orientation course on the technology of the firm.

Questions 15-17, 26-28--re information required.

Requests for goals and plans, information on organization and office procedures within the department led others, though the response on this question (15) was low. The comments on information required of (or for) other departments is likely to be misleading on an aggregate basis from only 2 departments. Though Electrical is highest on aggregate, materials handling and structural were next highest on each other's scores which does not show on the current aggregate basis. There was a

general tendency to pass credit for lack in information to project staffs and other departments (question 28).

Questions 18-25--re client and project requirements.

There was more satisfaction with how well the client was informed compared to how well individuals were informed of client and project requirements. The blame for both these problems tended to be outside the department though only the within department questions received a minority always at fault response.

Leading the responses for what the client should be informed of, was information on how much delay (or disruption) was caused by lack on information and/or decisions from clients.

Requests for more (and more detailed) requirements and schedule or requirements from clients were also solicited.

Comment: Both the requests for more information from the client and fewer delays on decisions and information from the client indicate a requirement for more careful regulation of inputs to the technical core by project staffs (backed up by management) to prevent client induced disruptions in orderly performance of work. For more on this topic see reference 1. In reflection on what are considered "good" or "bad" jobs much of the resultant difference can stem from how these inputs are controlled either by good project staffs or well organized or co-operative clients.

ref. 1 Thompson, J. D. Organizations in Action. New York: Mc graw-hill, 1967, pp. 18-24.

Questions 29-31, 36--re supervisor and management contact.

There was a request for more contact with management senior to one's immediate supervisor while expressing general satisfaction with the degree of contact with immediate supervisors. There was considerable emphasis on the point that initiation of such contact be by senior personnel and by supervisors.

Questions 32-35--re evaluation.

More than half indicated some degree of dissatisfaction with evaluation, with many giving poor communications and lack of knowledge of individuals (by evaluators) as reasons. These opinions fit fairly well with not overly strong opinions on being held down or not having an opportunity to learn. Comment: Much of the literature on compensation gives reasons for continued poor evaluation similar to answer 5 question 33). The failure to inform poor workers where they are going wrong and how they can change for their own and the firm's benefit can only lead to performance in the future which is similar to what has been less than satisfactory in the past.

Questions 37-39--re reference material and library.

The low response and diversity of requests for specific types of reference material do not provide easy guides though some of the requests given might be worth evaluating on an individual basis to see if such material would indeed be worth collecting and having available.

Questions 41-42--re new question for survey.

All of the questions and answers given could be considered as rather specific beefs related to the topic of the question. They could be considered as rather specific emphasis on opinions expressed elsewhere in the survey. Once again unique suggestions such as a bank deposit payroll system or a 4 day week might need to be considered on their own merits.

Question 43--survey comments.

There were many comments on complexity and length of the survey (especially part IIA).

Questions 1-4 General--re staff news.

Reading and interest in the staff news appear high though many would like to see additions in the areas of exposition of company policies, goals and plans (editorial comment) and more information and illustrations on company projects. Comment: the staff news could well be used as a vehicle for providing much of the information requested in other parts of the survey.

Questions 5-10--re fringe benefits.

The medical plan and extended health care plan were most valued while there were definite negative opinions on the current pension plan despite the wording of the question (8). Several people simply commented that all items of the fringe benefit plan have some value without mentioning specific

complaints of items of least relative value. Longer vacations associated with longer service (broken or not) was the most popular change requested while a dental care plan was the most popular request for addition to fringe benefits.

Question 13--re diversification.

There was only one negative response for this item.

Sample of Responses

This psychological stuff is not my bag. Being a (position) I am a practical type. . . . Personally I derive satisfaction from doing a job to the best of my ability-- HOWEVER the emphasis is on QUANTITY of work turned out NOT QUALITY with the result that the general standard of work issued is pathetically low. Speaking for myself - I refuse to compromise my abilities as I take pride in my work and also believe this attitude to be in the firm's interest.

Q 43 JOB SECURITY IS A MAJOR FACTOR. It is difficult for an employee to become too involved in the issues raised in Part IIA - co-ordination, responsibility to department & firm etc., while he has the knowledge that no matter how hard he works or how loyal and keen he is - if the work load decreases below a certain point, the staff also has to be, but it is hardly a satisfactory situation from the employees viewpoint.

Q 17 We need much better planning development by all departments concerned. Much time & unnecessary frustrations could be saved if major decisions could be held static or, develop a better lead time between planning & design.

Q 4 The present system is good - groups should welcome DS additions if approved by Dept. Head. People should be trained to use DS for their job. IT SHOULD SAVE THE CLIENT MONEY!! AND PAY US MORE.

Q 43 This survey may not solve the inherent problem of the Co. or dept. although this may be the beginning of exposing it.

Q 7 orginization, team spirit, co-ordination, more responsibility, etc. etc.

Q 8 as above but 100% more

Q 43 I feel that the general attitude of the co. is good. Which is what this survey is driving at. To get the most out of employees they need challenges & incentives to keep them keen.

APPENDIX G

Table XXXVIII - Matrix of number of paired observations for first survey

(for correlation matrix see Table VI)

TABLE XXXVIII

Matrix of number of paired observations, first survey

NO. PAIRED OBSERVATIONS VARIABLE	1ACATB	1BCATP	1CDISC	1DGEID	2AMOTI	2BUSED	2CATIT	2DRESP	2EATME	2FSATF	3ACOMU
1ACATB	74.										
1BCATP	74.	74.									
1CDISC	74.	74.	74.								
1DGEID	73.	73.	73.	73.							
2AMOTI	64.	64.	64.	64.	64.						
2BUSED	60.	60.	60.	60.	58.	60.					
2CATIT	68.	68.	68.	68.	60.	57.	68.				
2DRESP	73.	73.	73.	73.	64.	60.	68.	73.			
2EATME	71.	71.	71.	71.	63.	60.	67.	71.	71.		
2FSATF	72.	72.	72.	72.	64.	60.	68.	72.	70.	72.	
3ACOMU	72.	72.	72.	72.	64.	60.	67.	72.	71.	71.	72.
3BORTN	71.	71.	71.	71.	63.	59.	66.	71.	70.	70.	71.
3C1DIR	67.	67.	67.	67.	60.	56.	62.	67.	66.	66.	67.
3C2DSH	74.	74.	74.	73.	64.	60.	68.	73.	71.	72.	72.
3C3DAC	71.	71.	71.	71.	62.	59.	66.	71.	69.	70.	70.
3D1UAD	72.	72.	72.	72.	64.	60.	67.	72.	71.	71.	72.
3D2URF	71.	71.	71.	71.	63.	59.	66.	71.	70.	70.	71.
3D3UDS	64.	64.	64.	64.	56.	55.	61.	64.	64.	63.	64.
3D4UAC	69.	69.	69.	69.	62.	59.	64.	69.	68.	69.	69.
3ESADE	71.	71.	71.	71.	63.	60.	66.	71.	70.	70.	71.
3FSADN	69.	69.	69.	69.	62.	59.	64.	69.	68.	69.	69.
3GERIE	72.	72.	72.	72.	63.	59.	67.	72.	70.	71.	71.
4AAINT	68.	68.	68.	68.	62.	58.	65.	68.	67.	68.	67.
4BTEAM	72.	72.	72.	72.	63.	59.	67.	72.	70.	71.	71.
4C1INF	59.	59.	59.	59.	52.	49.	55.	59.	58.	59.	59.
4C2INB	70.	70.	70.	70.	62.	59.	65.	70.	69.	69.	70.
4D1ACT	60.	60.	60.	60.	56.	55.	58.	60.	60.	60.	60.
4EFFST	57.	57.	57.	57.	55.	53.	55.	57.	57.	57.	57.
5ADECL	71.	71.	71.	71.	63.	59.	66.	71.	70.	70.	71.
5BDINF	69.	69.	69.	68.	61.	57.	65.	68.	68.	67.	68.
5CAWAR	72.	72.	72.	72.	64.	60.	67.	72.	71.	71.	72.
5DIEPR	68.	68.	68.	68.	61.	57.	64.	68.	67.	68.	68.
5EBLEV	63.	63.	63.	63.	58.	54.	59.	63.	62.	63.	63.
5FINVO	72.	72.	72.	71.	63.	59.	65.	71.	70.	70.	71.
6AGCLS	70.	70.	70.	70.	63.	59.	66.	70.	69.	70.	70.
6BGLEV	64.	64.	64.	64.	58.	56.	60.	64.	63.	64.	64.
6CGACR	58.	58.	58.	58.	53.	51.	55.	58.	58.	58.	58.
7ACONA	63.	63.	63.	63.	58.	57.	60.	63.	63.	63.	63.
7BCONC	58.	58.	58.	58.	55.	52.	55.	58.	58.	58.	58.
7CINFO	49.	49.	49.	49.	48.	46.	48.	49.	49.	49.	49.
7DPUNI	60.	60.	60.	60.	56.	52.	57.	60.	60.	60.	60.
8APPOD	72.	72.	72.	72.	63.	59.	67.	72.	70.	71.	71.
8BABSC	66.	66.	66.	66.	59.	55.	61.	66.	64.	65.	65.
8CWAST	72.	72.	72.	71.	62.	58.	66.	71.	69.	70.	70.
8DINSP	68.	68.	68.	68.	59.	56.	64.	68.	67.	67.	67.
INSTRP	58.	58.	58.	57.	49.	46.	52.	57.	55.	56.	56.
CONSIP	56.	56.	56.	56.	48.	45.	51.	56.	54.	55.	55.
INSTUD	56.	56.	56.	56.	48.	45.	51.	56.	54.	55.	55.
CONSID	68.	68.	68.	68.	59.	56.	63.	68.	66.	67.	67.
1LEADP	74.	74.	74.	73.	64.	60.	68.	73.	71.	72.	72.
2MOTER	73.	73.	73.	73.	64.	60.	68.	73.	71.	72.	72.
3COMUN	74.	74.	74.	73.	64.	60.	68.	73.	71.	72.	72.
4INTER	73.	73.	73.	73.	64.	60.	68.	73.	71.	72.	72.
5DECMK	73.	73.	73.	72.	64.	60.	67.	72.	71.	71.	72.
6GOLST	70.	70.	70.	70.	63.	59.	66.	70.	69.	70.	70.
7CONTR	67.	67.	67.	67.	61.	58.	64.	67.	67.	67.	67.
8PERFO	73.	73.	73.	72.	63.	59.	67.	72.	70.	71.	71.

TABLE XXXVIII - (continued)

NO. PAIRED OBSERVATIONS

VARIABLE	3BDRTN	3C1DIN	3C2DSH	3C3DAC	3D1UAD	3D2URE	3D3UDS	3D4UAC	3ESADE	3FSADN	3GFRIE
3BDRTN	71.										
3C1DIN	67.	67.									
3C2DSH	71.	67.	74.								
3C3DAC	69.	65.	71.	71.							
3D1UAD	71.	67.	72.	70.	72.						
3D2URE	71.	67.	71.	69.	71.	71.					
3D3UDS	64.	61.	64.	62.	64.	64.	64.				
3D4UAC	68.	65.	69.	67.	69.	68.	62.	69.			
3ESADE	70.	66.	71.	69.	71.	70.	64.	68.	71.		
3FSADN	68.	64.	69.	67.	69.	68.	62.	66.	69.	69.	
3GFRIE	70.	66.	72.	71.	71.	70.	63.	68.	70.	68.	72.
4AAINT	66.	62.	68.	66.	67.	66.	60.	64.	68.	65.	67.
4BIEAM	70.	66.	72.	70.	71.	70.	63.	68.	70.	68.	71.
4C1INF	59.	56.	59.	57.	59.	59.	53.	57.	59.	58.	58.
4C2INB	70.	66.	70.	69.	70.	70.	63.	67.	69.	67.	69.
4DIACT	60.	57.	60.	58.	60.	60.	56.	57.	60.	59.	59.
4EEFST	57.	54.	57.	56.	57.	57.	53.	55.	57.	56.	56.
5ADECL	70.	66.	71.	69.	71.	70.	64.	68.	70.	68.	70.
5BDINF	67.	63.	69.	66.	68.	67.	62.	65.	67.	65.	67.
5CAWAR	71.	67.	72.	70.	72.	71.	64.	69.	71.	69.	71.
5DTEPR	67.	63.	68.	66.	68.	67.	61.	65.	67.	65.	67.
5EBLEV	63.	60.	63.	61.	63.	63.	57.	60.	62.	61.	62.
5FINVO	70.	66.	72.	69.	71.	70.	63.	68.	70.	69.	70.
6AGOLS	70.	66.	70.	68.	70.	70.	63.	67.	69.	67.	69.
6BGLEV	64.	62.	64.	62.	64.	64.	59.	62.	63.	62.	63.
6CGACR	58.	57.	58.	57.	58.	58.	53.	56.	57.	56.	57.
7ACONA	63.	59.	63.	61.	63.	63.	60.	61.	63.	62.	62.
7BCONC	56.	56.	58.	56.	58.	58.	54.	56.	58.	57.	57.
7CINFO	49.	48.	49.	47.	49.	49.	47.	48.	49.	48.	48.
7DPUNI	60.	56.	60.	58.	60.	60.	54.	57.	59.	58.	59.
8APROD	70.	66.	72.	70.	71.	70.	63.	68.	70.	68.	71.
8BABSC	65.	61.	66.	64.	65.	65.	58.	62.	64.	63.	65.
8CWAST	70.	66.	72.	69.	70.	70.	63.	67.	69.	67.	70.
8DINSP	67.	64.	68.	66.	67.	67.	62.	64.	66.	64.	67.
INSTRP	56.	55.	58.	56.	56.	56.	49.	54.	55.	53.	56.
CONSIP	55.	54.	56.	55.	55.	55.	48.	53.	54.	52.	55.
INSTUD	55.	54.	56.	55.	55.	55.	48.	53.	54.	52.	55.
CONSID	66.	63.	68.	67.	67.	66.	59.	64.	66.	64.	67.
1LEADP	71.	67.	74.	71.	72.	71.	64.	69.	71.	69.	72.
2MOTFR	71.	67.	73.	71.	72.	71.	64.	69.	71.	69.	72.
3COMUN	71.	67.	74.	71.	72.	71.	64.	69.	71.	69.	72.
4INTER	71.	67.	73.	71.	72.	71.	64.	69.	71.	69.	72.
5DECMK	71.	67.	73.	70.	72.	71.	64.	69.	71.	69.	71.
6GOLST	70.	66.	70.	68.	70.	70.	63.	67.	69.	67.	69.
7CONTR	67.	63.	67.	65.	67.	67.	61.	64.	66.	65.	66.
8PERFO	70.	66.	73.	70.	71.	70.	63.	68.	70.	68.	71.

TABLE XXXVIII - (continued)

NO. PAIRED OBSERVATIONS

VARIABLE	4AAINT	4BTEAM	4C1INF	4C2INB	4DIACT	4EEFST	5ADECL	5BDINF	5CAWAR	5DTEPR	5EBLEV
4AAINT	68.										
4BTEAM	67.	72.									
4C1INF	55.	58.	59.								
4C2INB	65.	69.	58.	70.							
4DIACT	59.	59.	50.	59.	60.						
4EEFST	56.	56.	50.	57.	54.	57.					
5ADECL	66.	70.	58.	69.	60.	57.	71.				
5BDINF	65.	67.	55.	66.	59.	57.	68.	69.			
5CAWAR	67.	71.	59.	70.	60.	57.	71.	68.	72.		
5DTEPR	64.	67.	57.	66.	58.	55.	68.	65.	68.	68.	
5EBLEV	60.	62.	53.	62.	56.	54.	63.	60.	63.	62.	63.
5FINVO	66.	70.	58.	69.	59.	56.	70.	68.	71.	68.	63.
6AGOLS	66.	69.	59.	69.	60.	57.	69.	66.	70.	67.	63.
6BGLEV	61.	63.	53.	63.	57.	52.	63.	60.	64.	61.	59.
6CGACR	56.	57.	49.	58.	52.	50.	58.	56.	58.	57.	56.
7ACOMA	61.	62.	53.	62.	58.	55.	63.	61.	63.	61.	59.
7BCONC	57.	57.	50.	57.	53.	53.	58.	57.	58.	57.	56.
7CINFO	48.	48.	42.	48.	47.	44.	48.	48.	49.	47.	46.
7DPUNI	60.	60.	51.	59.	54.	51.	59.	58.	60.	59.	57.
8APROD	67.	71.	59.	69.	59.	56.	70.	67.	71.	67.	62.
8BABSC	63.	65.	55.	64.	57.	53.	64.	61.	65.	61.	60.
8CWAST	66.	70.	59.	69.	59.	56.	69.	67.	70.	66.	62.
8DINSP	64.	67.	57.	66.	57.	54.	66.	64.	67.	63.	59.
INSTRP	52.	57.	45.	56.	46.	44.	55.	53.	56.	52.	49.
CONSIP	51.	56.	44.	55.	45.	43.	54.	51.	55.	51.	48.
INSTUD	51.	56.	44.	55.	45.	43.	54.	51.	55.	51.	48.
CONSID	63.	67.	55.	66.	55.	54.	66.	63.	67.	63.	59.
1LEADP	68.	72.	59.	70.	60.	57.	71.	69.	72.	68.	63.
2MOTIP	68.	72.	59.	70.	60.	57.	71.	68.	72.	68.	63.
3COMUN	68.	72.	59.	70.	60.	57.	71.	69.	72.	68.	63.
4INTER	68.	72.	59.	70.	60.	57.	71.	68.	72.	68.	63.
5DECMK	67.	71.	59.	70.	60.	57.	71.	69.	72.	68.	63.
6GOLST	66.	69.	59.	69.	60.	57.	69.	66.	70.	67.	63.
7CONTR	65.	66.	56.	66.	59.	56.	66.	64.	67.	64.	62.
8PERFO	67.	71.	59.	69.	59.	56.	70.	68.	71.	67.	62.

TABLE XXXVIII - (continued)

NO. PAIRED OBSERVATIONS

VARIABLE	5FINVD	6AGOLS	6BGLEV	6CGACR	7ACONA	7BCONC	7CINFO	7DPUNI	8APROD	8BABSC	8CWAST
5FINVD	72.										
6AGOLS	69.	70.									
6BGLEV	63.	64.	64.								
6CGACR	58.	58.	55.	58.							
7ACONA	62.	63.	60.	55.	63.						
7BCONC	58.	58.	54.	54.	57.	58.					
7CINFO	49.	49.	49.	44.	48.	46.	49.				
7DPUNI	60.	60.	56.	52.	56.	53.	46.	60.			
8APROD	70.	69.	63.	57.	62.	57.	49.	60.	72.		
8BABSC	64.	64.	60.	55.	59.	54.	48.	59.	66.	66.	
8CWAST	70.	69.	63.	57.	62.	57.	49.	60.	71.	66.	72.
8DINSP	66.	66.	61.	56.	60.	55.	49.	58.	68.	64.	68.
INSTRP	56.	55.	50.	47.	48.	45.	37.	46.	56.	51.	57.
CONSIP	54.	54.	49.	46.	47.	44.	36.	45.	55.	50.	55.
INSTUD	54.	54.	49.	46.	47.	44.	36.	45.	55.	50.	55.
CONSID	66.	65.	59.	55.	58.	54.	45.	59.	67.	61.	66.
1LEADP	72.	70.	64.	58.	63.	58.	49.	60.	72.	66.	72.
2MOTER	71.	70.	64.	58.	63.	58.	49.	60.	72.	66.	71.
3COMUN	72.	70.	64.	58.	63.	58.	48.	60.	72.	66.	72.
4INTER	71.	70.	64.	58.	63.	58.	49.	60.	72.	66.	71.
5DECMK	72.	70.	64.	58.	63.	58.	49.	60.	71.	65.	71.
6GOLST	69.	70.	64.	58.	63.	58.	49.	60.	69.	64.	69.
7CONTR	66.	67.	63.	58.	63.	58.	49.	60.	66.	63.	66.
8PERFO	71.	69.	63.	57.	62.	57.	49.	60.	72.	66.	72.

NO. PAIRED OBSERVATIONS

VARIABLE	8DINSP	INSTRP	CONSIP	INSTUD	CONSID	1LEADP	2MOTER	3COMUN	4INTER	5DECMK	6GOLST
8DINSP	68.										
INSTRP	53.	61.									
CONSIP	52.	59.	59.								
INSTUD	52.	59.	59.	59.							
CONSID	63.	59.	59.	59.	71.						
1LEADP	68.	58.	56.	56.	68.	74.					
2MOTER	68.	57.	56.	56.	68.	73.	73.				
3COMUN	68.	58.	56.	56.	68.	74.	73.	74.			
4INTER	68.	57.	56.	56.	68.	73.	73.	73.	73.		
5DECMK	67.	57.	55.	55.	67.	73.	72.	73.	72.	73.	
6GOLST	66.	55.	54.	54.	65.	70.	70.	70.	70.	70.	70.
7CONTR	64.	52.	51.	51.	62.	67.	67.	67.	67.	67.	67.
8PERFO	68.	57.	55.	55.	67.	73.	72.	73.	72.	72.	69.

NO. PAIRED OBSERVATIONS

VARIABLE	7CONTR	8PERFO
7CONTR	67.	
8PERFO	66.	73.

APPENDIX H

Table XXXIX - Matrix of number of paired observations, both surveys

(for correlation matrix see Table XII)

TABLE XXXIX

Matrix of number of paired observations, both surveys

** USING A PRIORI DIMENSIONS **

NO. PAIRED OBSERVATIONS

VARIABLE	ISP1	ISP2	ISPD	CONP1	CONP2	CONPD	ISDE1	ISDE2	ISDED	CONDE1	CONDE2
ISP1	61.										
ISP2	14.	20.									
ISPD	14.	14.	14.								
CONP1	59.	14.	14.	59.							
CONP2	13.	18.	13.	13.	18.						
CONPD	13.	13.	13.	13.	13.	13.					
ISDE1	59.	14.	14.	59.	13.	13.	59.				
ISDE2	13.	18.	13.	13.	18.	13.	13.	18.			
ISDED	13.	13.	13.	13.	13.	13.	13.	13.	13.		
CONDE1	59.	15.	14.	59.	14.	13.	59.	14.	13.	71.	
CONDE2	13.	18.	13.	13.	18.	13.	13.	18.	13.	17.	25.
CONDED	13.	14.	13.	13.	14.	13.	13.	14.	13.	17.	17.
LDPRD1	56.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
LDPRD2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
LDPROD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
MOTF1	57.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
MOTF2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
MOTFD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
COMM1	58.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
COMM2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
COMMD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
INTER1	57.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
INTER2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
INTERD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
DEC1	57.	13.	12.	55.	13.	12.	55.	13.	12.	67.	16.
DEC2	13.	18.	12.	13.	16.	11.	13.	16.	11.	17.	23.
DECD	12.	12.	11.	12.	12.	11.	12.	12.	11.	16.	15.
GOAL1	55.	13.	12.	54.	13.	12.	54.	13.	12.	65.	16.
GOAL2	13.	18.	12.	13.	16.	11.	13.	16.	11.	17.	23.
GOALD	12.	12.	11.	12.	12.	11.	12.	12.	11.	16.	15.
CONTR1	52.	12.	11.	51.	12.	11.	51.	12.	11.	62.	15.
CONTR2	13.	17.	12.	13.	15.	11.	13.	15.	11.	17.	22.
CONTRD	11.	11.	10.	11.	11.	10.	11.	11.	10.	15.	14.
PERF1	57.	13.	12.	55.	13.	12.	55.	13.	12.	67.	16.
PERF2	14.	18.	13.	14.	16.	12.	14.	16.	12.	18.	23.
PERFD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.

TABLE XXXIX - continued

NO. PAIRED OBSERVATIONS VARIABLE	CONDED	LDPRO1	LDPRO2	LDPROD	MOTF1	MOTF2	MOTFD	COMM1	COMM2	COMMD	INTER1
CONDED	17.										
LDPRO1	16.	74.									
LDPRO2	16.	17.	27.								
LDPROD	16.	17.	17.	17.							
MOTF1	16.	73.	17.	17.	73.						
MOTF2	16.	17.	27.	17.	17.	27.					
MOTFD	16.	17.	17.	17.	17.	17.	17.				
COMM1	16.	74.	17.	17.	73.	17.	17.	74.			
COMM2	16.	17.	27.	17.	17.	27.	17.	17.	27.		
COMMD	16.	17.	17.	17.	17.	17.	17.	17.	17.	17.	
INTER1	16.	73.	17.	17.	73.	17.	17.	73.	17.	17.	73.
INTER2	16.	17.	27.	17.	17.	27.	17.	17.	27.	17.	17.
INTERD	16.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.
DEC1	16.	73.	17.	17.	72.	17.	17.	73.	17.	17.	72.
DEC2	15.	16.	26.	16.	16.	26.	16.	16.	26.	16.	16.
DECD	15.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.
GOAL1	16.	70.	17.	17.	70.	17.	17.	70.	17.	17.	70.
GOAL2	15.	16.	26.	16.	16.	26.	16.	16.	26.	16.	16.
GOALD	15.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.
CONTR1	15.	67.	16.	16.	67.	16.	16.	67.	16.	16.	67.
CONTR2	15.	16.	25.	16.	16.	25.	16.	16.	25.	16.	16.
CONTRD	14.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.
PERF1	16.	73.	17.	17.	72.	17.	17.	73.	17.	17.	72.
PERF2	16.	17.	26.	17.	17.	26.	17.	17.	26.	17.	17.
PERFD	16.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.

NO. PAIRED OBSERVATIONS VARIABLE	INTER2	INTERD	DEC1	DEC2	DECD	GOAL1	GOAL2	GOALD	CONTR1	CONTR2	CONTRD
INTER2	27.										
INTERD	17.	17.									
DEC1	17.	17.	73.								
DEC2	26.	16.	16.	26.							
DECD	16.	16.	16.	16.	16.						
GOAL1	17.	17.	70.	16.	16.	70.					
GOAL2	26.	16.	16.	26.	16.	16.	26.				
GOALD	16.	16.	16.	16.	16.	16.	16.	16.			
CONTR1	16.	16.	67.	15.	15.	67.	15.	15.	67.		
CONTR2	25.	16.	16.	25.	16.	16.	25.	16.	15.	25.	
CONTRD	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.
PERF1	17.	17.	72.	16.	16.	69.	16.	16.	66.	16.	15.
PERF2	26.	17.	17.	25.	16.	17.	25.	16.	16.	25.	15.
PERFD	17.	17.	17.	16.	16.	17.	16.	16.	16.	16.	15.

NO. PAIRED OBSERVATIONS VARIABLE	PERF1	PERF2	PERFD
PERF1	73.		
PERF2	17.	26.	
PERFD	17.	17.	17.

APPENDIX J

Factor analysis information

for data from this study

Table XL	-	Eigenvalues, cumulative proportion of variance, per cent of total variance accounted for by each factor
Table XLI	-	Communality figures
Table XLII	-	Factor-loading matrix before rotation
Table XLIII	-	Ordered factor-loading matrix after rotation
Table XLIV	-	Reordered correlation matrix
	-	Naming Factors--Instructions

(for related data see Table XVII)

EIGENVALUES

15.17324	2.88705	2.44684	2.35072	2.28905	1.76195	1.55759	1.28098	1.26271	1.12911
1.69734	0.95419	0.88116	0.85359	0.80881	0.68589	0.64233	0.62181	0.57242	0.51935
0.45227	0.42344	0.39151	0.34837	0.31562	0.28597	0.26312	0.23566	0.21680	0.17749
0.14434	0.12742	0.11704	0.08748	0.05885	0.05284	0.01868	0.01106	-0.00848	-0.03740
-0.03545	-0.05274	-0.06659	-0.08540	-0.09948					

CUMULATIVE PROPORTION OF TOTAL VARIANCE

0.33718	0.40134	0.45571	0.50795	0.55882	0.59797	0.63259	0.66105	0.68778	0.71287
0.73552	0.75713	0.77671	0.79568	0.81365	0.82989	0.84317	0.85569	0.86971	0.88125
0.89221	0.90162	0.91032	0.91806	0.92507	0.93143	0.93728	0.94251	0.94733	0.95127
0.95449	0.95732	0.95992	0.96186	0.96317	0.96435	0.96476	0.96501		

PER CENT OF TOTAL VARIANCE ACCOUNTED FOR BY EACH FACTOR

33.71830	6.41567	5.43742	5.22383	5.08677	3.91545	3.46130	2.84662	2.67268	2.50913
2.30520	2.12643	1.95813	1.89687	1.79736	1.52420	1.42741	1.38181	1.27205	1.15411
1.09615	0.94097	0.87063	0.77415	0.70132	0.63549	0.58472	0.52368	0.48177	0.39442
0.32121	0.28316	0.26089	0.19440	0.13077	0.11742	0.04151	0.02457		

TABLE XL

Eigenvalues, cumulative proportion of variance per cent of total variance

TABLE XLI

Communality figures

	VARIABLE	ORIGINAL COMMUNALITY	ESTIMATED COMMUNALITY	FINAL COMMUNALITY
1	1AC&TB	0.97224	0.97224	0.68450
2	1BC&TP	0.95215	0.95215	0.64730
3	1CDISC	0.99520	0.99520	0.68847
4	1DGEID	0.98098	0.98098	0.67030
5	2AMOTI	0.99308	0.99308	0.58583
6	2BLSED	0.99799	0.99799	0.73424
7	2CATIT	0.99601	0.99601	0.81893
8	2DRESP	0.82480	0.82480	0.57435
9	2EATME	0.76450	0.76450	0.51417
10	2FSATF	0.99001	0.99001	0.76817
11	3ACONU	0.93808	0.93808	0.54683
12	3BORIN	0.98534	0.98534	0.67619
13	3C1DIK	0.98378	0.98378	0.50796
14	3C2DSH	0.97407	0.97407	0.61591
15	3C3DAC	0.88212	0.88212	0.68705
16	3D1CAD	0.93545	0.93545	0.71769
17	3D2URE	0.99306	0.99306	0.59720
18	3D3UDS	0.98615	0.98615	0.65335
19	3D4UAC	0.97388	0.97388	0.78805
20	3ESADE	0.99146	0.99146	0.75737
21	3FSADN	0.99383	0.99383	0.81910
22	3GERIE	0.99091	0.99091	0.69149
23	4AAINT	0.96086	0.96086	0.70096
24	4BTEAM	0.74666	0.74666	0.51629
25	4C1INF	0.99784	0.99784	0.73329
26	4C2INR	0.88808	0.88808	0.65684
27	4D1ACT	0.98672	0.98672	0.67755
28	4EFFST	0.99794	0.99794	0.66673
29	5AIECL	0.79366	0.79366	0.46664
30	5BOINF	0.89742	0.89742	0.54828
31	5CANAR	0.95092	0.95092	0.67092
32	5DTEPR	0.98054	0.98054	0.53363
33	5EBLEV	0.89196	0.89196	0.60949
34	5FINVD	1.00000	1.00000	0.65586
35	6AGELS	1.00000	1.00000	0.60019
36	6BGLEV	1.00000	1.00000	0.63263
37	6CGACR	1.00000	1.00000	0.79562
38	7ACONA	0.86904	0.86904	0.78028
39	7BCONC	1.00000	1.00000	0.80777
40	7CINFO	1.00000	1.00000	0.85344
41	7DPUNI	1.00000	1.00000	0.63330
42	8APROD	1.00000	1.00000	0.75049
43	8BABSC	1.00000	1.00000	0.56643
44	8CBAST	1.00000	1.00000	0.77847
45	8DINSP	1.00000	1.00000	0.44787
SUM OF COMMUNALITIES		43.05674	43.05674	29.74741

TABLE XLII

Factor-loading matrix before rotation

FACTOR-LOADINGS MATRIX BEFORE ROTATION
* INDICATES A VALUE GREATER THAN OR EQUAL TO 0.60000

VARIABLE		FACTOR 1	2	3	4	5	6	7	8
1 1ACCTB	*	0.6384	-0.0158	0.2203	0.0657	-0.1659	0.3579	-0.2610	-0.0682
2 1BCCTP	*	0.7406	0.0774	0.0238	0.1029	-0.0906	0.0924	-0.2548	0.0045
3 1CDISC	*	0.6839	-0.1103	0.1585	-0.3746	0.1806	0.0006	-0.0478	0.0910
4 1DGEID		0.5205	-0.3026	0.0261	-0.4996	0.0040	-0.0878	0.1820	-0.1293
5 2AMGTI		0.4051	0.4591	0.1387	0.3078	-0.4300	-0.0754	-0.0307	0.0064
6 2BUSED		0.4339	0.4580	0.4793	-0.0921	-0.1847	0.1982	0.1448	-0.0600
7 2CATIT		0.5851	0.2635	0.3361	-0.0793	-0.1565	-0.3588	0.2384	0.2788
8 2DRESP	*	0.6338	0.2052	0.1264	-0.1649	-0.0297	-0.2666	0.0791	0.0959
9 2EATME	*	0.6613	-0.0683	-0.0970	-0.0535	0.1437	0.0622	0.1528	0.1154
10 2FSATF	*	0.7691	0.0696	0.0993	-0.1595	-0.0973	-0.1135	0.2287	0.2390
11 3ACCMU	*	0.6168	0.3208	0.1644	-0.1723	-0.0635	-0.0090	0.0437	0.0267
12 3BORTN		0.4577	0.1991	-0.2702	-0.2064	0.1041	-0.2491	-0.4502	0.1895
13 3C1DIN		0.3791	-0.2199	0.0584	-0.4089	0.3050	-0.0710	0.0365	0.2143
14 3C2DSH	*	0.7316	-0.2070	0.1141	-0.1207	-0.0334	-0.0221	-0.0915	0.0177
15 3C3DAC	*	0.6111	-0.2211	0.1784	0.3969	-0.0080	-0.0175	0.2438	0.1248
16 3D1UAC	*	0.6547	-0.0053	-0.1735	-0.1010	-0.0601	-0.1840	-0.4514	0.0864
17 3D2URE	*	0.6268	-0.0882	-0.3243	0.0976	-0.0349	0.0347	-0.2730	-0.0791
18 3D3UDS		0.5115	-0.0585	-0.4013	-0.0072	0.2411	0.0933	0.2975	0.2682
19 3D4UAC		0.5811	-0.5173	-0.1133	0.2579	-0.2204	-0.2122	0.0893	-0.0425
20 3ESADE		0.5770	0.4524	-0.2605	-0.1478	0.2731	0.1553	0.1586	-0.0785
21 3FSADN		0.4037	0.3872	-0.5153	-0.1373	0.1601	0.2764	0.2633	-0.2249
22 3GFRIE	*	0.6813	-0.2840	0.2760	-0.1456	0.1524	0.1389	-0.0690	-0.0452
23 4AAINT	*	0.7413	-0.0768	-0.0097	-0.2068	0.2247	0.1352	0.1467	0.1111
24 4BTEAM	*	0.6586	-0.1610	0.0589	-0.1501	0.0445	0.1273	0.0945	0.3595
25 4C1INF		0.5675	0.0509	0.0268	0.0284	-0.2489	0.5688	-0.1184	0.0869
26 4C2INB		0.5413	0.0641	-0.1692	-0.0759	-0.1714	0.4593	-0.1197	0.2659
27 4DIACT		0.5460	0.2678	-0.2772	-0.2602	-0.0905	-0.2884	-0.1975	-0.1810
28 4EFFST	*	0.7266	-0.1851	-0.2422	-0.1176	-0.1359	0.0204	0.0181	-0.1128
29 5A0ECL		0.4200	0.0858	0.1219	0.0332	0.1287	-0.1120	0.1369	-0.4681
30 5BDINF		0.5871	-0.0799	-0.1954	0.2277	-0.2304	-0.0642	-0.0417	-0.2282
31 5CAWAR	*	0.6004	-0.3784	-0.0188	-0.0834	-0.3103	-0.2517	0.0010	-0.0175
32 5DTEPR		0.5671	-0.1837	-0.1223	-0.1261	0.0740	0.0558	-0.0490	-0.3694
33 5EBLEV		0.5797	-0.1776	0.3191	-0.0258	0.2561	-0.2481	0.0348	-0.1052
34 5FINVC	*	0.6472	-0.0790	0.3336	0.0616	0.0233	0.2239	-0.1604	-0.1981
35 6AGELS		0.5759	-0.1039	0.3391	0.0035	-0.3256	-0.0250	-0.0302	-0.1873
36 6BGLEV		0.4373	-0.3002	-0.4214	0.2516	0.1724	-0.0414	0.2809	0.0113
37 6CG4CR		0.5704	0.1022	0.1491	* 0.6067	0.2202	-0.0812	-0.0585	0.1040
38 7ACONA	*	0.6646	-0.2971	-0.2369	0.2782	0.0443	0.1674	-0.1318	0.1074
39 7BCONC		0.2946	0.2793	0.2114	0.0661	* 0.7340	0.0597	-0.0392	-0.2238
40 7CINFO		0.2888	0.2268	0.2920	0.4079	0.5837	-0.1484	-0.2796	0.1613
41 7DPUNI	*	0.6052	-0.2588	-0.1771	0.1311	0.1670	-0.2344	-0.1609	-0.2068
42 8APROD		0.5402	0.4556	-0.1729	0.2055	-0.2765	-0.2549	0.1891	-0.0424
43 8BABSC		0.4844	-0.1601	0.1572	0.3679	-0.0984	0.1488	0.2800	-0.1894
44 8CWAST		0.5235	0.5084	-0.2707	0.3507	-0.1171	-0.1508	0.0359	0.1093
45 8DINSP		0.5671	0.0144	0.0407	0.2914	0.0269	0.0695	0.0808	0.1654
SUM OF SQUARED FACTOR-LOADINGS DIVIDED BY SUM OF COMMUNALITIES		0.5101	0.0971	0.0923	0.0790	0.0769	0.0592	0.0524	0.0431

TABLE XLIII

Ordered factor-loading matrix after rotation

ROATATED FACTOR-LOADING MATRIX. * INDICATES A VALUE > OR = TO 0.60

VARIABLE	FACTOR 1INTWM	3GLCGR	6PROCM	2PRCON	7INFOR	4CONPR	5UPCOM	8DECMK
1 1AC6TB	-0.1966	0.1778	-0.0311	0.1799	-0.1172	* 0.7219	0.1520	-0.1517
2 1BCSTP	-0.1924	0.2810	0.0865	0.2698	-0.1817	0.5026	0.3676	-0.1381
3 1CRISC	* -0.7121	0.1542	0.0949	0.0758	-0.1155	0.2608	0.2214	-0.1117
4 1DGEID	* -0.6961	0.0621	0.0955	0.1522	0.2631	0.0474	0.1097	-0.2565
5 2AMOTI	0.0721	* 0.6756	0.0234	-0.0180	0.0648	0.2711	0.1810	-0.1135
6 2BLSED	-0.1570	* 0.6149	0.0754	-0.1831	-0.1161	0.4216	-0.1883	-0.2578
7 2CATIT	-0.4062	* 0.7809	-0.0564	0.1444	-0.1330	0.0097	0.0410	0.0255
8 2DRESP	-0.4170	0.5358	0.0999	0.1283	-0.1126	0.0606	0.2354	-0.1040
9 2EATME	-0.4451	0.1646	0.3110	0.3467	-0.1152	0.2137	0.1141	-0.0651
10 2FSATF	-0.5449	0.5505	0.1684	0.2948	-0.0200	0.2018	0.1054	0.0271
11 3ACOMU	-0.3252	0.5185	0.1894	-0.0001	-0.1054	0.2759	0.1568	-0.1566
12 3BORTN	-0.2269	0.1661	0.1420	-0.0269	-0.1572	0.0676	* 0.7304	0.1161
13 3C1FIN	* -0.6865	-0.0415	0.0784	0.0141	-0.0818	0.0008	0.1231	0.0818
14 3C2DSH	-0.5138	0.1847	-0.0220	0.3276	-0.0490	0.3417	0.2557	-0.1597
15 3C3DAC	-0.2430	0.2637	-0.0280	* 0.6510	-0.2447	0.2290	-0.1436	-0.0305
16 3D1UAD	-0.2766	0.1782	0.0111	0.2142	-0.0822	0.2647	* 0.6972	-0.0232
17 3D2URE	-0.1184	0.0168	0.2961	0.4065	-0.0416	0.3273	0.5058	-0.1027
18 3D3UDS	-0.3497	0.0456	0.5446	0.4003	-0.0716	0.0516	0.0749	0.2425
19 3D4UAC	-0.2497	0.0715	-0.1377	* 0.7994	0.1242	0.1001	0.1679	-0.1152
20 3FSADE	-0.2249	0.2764	* 0.7135	0.0010	-0.1947	0.1645	0.1859	-0.1478
21 3FSADN	-0.2363	0.1089	* 0.6599	0.0471	0.0615	0.1224	0.1239	-0.1735
22 3GPRIE	* -0.6068	0.0231	-0.0344	0.2421	-0.1725	0.4111	0.0787	-0.2410
23 4AAINT	* -0.6212	0.1479	0.2391	0.2514	-0.1383	0.2892	0.0982	-0.0503
24 4BTEAM	-0.5181	0.1426	0.1594	0.2812	-0.0279	0.3307	0.0729	-0.0873
25 4C1INF	-0.1125	0.1570	0.1922	0.1542	0.0501	* 0.7937	0.0504	0.0144
26 4C2INB	-0.1828	0.1335	0.2948	0.1336	0.0761	* 0.6424	0.1850	0.2195
27 4D1ACT	-0.1872	0.3349	0.2602	0.0442	0.0822	0.0156	* 0.6245	-0.2523
28 4EEFST	-0.3695	0.1324	0.2423	0.4430	0.1807	0.2853	0.3279	-0.1899
29 5AEFCL	-0.1597	0.1807	0.1611	0.1761	-0.1506	0.0055	0.0254	-0.5729
30 5BDINF	-0.0060	0.2007	0.1674	0.5243	0.0638	0.2380	0.2922	-0.2747
31 5CAWAR	-0.4008	0.2105	-0.1739	0.5064	0.2514	0.1301	0.2838	-0.1363
32 5DTEPR	-0.1889	0.1580	0.3633	0.0959	-0.0499	0.2204	0.2599	-0.4435
33 5EBLEV	-0.5290	0.1671	-0.1046	0.2783	-0.3208	0.0221	0.0846	-0.3206
34 5FINVO	-0.3043	0.1300	-0.0504	0.2080	-0.2343	0.5467	0.0700	-0.3767
35 6AGCLS	-0.2564	0.3591	-0.2219	0.2697	0.0703	0.3767	0.0680	-0.3633
36 6BGLEV	-0.1704	-0.1034	0.3618	* 0.6723	-0.0390	-0.0602	0.0628	0.0304
37 6CGACR	0.0137	0.2788	0.0291	0.5044	* -0.6290	0.2117	0.0848	-0.0448
38 7ACONA	-0.1819	-0.0475	0.1770	0.5983	-0.1588	0.4142	0.2744	0.0549
39 7BCONC	-0.2217	-0.0461	0.3136	-0.1524	* -0.7198	0.0120	-0.0105	-0.3496
40 7CINFO	-0.0554	0.0949	-0.0477	0.0646	* -0.9018	0.0357	0.1425	0.0026
41 7DPUNI	-0.2653	-0.0436	0.0679	0.5121	-0.1778	0.0405	0.4231	-0.2862
42 8APROD	0.1123	* 0.6905	0.3041	0.3123	-0.0118	0.0213	0.2342	-0.1251
43 8BABSC	-0.0692	0.1790	0.0549	0.5419	-0.0920	0.2922	-0.2435	-0.2825
44 8CWAST	0.2101	0.5762	0.3763	0.3132	-0.2197	0.1018	0.3156	0.0536
45 8DINSP	-0.1495	0.2659	0.1300	0.4244	-0.2640	0.2920	0.0275	0.0459
SUM OF SQUARED FACTOR-LOADINGS DIVIDED BY SUM OF COMMUNALITIES	0.1807	0.1439	0.1015	0.1746	0.0889	0.1386	0.1068	0.0652

TABLE XLIV

Reordered correlation matrix

CORRELATION MATRIX WITH VARIABLES REORDERED
*INDICATES AN ABSOLUTE VALUE GREATER THAN OR EQUAL TO 0.60000

	9 2EATME	14 3C2DSH	24 4BTEAM	33 5EBLEV	22 3GFRIE	23 4AAINT	13 3C1DIN	4 1DGEID
9 2EATME	* 1.00000							
14 3C2DSH	0.48991	* 1.00000						
24 4BTEAM	0.46454	0.53677	* 1.00000					
33 5EBLEV	0.41787	0.56277	0.47416	* 1.00000				
22 3GFRIE	0.51356	0.59943	0.52608	0.49015	* 1.00000			
23 4AAINT	0.55367	0.55999	0.59040	0.35743	* 0.63538	* 1.00000		
13 3C1DIN	0.26853	0.25886	0.29368	0.30459	0.33936	0.45037	* 1.00000	
4 1DGEID	0.45620	0.43857	0.48199	0.41128	0.45645	0.50809	0.33614	* 1.00000
3 1DDISC	0.47035	0.54951	0.46191	0.43961	* 0.65773	* 0.64459	0.43193	0.51462
7 2DATIT	0.40003	0.45351	0.30629	0.39754	0.36390	0.38068	0.22418	0.26260
42 8APROD	0.27081	0.24869	0.23252	0.13493	0.12564	0.32641	0.01605	0.08989
5 2AMOTI	0.11647	0.14731	0.23943	0.08503	0.15798	0.13391	-0.11258	0.09773
6 2BLSED	0.21354	0.14535	0.26723	0.24305	0.26087	0.31637	0.07639	0.16580
44 8DWAST	0.31578	0.28681	0.14904	0.12584	0.00704	0.27519	-0.06667	-0.01895
10 2FSATF	0.48284	0.56784	0.55140	0.46858	0.41227	* 0.62240	0.39661	0.44664
8 2DBESP	0.39701	0.48074	0.36502	0.45960	0.36070	0.42602	0.25279	0.40257
11 3ACOMU	0.36513	0.35588	0.47565	0.43138	0.42301	0.42268	0.26238	0.30022
21 3FSADM	0.34261	0.14799	0.28958	-0.00313	0.11015	0.33666	0.15047	0.12760
20 3FSADE	0.50356	0.31318	0.28791	0.21095	0.29817	0.47554	0.24864	0.23433
18 3D3UDS	0.46337	0.29182	0.38160	0.25434	0.23821	0.41414	0.25769	0.32535
19 3D4UAC	0.34160	0.41513	0.37808	0.35604	0.43733	0.37797	0.20067	0.33481
36 6SGLEV	0.39087	0.29157	0.35857	0.20223	0.28677	0.34182	0.04169	0.24112
15 3C3CAC	0.45598	0.45645	0.38340	0.41075	0.39381	0.47901	0.21397	0.22028
38 7ACONA	0.44915	0.38097	0.41958	0.38736	0.42179	0.49433	0.21903	0.28257
43 8BARSC	0.24541	0.28881	0.28918	0.33423	0.34797	0.31259	0.10011	0.13946
30 5A0INF	0.42755	0.41598	0.24933	0.38640	0.28515	0.27444	0.03142	0.27991
41 7DPUNI	0.40130	0.41489	0.26266	0.34256	0.41543	0.36328	0.30191	0.30099
31 5CANAR	0.34982	0.52659	0.44982	0.34213	0.44381	0.36080	0.30659	0.41536
28 4EEFST	0.36814	0.55589	0.50338	0.35442	0.35544	0.53359	0.34512	0.42663
45 8DINSP	0.39783	0.32473	0.38604	0.19714	0.45138	0.40074	0.17009	0.20608
37 6CGAGR	0.41185	0.35526	0.25067	0.42205	0.38083	0.32535	0.04777	-0.04341
39 7BCONC	0.14791	0.06943	0.18178	0.36798	0.27066	0.22313	0.17536	0.06641
40 7CINFO	0.12561	0.20575	0.16157	0.37590	0.13575	0.18638	0.10692	-0.13807
25 4C1INF	0.25973	0.51174	0.35026	0.16818	0.33441	0.40743	0.08343	0.16398
1 1AC&TB	0.43608	0.43100	0.41156	0.21309	* 0.62361	0.40068	0.17786	0.25029
26 4C2INB	0.30225	0.44410	0.37789	0.08099	0.29856	0.48692	0.16345	0.20338
34 5FINVC	0.37399	0.59573	0.48896	0.46421	0.55419	0.39516	0.27644	0.34371
2 1BCETP	0.45756	0.43906	0.44673	0.22132	0.48304	0.45290	0.18855	0.30221
35 6AGOLS	0.22670	0.47251	0.39466	0.42291	0.37239	0.27661	0.15495	0.35350
12 3BDPTN	0.22778	0.28466	0.23182	0.20707	0.20446	0.34411	0.29610	0.17752
16 3EQUAD	0.41691	0.52863	0.33170	0.34344	0.42218	0.42415	0.20062	0.32590
27 4BIACT	0.30092	0.40591	0.26678	0.23809	0.26340	0.36136	0.19061	0.40057
17 3D2URB	0.31625	0.35493	0.52512	0.28768	0.36614	0.45309	0.18003	0.22452
32 5DTEPR	0.47135	0.41260	0.29659	0.39424	0.37085	0.34363	0.15687	0.28026
29 5ADECL	0.12750	0.31479	0.21362	0.24128	0.28179	0.43456	0.06954	0.26297

TABLE XLIV - (continued)

	3 1CDISC	7 2CATIT	42 8APROD	5 2AMOTI	6 2BUSED	44 8CWAST	10 2FSATF	8 2D9ESP
3 1CDISC	* 1.00000							
7 2CATIT	0.42164	* 1.00000						
42 8APROD	0.13407	0.45852	* 1.00000					
5 2AMOTI	0.13558	0.50791	0.39557	* 1.00000				
6 2BUSED	0.37600	0.45725	0.35246	0.40949	* 1.00000			
44 8CWAST	0.17471	0.39776	* 0.69360	0.30086	0.33149	* 1.00000		
10 2FSATF	0.54627	* 0.68690	0.46104	0.41987	0.38909	0.39220	* 1.00000	
8 2D9ESP	0.40156	0.57158	0.49287	0.43942	0.44304	0.40550	* 0.61103	* 1.00000
11 3ACOMU	0.47216	0.44090	0.45182	0.39202	0.57762	0.38987	0.59081	0.38495
21 3FSADN	0.20629	0.08019	0.37982	0.15141	0.15216	0.42967	0.22827	0.21135
20 3FSADE	0.33764	0.37527	0.41618	0.34174	0.26315	0.43711	0.43033	0.42705
18 3D3UDS	0.36263	0.21546	0.20231	0.10010	-0.01318	0.33632	0.42737	0.36651
19 3D4UAC	0.27764	0.28961	0.28992	0.13644	-0.02100	0.15466	0.35987	0.30868
36 6BGLEV	0.05800	0.10241	0.16197	0.00409	-0.07902	0.17908	0.29655	0.09163
15 3C3EAC	0.36695	0.38768	0.38748	0.11577	0.26794	0.33819	0.46833	0.31267
38 7ACENA	0.41794	0.09633	0.26402	0.12329	0.10556	0.40203	0.36445	0.27008
43 8PABSC	0.23974	0.22372	0.27417	0.17505	0.23275	0.21538	0.39644	0.23410
30 5BCINF	0.26044	0.25350	0.42070	0.26317	0.15178	0.43799	0.41761	0.23502
41 7DPUNI	0.50560	0.16117	0.21867	0.05012	0.09983	0.30673	0.35931	0.42544
31 5CAWAR	0.43059	0.42710	0.30064	0.13296	0.06085	0.19462	0.49566	0.31627
28 4EEFST	0.54901	0.31831	0.32547	0.30018	0.13467	0.31777	0.59740	0.43602
45 8DINSP	0.32359	0.35109	0.40842	0.23421	0.21642	0.40538	0.42433	0.24737
37 6CGACR	0.21306	0.39606	0.37303	0.22796	0.16977	0.47146	0.34274	0.21320
39 7BCCNC	0.36703	0.11498	0.03391	0.03862	0.32016	0.06905	0.14782	0.23559
40 7CINFO	0.16634	0.22412	0.10716	-0.01395	0.12676	0.34755	0.14611	0.25225
25 4CIINF	0.38817	0.15918	0.23238	0.22962	0.46100	0.29133	0.43669	0.31546
1 1ACETB	0.41522	0.29388	0.26862	0.34996	0.38205	0.21866	0.37131	0.32216
26 4C2INB	0.31391	0.24392	0.22876	0.16002	0.28089	0.30953	0.42937	0.18754
34 5FINVO	0.33517	0.31830	0.20333	0.26566	0.28960	0.16235	0.46841	0.28881
2 1BCSTP	0.49000	0.41294	0.34786	0.43003	0.30843	0.41390	0.44086	0.46328
35 6ACCLS	0.32380	0.41394	0.24673	0.35668	0.49264	0.20701	0.42708	0.37990
12 3BORIN	0.35201	0.27846	0.29151	0.25185	-0.00072	0.29174	0.40983	0.29709
16 3D1UAD	0.48103	0.34254	0.31727	0.28109	0.15597	0.36945	0.38466	0.47337
27 4DIACT	0.39767	0.29962	0.50686	0.32016	0.17314	0.43891	0.32207	0.38327
17 3D2URE	0.26892	0.05506	0.34491	0.31721	0.14161	0.32295	0.40866	0.33462
32 5DTEPR	0.31443	0.26014	0.38273	0.15836	0.26190	0.37922	0.39137	0.26378
29 5ACECL	0.29741	0.24915	0.29496	0.13701	0.21204	0.17732	0.26566	0.24563

TABLE XLIV - (continued)

	11 3ACOMU	21 3FSADN	20 3ESADE	18 3D3UDS	19 3D4UAC	36 6BGLEV	15 3C3DAC	38 7ACONA
11 3ACOMU	* 1.00000							
21 3FSADN	0.27510	* 1.00000						
20 3ESADE	0.35838	* 0.77205	* 1.00000					
18 3D3UDS	0.25176	0.41387	0.44443	* 1.00000				
19 3D4UAC	0.15422	0.00838	0.03066	0.32898	* 1.00000			
36 6BGLEV	0.12700	0.24940	0.25739	0.57130	0.48791	* 1.00000		
15 3C3DAC	0.23694	0.08904	0.13198	0.29780	0.59759	0.35285	* 1.00000	
38 7ACONA	0.22668	0.23143	0.34196	0.45469	0.58865	0.40562	0.50539	* 1.00000
43 8BABSC	0.17681	0.16595	0.13470	0.23221	0.42940	0.25096	0.51652	0.38761
30 5BDINF	0.24941	0.22731	0.24538	0.27923	0.53094	0.24234	0.39362	0.52641
41 7DPUNI	0.14616	0.21873	0.30374	0.26537	0.54956	0.37439	0.36666	0.57549
31 5CAWAR	0.29082	0.09237	0.14816	0.16907	0.55976	0.34329	0.48006	0.38400
28 4EEFST	0.32390	0.38919	0.34222	0.45608	0.56722	0.38705	0.32301	0.52954
45 8DINSP	0.30661	0.18845	0.30432	0.11887	0.35054	0.37932	0.41866	0.52900
37 6CGACR	0.36734	0.08795	0.27350	0.25726	0.34919	0.37206	* 0.61423	0.39653
39 7BCONC	0.16805	0.23362	0.38556	0.19512	-0.12734	0.17477	0.15424	0.11211
40 7CINFO	0.11577	-0.02901	0.25275	0.15653	-0.00098	0.02127	0.26649	0.26640
25 4C1INF	0.32700	0.23350	0.30735	0.34852	0.22053	0.09182	0.29078	0.44656
1 1ACETR	0.45928	0.14475	0.30477	0.17100	0.34311	0.12827	0.39172	0.45772
26 4C2INR	0.27891	0.35116	0.38713	0.27468	0.23318	0.16962	0.31128	0.48223
34 5FINVC	0.32531	0.16435	0.35679	0.13258	0.32821	0.08806	0.42502	0.38733
2 1BCETP	0.44467	0.26629	0.37187	0.40138	0.38539	0.23335	0.47030	0.48204
35 6ACOLS	0.30185	0.02988	0.17421	0.12418	0.39612	0.17427	0.33041	0.31222
12 3BORTN	0.31648	0.21115	0.31332	0.24678	0.13047	0.13996	-0.03115	0.22706
16 3D1UAD	0.34234	0.16754	0.33755	0.23198	0.40158	0.25102	0.29292	0.52223
27 4D1ACT	0.45890	0.38297	0.42547	0.20511	0.25244	0.18001	0.10308	0.22492
17 3D2URE	0.40358	0.25262	0.25139	0.34556	0.39387	0.47550	0.23712	0.56701
32 5DTEPR	0.45232	0.43915	0.47074	0.21645	0.15528	0.23621	0.25143	0.27912
29 5ADECL	0.29871	0.20832	0.30531	0.06834	0.27620	0.14027	0.22197	0.09516

	43 8BABSC	30 5BDINF	41 7DPUNI	31 5CAWAR	28 4EEFST	45 8DINSP	37 6CGACR	39 7BCONC
43 8BABSC	* 1.00000							
30 5BDINF	0.39937	* 1.00000						
41 7DPUNI	0.30047	0.42791	* 1.00000					
31 5CAWAR	0.30008	0.37030	0.47622	* 1.00000				
28 4EEFST	0.27461	0.53086	0.51363	0.47500	* 1.00000			
45 8DINSP	0.28560	0.23161	0.36451	0.24041	0.35969	* 1.00000		
37 6CGACR	0.42973	0.36648	0.32133	0.22201	0.25197	0.47404	* 1.00000	
39 7BCONC	0.14681	0.04641	0.18919	-0.20303	0.09298	0.13554	0.38228	* 1.00000
40 7CINFO	0.06725	0.01752	0.30263	-0.08109	-0.02700	0.26020	0.56772	0.57695
25 4C1INF	0.38502	0.38474	0.28155	0.18850	0.49105	0.30808	0.24234	0.01926
1 1ACETR	0.33141	0.37074	0.23159	0.43384	0.34627	0.38913	0.37142	0.34989
26 4C2INR	0.21174	0.27225	0.08015	0.24710	0.43021	0.30085	0.25081	0.02715
34 5FINVC	0.34926	0.36650	0.33653	0.31346	0.48096	0.38415	0.46948	0.22872
2 1BCETP	0.35298	0.44609	0.42816	0.45749	0.46448	0.36815	0.47907	0.18594
35 6ACOLS	0.30444	0.33029	0.32570	0.53261	0.49500	0.26241	0.23615	0.05281
12 3BORTN	0.07660	0.29285	0.31422	0.22724	0.34458	0.16220	0.22892	0.22765
16 3D1UAD	0.07618	0.36908	0.43055	0.47965	0.45137	0.29141	0.31943	0.13533
27 4D1ACT	0.03147	0.34597	0.33553	0.29369	0.36129	0.17934	0.21338	0.06793
17 3D2URE	0.26297	0.39466	0.51718	0.39407	0.60815	0.33093	0.37386	0.16490
32 5DTEPR	0.20169	0.36518	0.32035	0.34250	0.35880	0.17736	0.20599	0.29412
29 5ADECL	0.32465	0.24090	0.30906	0.19439	0.37308	0.28247	0.28954	0.36681

TABLE XLIV - (continued)

	40 7CINFO	25 4C1INF	1 1AC&TB	26 4C2INB	34 5FINVO	2 1BC&TP	35 6AGOLS	12 3BDRTN
40 7CINFO	* 1.00000							
25 4C1INF	0.05063	* 1.00000						
1 1AC&TB	0.16913	0.53928	* 1.00000					
26 4C2INB	0.00963	* 0.66973	0.37101	* 1.00000				
34 5FINVO	0.35795	0.46884	0.54076	0.37294	* 1.00000			
2 1BC&TP	0.31522	0.46594	* 0.72642	0.38339	0.49315	* 1.00000		
35 6AGOLS	0.13366	0.38835	0.40913	0.30569	0.57324	0.43425	* 1.00000	
12 3BDRTN	0.23377	0.23258	0.19253	0.30246	0.14326	0.35694	0.14342	* 1.00000
16 3D1UAD	0.16470	0.25202	0.45346	0.46422	0.30911	0.56296	0.33206	0.55789
27 4D1ACT	0.06338	0.20756	0.14452	0.34657	0.28339	0.42419	0.27787	0.51392
17 3D2URE	0.09264	0.34897	0.40704	0.35552	0.31413	0.49500	0.26662	0.40505
32 5DTEPR	0.04180	0.22114	0.45859	0.27127	0.42348	0.46474	0.18770	0.27673
29 5ADECL	0.18895	0.18512	0.15864	0.05703	0.28181	0.29479	0.27500	0.06861

	16 3D1UAD	27 4D1ACT	17 3D2URE	32 5DTEPR	29 5ADECL
16 3D1UAD	* 1.00000				
27 4D1ACT	0.51661	* 1.00000			
17 3D2URE	0.54443	0.36894	* 1.00000		
32 5DTEPR	0.43377	0.37501	0.33141	* 1.00000	
29 5ADECL	0.18775	0.33817	0.18937	0.25022	* 1.00000

Naming Factors -- Instructions

The following items have been taken from Likert's Human Organization. They have been used on a survey of organizational climate of three engineering departments within a single engineering consulting firm. The structure of the company would fit well with J. D. Thompson's description (p. 80) of a task force (or project) oriented company. That is to say, there is a physical division into functional departments (where department heads have a great deal of authority) while groups within all departments will work on common projects.

The results from the survey have been factor analysed and the items on any single page have been found to load most heavily on that factor. You, along with other panel members, are being asked if you perceive a rationale for such loadings and if possible to put a name or label to the factor on each page.

One of the most important reasons for naming a factor is to communicate to others. The name should capsulize the substantive nature of the factor and enable others to grasp its meaning. One difficulty, however, is that a substantive label may have surplus meaning. (i.e. It may have irrelevant connotations.) The names can be theoretically suggestive or invoke hypothesis for future testing. Moreover, it can relate to the major theoretical consensus of the field, stimulate wide interest, and promote additional experimentation. A name that is suggestive and stimulating, rather than apt, but dry, will aid the communication of the study's results and help to further their utilization, testing and replication.

On each of the following pages please indicate a name or label for that factor and, if you feel it would add to clarity, a short definition of, and properties, or connotations you would not attribute to the label you have provided. Please note that the question asked of each subject was to place a D at the point along the scale which best described his department. Also note that the scales are reversed on a random basis and that the items have been ordered with the highest loading items at the top of the page. Please do not refer to a reference to see how the items have been categorized previously.

Note: Parts of the above instructions are rather liberally copied from Rummell (1970).

APPENDIX K

Factor analysis information for data from Likert study

Table XLV	-	Original Likert matrix used
Table XLVI	-	Eigenvalues, cumulative proportion of variance, per cent of total variance accounted for by each factor
Table XLVII	-	Communality figures
Table XLVIII	-	Factor-loading matrix before rotation

(for related data see Table XXVI)

TABLE XLV

Original Likert matrix used

** ORIGINAL LIKERT MATRIX **

* INDICATES AN ABSOLUTE VALUE GREATER THAN OR EQUAL TO 0.75000

	1 2AMCTI	2 2BUSED	3 2CATIT	4 2DRESP	5 2EATME	6 2FSATF	7 3ACOMU	8 3BDRTN
1 2AMCTI	* 1.00000							
2 2BUSED	* 0.80000	* 1.00000						
3 2CATIT	0.70000	* 0.75000	* 1.00000					
4 2DRESP	0.67000	0.73000	0.67000	* 1.00000				
5 2EATME	0.70000	* 0.76000	0.74000	0.73000	* 1.00000			
6 2FSATF	0.65000	0.69000	0.71000	0.74000	* 0.83000	* 1.00000		
7 3ACOMU	0.66000	0.73000	0.69000	0.73000	0.72000	* 0.76000	* 1.00000	
8 3BDRTN	0.61000	0.65000	0.64000	* 0.75000	0.68000	0.70000	0.74000	* 1.00000
9 3C1DIN	0.64000	0.69000	0.62000	0.67000	0.66000	0.64000	0.66000	0.74000
10 3C2EAC	* 0.76000	* 0.75000	0.73000	0.65000	0.72000	* 0.78000	* 0.75000	0.71000
11 3D1UAD	0.70000	0.73000	0.66000	0.62000	0.67000	0.66000	0.70000	0.73000
12 3D2URE	0.71000	0.68000	0.64000	0.71000	0.68000	0.69000	0.66000	0.73000
13 3D3LDS	0.56000	0.59000	0.56000	0.56000	0.67000	0.71000	0.68000	0.72000
14 3D4UAC	0.63000	0.65000	0.62000	0.68000	0.69000	* 0.78000	0.73000	* 0.78000
15 3E5ACE	0.53000	0.62000	0.56000	0.50000	0.70000	0.69000	0.61000	0.61000
16 3GFFIE	0.64000	0.68000	0.61000	0.61000	0.67000	0.69000	* 0.76000	0.73000
17 4AAINT	0.71000	0.74000	0.70000	0.74000	* 0.80000	* 0.79000	* 0.76000	0.73000
18 4BTEAM	0.70000	0.74000	0.62000	* 0.75000	0.74000	* 0.77000	0.71000	0.70000
19 4C1INF	0.69000	0.68000	0.56000	0.68000	0.59000	0.62000	0.63000	0.68000
20 4C2INB	0.72000	0.69000	0.67000	0.74000	0.67000	0.69000	0.73000	* 0.77000
21 4D1ACT	0.66000	0.68000	0.71000	0.64000	* 0.75000	0.69000	0.69000	0.58000
22 4E6FST	0.65000	0.66000	0.58000	0.69000	0.66000	0.63000	* 0.76000	* 0.78000
23 5AEFCL	0.73000	0.71000	0.68000	0.73000	* 0.76000	* 0.77000	* 0.77000	0.72000
24 5B0INF	0.65000	0.62000	0.55000	0.67000	0.55000	0.62000	* 0.76000	0.64000
25 5CAWAR	0.71000	0.65000	0.49000	0.70000	0.57000	0.57000	0.64000	0.69000
26 5D7EPR	0.73000	0.69000	0.63000	0.74000	0.70000	0.70000	0.67000	0.70000
27 5E8LEV	0.70000	0.72000	0.57000	0.65000	0.67000	0.64000	0.57000	0.63000
28 6A9CLS	0.73000	* 0.77000	0.71000	0.69000	0.70000	0.72000	* 0.78000	0.70000
29 6B6LEV	0.61000	0.60000	0.59000	0.62000	0.63000	0.71000	0.73000	0.73000
30 6C6ACR	0.73000	0.72000	0.65000	0.64000	0.66000	0.71000	0.73000	0.71000
31 7AEENA	0.67000	0.64000	0.58000	0.62000	0.65000	0.66000	0.62000	0.66000
32 7B0ENC	0.62000	0.65000	0.54000	0.66000	0.68000	0.72000	0.67000	0.74000
33 7C1NFO	0.59000	0.59000	0.61000	0.59000	0.72000	0.71000	0.61000	0.71000
34 8A9RCD	0.60000	0.66000	0.63000	0.60000	0.65000	* 0.76000	0.70000	0.69000
35 8BABSC	0.65000	0.59000	0.59000	0.65000	0.55000	0.68000	0.66000	0.74000
36 8CWAST	0.51000	0.51000	0.54000	0.53000	0.56000	0.60000	0.57000	0.58000
37 8D1ASP	0.58000	0.59000	0.53000	0.49000	0.56000	0.63000	0.60000	0.64000

TABLE XLV - (continued)

	9 3C1DIN	10 3C3EAC	11 3D1UAD	12 3D2URE	13 3D3UDS	14 3D4UAC	15 3ESADE	16 3GFRIE
9 3C1DIN	* 1.00000							
10 3C3EAC	0.71000	* 1.00000						
11 3D1UAD	0.59000	* 0.76000	* 1.00000					
12 3D2URE	0.61000	* 0.76000	* 0.77000	* 1.00000				
13 3D3UDS	0.66000	0.69000	0.64000	0.70000	* 1.00000			
14 3D4UAC	0.61000	* 0.78000	0.70000	* 0.78000	0.74000	* 1.00000		
15 3ESADE	0.66000	0.67000	0.55000	0.61000	0.71000	0.65000	* 1.00000	
16 3GFRIE	0.66000	0.70000	0.63000	0.64000	0.73000	0.74000	0.73000	* 1.00000
17 4AAINT	0.68000	0.74000	0.65000	0.72000	0.69000	* 0.79000	0.67000	* 0.77000
18 4BTEAM	0.73000	0.73000	0.66000	0.74000	0.68000	0.73000	0.70000	0.71000
19 4C1INF	0.61000	0.69000	0.66000	0.73000	0.55000	0.69000	0.47000	0.62000
20 4C2INB	0.65000	* 0.75000	0.72000	0.72000	0.64000	0.72000	0.58000	0.69000
21 4D1ACT	0.64000	0.67000	0.52000	0.61000	0.60000	0.61000	0.58000	0.67000
22 4EEFST	0.66000	0.67000	0.65000	0.71000	0.63000	0.70000	0.61000	0.68000
23 5ADECL	0.67000	0.71000	0.64000	0.72000	0.68000	0.67000	0.64000	0.74000
24 5BDINF	0.59000	0.59000	0.54000	0.61000	0.58000	0.62000	0.53000	0.65000
25 5CAWAR	0.66000	0.63000	0.59000	0.64000	0.56000	0.65000	0.52000	0.70000
26 5DTEPR	0.73000	0.72000	0.68000	0.71000	0.64000	0.70000	0.62000	0.70000
27 5EBLEV	0.64000	0.70000	0.67000	0.62000	0.56000	0.66000	0.61000	0.66000
28 6AGCLS	0.71000	0.72000	0.69000	0.69000	0.66000	0.68000	0.71000	* 0.77000
29 6BOLEV	0.63000	0.67000	0.60000	0.66000	0.69000	* 0.75000	0.62000	* 0.78000
30 6C6ACR	* 0.75000	* 0.77000	0.69000	0.70000	0.68000	* 0.78000	0.65000	0.67000
31 7ACONA	0.67000	0.74000	0.59000	0.69000	0.65000	0.70000	0.59000	0.64000
32 7BCONC	0.66000	0.58000	0.63000	0.65000	0.64000	0.70000	0.62000	0.70000
33 7CINFO	0.61000	0.67000	0.61000	0.66000	0.73000	0.72000	0.66000	0.74000
34 8APROD	0.59000	* 0.76000	0.64000	0.63000	0.61000	0.71000	0.62000	0.70000
35 8BABSC	0.69000	0.66000	0.54000	0.66000	0.59000	* 0.75000	0.49000	0.63000
36 8CWAST	0.63000	0.60000	0.53000	0.51000	0.46000	0.64000	0.42000	0.53000
37 8DINSP	0.59000	0.67000	0.52000	0.58000	0.54000	0.71000	0.53000	0.62000

	17 4AAINT	18 4BTEAM	19 4C1INF	20 4C2INB	21 4D1ACT	22 4EEFST	23 5ADECL	24 5BDINF
17 4AAINT	* 1.00000							
18 4BTEAM	* 0.76000	* 1.00000						
19 4C1INF	* 0.76000	0.74000	* 1.00000					
20 4C2INB	0.71000	0.68000	* 0.78000	* 1.00000				
21 4D1ACT	* 0.77000	0.73000	0.68000	0.66000	* 1.00000			
22 4EEFST	* 0.77000	0.65000	0.67000	* 0.76000	0.61000	* 1.00000		
23 5ADECL	* 0.76000	0.72000	0.62000	0.69000	0.74000	* 0.76000	* 1.00000	
24 5BDINF	0.64000	0.67000	0.54000	0.59000	0.66000	0.64000	* 0.76000	* 1.00000
25 5CAWAR	0.65000	* 0.75000	0.67000	0.64000	0.59000	0.69000	* 0.75000	* 0.77000
26 5DTEPR	0.72000	* 0.80000	0.70000	0.71000	0.71000	0.68000	* 0.80000	* 0.75000
27 5EBLEV	0.66000	0.68000	0.66000	0.66000	0.70000	0.60000	0.68000	0.64000
28 6AGCLS	0.74000	* 0.76000	0.63000	0.70000	0.69000	0.65000	* 0.79000	0.73000
29 6BOLEV	0.73000	0.72000	0.65000	0.67000	0.59000	0.66000	* 0.75000	0.68000
30 6C6ACR	0.69000	* 0.76000	0.68000	* 0.76000	0.66000	0.64000	0.69000	0.68000
31 7ACONA	0.71000	* 0.76000	0.71000	0.64000	0.65000	0.66000	0.70000	0.56000
32 7BCONC	0.70000	0.74000	0.64000	0.66000	0.69000	0.66000	0.73000	0.62000
33 7CINFO	0.70000	0.70000	0.56000	0.59000	0.66000	0.57000	* 0.75000	0.63000
34 8APROD	0.70000	0.69000	0.60000	0.68000	0.58000	0.57000	0.66000	0.61000
35 8BABSC	0.68000	0.70000	0.63000	0.63000	0.63000	0.69000	0.67000	0.63000
36 8CWAST	0.63000	0.61000	0.46000	0.54000	0.58000	0.55000	0.61000	0.50000
37 8DINSP	0.59000	0.60000	0.49000	0.57000	0.57000	0.55000	0.61000	0.57000

TABLE XLV - (continued)

	25 5CAWAR	26 5DTEPR	27 5EBLEV	28 6AGOLS	29 6BGLEV	30 6CGACR	31 7ACCNA	32 7BCONC
25 5CAWAR	* 1.00000							
26 5DTEPR	* 0.80000	* 1.00000						
27 5EBLEV	0.68000	* 0.77000	* 1.00000					
28 6AGOLS	0.71000	* 0.76000	0.67000	* 1.00000				
29 6BGLEV	0.71000	0.71000	0.61000	* 0.79000	* 1.00000			
30 6CGACR	0.73000	0.71000	0.68000	* 0.77000	* 0.76000	* 1.00000		
31 7ACCNA	0.71000	0.72000	0.67000	0.63000	0.71000	* 0.75000	* 1.00000	
32 7BCONC	0.66000	0.72000	0.66000	0.73000	0.65000	0.64000	0.66000	* 1.00000
33 7CINFO	0.64000	0.70000	0.58000	0.72000	0.74000	0.64000	0.62000	* 0.76000
34 8APROD	0.55000	0.58000	0.59000	0.67000	0.68000	0.70000	0.63000	0.73000
35 8BABSC	0.66000	0.68000	0.57000	0.67000	0.69000	0.73000	0.65000	0.66000
36 8CWAST	0.57000	0.59000	0.48000	0.61000	0.62000	0.59000	0.45000	0.66000
37 8DINSP	0.52000	0.54000	0.57000	0.62000	0.62000	0.68000	0.51000	0.63000

	33 7CINFO	34 8APROD	35 8BABSC	36 8CWAST	37 8DINSP
33 7CINFO	* 1.00000				
34 8APROD	0.71000	* 1.00000			
35 8BABSC	0.61000	0.64000	* 1.00000		
36 8CWAST	0.67000	0.72000	0.70000	* 1.00000	
37 8DINSP	0.68000	0.73000	0.72000	0.69000	* 1.00000

TABLE XLVI

Eigenvalues, cumulative proportion of variance, per cent of total variance

EIGENVALUES									
25.01324	1.20978	1.02173	0.90559	0.86792	0.71017	0.66524	0.56496	0.53333	0.47569
0.43960	0.42631	0.36944	0.34777	0.34144	0.32349	0.29184	0.26793	0.25836	0.23581
0.22494	0.20169	0.16991	0.15757	0.14238	0.13533	0.11692	0.10449	0.09583	0.08032
0.07501	0.06815	0.05371	0.04237	0.03343	0.02421	0.00812			
CUMULATIVE PROPORTION OF TOTAL VARIANCE									
0.67603	0.70873	0.73654	0.76082	0.78428	0.80347	0.82145	0.83672	0.85113	0.86399
0.87576	0.88729	0.89727	0.90667	0.91590	0.92464	0.93253	0.93977	0.94675	0.95313
0.95920	0.96466	0.96925	0.97351	0.97735	0.98101	0.98417	0.98700	0.98959	0.99176
0.99378	0.99563	0.99708	0.99822	0.99913	0.99978	1.00000			
PER CENT OF TOTAL VARIANCE ACCOUNTED FOR BY EACH FACTOR									
67.60335	3.26968	2.76143	2.44754	2.34574	1.91938	1.79795	1.52691	1.44143	1.28564
1.17730	1.15219	0.99850	0.93993	0.92280	0.87430	0.78875	0.72413	0.69828	0.63732
0.60793	0.54512	0.45921	0.42588	0.38481	0.36575	0.31600	0.28240	0.25900	0.21709
0.20272	0.18418	0.14516	0.11451	0.09036	0.06543	0.02193			

TABLE XLVII

Communality figures

	VARIABLE	ORIGINAL COMMUNALITY	ESTIMATED COMMUNALITY	FINAL COMMUNALITY
1	2AMCTI	1.00000	1.00000	0.78559
2	2BLSED	1.00000	1.00000	0.81978
3	2CATIT	1.00000	1.00000	0.79841
4	2DPESP	1.00000	1.00000	0.73902
5	2EATME	1.00000	1.00000	0.84946
6	2FSATF	1.00000	1.00000	0.80667
7	3ACCMU	1.00000	1.00000	0.73340
8	3BDPIN	1.00000	1.00000	0.80510
9	3C1DIN	1.00000	1.00000	0.66469
10	3C3DAC	1.00000	1.00000	0.82691
11	3D1UAD	1.00000	1.00000	0.75175
12	3D2URE	1.00000	1.00000	0.78067
13	3D3UDS	1.00000	1.00000	0.81321
14	3D4UAC	1.00000	1.00000	0.84438
15	3ESADE	1.00000	1.00000	0.80492
16	3GFRIE	1.00000	1.00000	0.79151
17	4AAINT	1.00000	1.00000	0.79032
18	4B1EAM	1.00000	1.00000	0.78089
19	4C1INF	1.00000	1.00000	0.77518
20	4C2INE	1.00000	1.00000	0.78940
21	4D1ACT	1.00000	1.00000	0.76960
22	4EEFST	1.00000	1.00000	0.71604
23	5ADECL	1.00000	1.00000	0.82290
24	5B0INF	1.00000	1.00000	0.76669
25	5CAWAR	1.00000	1.00000	0.87449
26	5CTEPR	1.00000	1.00000	0.83514
27	6FBLEV	1.00000	1.00000	0.68572
28	6AGOLS	1.00000	1.00000	0.79258
29	6BGLEV	1.00000	1.00000	0.78478
30	6CGACP	1.00000	1.00000	0.76268
31	7ACONA	1.00000	1.00000	0.70576
32	7BCONC	1.00000	1.00000	0.72362
33	7CINFO	1.00000	1.00000	0.79951
34	8APECO	1.00000	1.00000	0.79428
35	8BABSC	1.00000	1.00000	0.80266
36	8CWAST	1.00000	1.00000	0.84430
37	8DINSP	1.00000	1.00000	0.78622
	SUM OF COMMUNALITIES	37.00000	37.00000	29.01827
	MEAN COMMUNALITY	1.00000	1.00000	0.78428

TABLE XLVIII

Factor-loading matrix before rotation

FACTOR-LOADINGS MATRIX BEFORE ROTATION
* INDICATES A VALUE GREATER THAN OR EQUAL TO 0.70000

VARIABLE		FACTOR 1	2	3	4	5
1 2AMOTI	*	0.8197	-0.2723	0.0136	0.1288	0.1508
2 2BLSED	*	0.8566	-0.2304	-0.1637	0.0850	0.1813
3 2CATIT	*	0.7776	-0.2996	-0.3045	0.1601	0.2560
4 2DRESP	*	0.8185	-0.2257	0.0692	0.0606	0.0985
5 2EAIME	*	0.8378	-0.2535	-0.3303	-0.0768	0.1723
6 2FSATF	*	0.8580	0.1203	-0.2230	-0.0236	0.0758
7 2ACCMO	*	0.8544	-0.0008	-0.0544	-0.0105	0.0161
8 3BORTN	*	0.8571	0.0621	0.0670	0.0792	-0.2365
9 3C1DIA	*	0.8054	-0.0138	0.0994	0.0431	0.0642
10 3C3DAC	*	0.8676	-0.0301	-0.1862	0.1870	-0.0602
11 3C1UAE	*	0.7923	-0.1596	-0.1554	0.2097	-0.1743
12 3C2URE	*	0.8341	-0.1233	-0.0583	0.1154	-0.2302
13 3D3WOS	*	0.7854	0.1312	-0.1875	-0.2177	-0.3004
14 3D4WAC	*	0.8636	0.1592	-0.0258	0.1135	-0.2443
15 3ESADE	*	0.7500	0.1167	-0.3167	-0.3387	-0.1177
16 3FFFIE	*	0.8405	0.1151	-0.0523	-0.2390	-0.1091
17 4AAINT	*	0.8819	-0.0308	-0.1029	-0.0205	0.0258
18 4BTEAM	*	0.8768	-0.0467	0.0488	-0.0850	0.0203
19 4C1INF	*	0.7913	-0.2845	0.1087	0.1758	-0.1592
20 4C2INB	*	0.8387	-0.1656	-0.0268	0.1945	-0.1414
21 4DIACT	*	0.8043	-0.0763	-0.0548	-0.0975	0.3230
22 4FEFST	*	0.8148	-0.1097	0.1032	0.0293	-0.1693
23 5ADECL	*	0.8752	-0.0195	0.0607	-0.1866	0.1346
24 5BDINF	*	0.7779	-0.0309	0.2948	-0.2267	0.1496
25 5C4WAR	*	0.8038	-0.1447	0.4281	-0.1553	-0.0137
26 5D1EPR	*	0.8630	-0.1628	0.1894	-0.1504	0.0736
27 5EBLEV	*	0.7932	-0.2055	0.0367	-0.0643	0.0940
28 6AGELS	*	0.8714	0.0141	0.0023	-0.1372	0.1189
29 6BCLEV	*	0.8349	0.1688	0.1367	-0.1408	-0.1442
30 6CGACR	*	0.8615	0.0043	0.0743	0.0932	-0.0790
31 7ACCNA	*	0.8060	-0.1374	0.0750	-0.0594	-0.1677
32 7BCONC	*	0.8241	0.1617	0.0874	-0.0899	0.0513
33 7C1NFO	*	0.8139	0.2170	-0.0446	-0.1845	0.0213
34 8APROD	*	0.8074	0.3165	-0.1081	0.1721	0.0307
35 8BABSC	*	0.8007	0.1821	0.2876	0.2138	-0.0023
36 8CWAST	*	0.7066	0.4267	0.1777	0.2605	0.2521
37 8D1NSP	*	0.7361	0.4235	0.0660	0.2307	0.0863

SUM OF SQUARED FACTOR-LOADINGS DIVIDED BY SUM OF COMMUNALITIES

0.8620	0.0417	0.0352	0.0312	0.0299

APPENDIX L

Table XLIX - Number of paired observations of climate dimensions (using factor dimensions)

Table L - Means and standard deviations of factor climate dimensions

(for related data see Table XXVII)

** USING FACTOR DIMENSIONS **

NO. PAIRED OBSERVATIONS

VARIABLE	ISP1	ISP2	ISPD	CONP1	CONP2	CONPD	ISDE1	ISDE2	ISDED	CONDE1	CONDE2
ISP1	61.										
ISP2	14.	28.									
ISPD	14.	14.	14.								
CONP1	59.	14.	14.	59.							
CONP2	13.	18.	13.	13.	18.						
CONPD	13.	13.	13.	13.	13.	13.					
ISDE1	59.	14.	14.	59.	12.	13.	59.				
ISDE2	13.	18.	13.	13.	18.	13.	13.	18.			
ISDED	13.	13.	13.	13.	15.	13.	13.	13.	13.		
CONDE1	59.	15.	14.	59.	14.	13.	59.	14.	13.	71.	
CONDE2	13.	18.	13.	13.	18.	13.	13.	18.	13.	17.	25.
CONDED	13.	14.	13.	13.	14.	13.	13.	14.	13.	17.	17.
INTAM1	56.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
INTAM2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
INTAMD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
PRCON1	58.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
PRCON2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
PRCOND	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
GLCOR1	57.	13.	12.	56.	15.	12.	56.	13.	12.	68.	15.
GLCOR2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
GLCORD	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
CONPR1	58.	13.	12.	56.	13.	12.	56.	13.	12.	68.	16.
CONPR2	13.	19.	13.	13.	16.	11.	13.	16.	11.	17.	25.
CONPRD	12.	13.	11.	12.	12.	11.	12.	12.	11.	16.	15.
UPCON1	56.	13.	12.	55.	13.	12.	55.	13.	12.	67.	16.
UPCON2	14.	19.	13.	14.	17.	12.	14.	17.	12.	18.	24.
UPCOND	13.	13.	12.	13.	13.	12.	13.	13.	12.	17.	16.
PRCON1	55.	13.	12.	54.	13.	12.	54.	13.	12.	66.	16.
PRCON2	13.	19.	12.	13.	16.	11.	13.	16.	11.	17.	23.
PRCOND	12.	12.	11.	12.	12.	11.	12.	12.	11.	15.	15.
INPRM1	51.	12.	11.	50.	12.	11.	50.	12.	11.	40.	14.
INPRM2	13.	18.	12.	13.	16.	11.	13.	16.	11.	17.	23.
INPRMD	11.	11.	10.	11.	11.	10.	11.	11.	10.	14.	13.
CECLV1	55.	13.	12.	54.	13.	12.	54.	13.	12.	66.	16.
CECLV2	13.	18.	12.	13.	16.	11.	13.	16.	11.	17.	22.
CECLVD	12.	12.	11.	12.	12.	11.	12.	12.	11.	16.	15.

TABLE XLIX

Number of paired observations of climate dimensions

TABLE XLIX - (continued)

NO. PAIRED OBSERVATIONS

VARIABLE	CONDED	INTWM1	INTWM2	INTWMD	PRCON1	PRCON2	PRCOND	GLCGR1	GLCGR2	GLCGRD	CONPR1
CONDED	17.										
INTWM1	16.	74.									
INTWM2	16.	17.	27.								
INTWMD	16.	17.	17.	17.							
PRCON1	16.	74.	17.	17.	74.						
PRCON2	16.	17.	27.	17.	17.	27.					
PRCOND	16.	17.	17.	17.	17.	17.	17.				
GLCGR1	16.	73.	17.	17.	73.	17.	17.	73.			
GLCGR2	16.	17.	27.	17.	17.	27.	17.	17.	27.		
GLCGRD	16.	17.	17.	17.	17.	17.	17.	17.	17.	17.	
CONPR1	16.	74.	17.	17.	74.	17.	17.	73.	17.	17.	74.
CONPR2	15.	16.	26.	16.	16.	26.	16.	16.	26.	16.	16.
CONPRD	15.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.
UPCOM1	16.	72.	17.	17.	72.	17.	17.	72.	17.	17.	72.
UPCOM2	16.	17.	27.	17.	17.	27.	17.	17.	27.	17.	17.
UPCOMD	16.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.
PROCM1	16.	71.	17.	17.	71.	17.	17.	71.	17.	17.	71.
PROCM2	15.	16.	26.	16.	16.	26.	16.	16.	26.	16.	16.
PROCMD	15.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.
INFOR1	14.	65.	15.	15.	65.	15.	15.	65.	15.	15.	65.
INFOR2	15.	16.	26.	16.	16.	26.	16.	16.	26.	16.	16.
INFORD	13.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.
DECLV1	16.	71.	17.	17.	71.	17.	17.	71.	17.	17.	71.
DECLV2	15.	16.	26.	16.	16.	26.	16.	16.	26.	16.	16.
DECLVD	15.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.

NO. PAIRED OBSERVATIONS

VARIABLE	CONPR2	CONPRD	UPCOM1	UPCOM2	UPCOMD	PROCM1	PROCM2	PROCMD	INFOR1	INFOR2	INFORD
CONPR2	26.										
CONPRD	16.	16.									
UPCOM1	16.	16.	72.								
UPCOM2	24.	16.	17.	27.							
UPCOMD	16.	16.	17.	17.	17.						
PROCM1	16.	16.	71.	17.	17.	71.					
PROCM2	26.	16.	16.	26.	16.	16.	26.				
PROCMD	16.	16.	16.	16.	16.	16.	16.	16.			
INFOR1	14.	14.	65.	15.	15.	64.	14.	14.	65.		
INFOR2	26.	16.	16.	26.	16.	16.	26.	16.	14.	26.	
INFORD	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.
DECLV1	16.	16.	71.	17.	17.	70.	16.	16.	64.	16.	14.
DECLV2	26.	16.	16.	26.	16.	16.	26.	16.	14.	26.	14.
DECLVD	16.	16.	16.	16.	16.	16.	16.	16.	14.	16.	14.

NO. PAIRED OBSERVATIONS

VARIABLE	DECLV1	DECLV2	DECLVD
DECLV1	71.		
DECLV2	16.	26.	
DECLVD	16.	16.	16.

NAME	MEAN	STD.DEV.	NAME	MEAN	STD.DEV.	NAME	MEAN	STD.DEV.
ISP1	3.51474	0.543987	INTWM1	12.6648	2.67868	UPCOM1	11.3426	3.48816
ISP2	3.58453	0.875267	INTWM2	12.6564	2.41972	UPCOM2	11.5376	2.71811
ISP3	-0.942140D-01	0.569320	INTWMD	0.124649	1.29450	UPCOMD	-0.392157	2.81424
CONP1	3.25076	0.746276	PRCON1	12.9815	2.74293	PRCOM1	12.1784	2.80477
CONP2	3.17474	0.582724	PRCON2	12.6735	2.33240	PRCOM2	12.5961	2.88573
CONPD	-0.292315	0.585864	PRCOND	-0.519599D-01	1.50609	PRCOMD	-0.312502	2.59763
ISOE1	3.51647	0.649413	GLCGR1	10.2031	2.98551	INFOR1	11.5350	3.36487
ISOE2	3.63335	0.855281	GLCGR2	10.8155	2.60157	INFOR2	12.0128	2.82171
ISOED	-0.244545D-01	0.977531	GLCGRD	-0.441176D-01	1.74680	INFORD	-0.511904	1.70528
CONOE1	3.21624	0.761872	CONPR1	11.6302	2.68268	DECLV1	10.7465	3.04357
CONOE2	3.47911	0.721691	CONPR2	12.6545	2.59706	DECLV2	10.3.77	3.49386
CONOED	0.161624D-01	0.581311	CONPRD	0.302083	1.87253	DECLVD	-0.250000	2.91547

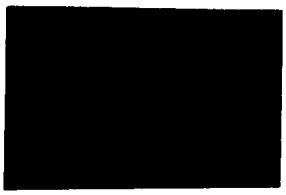
TABLE L

Means and standard deviations of factor dlimate dimensions

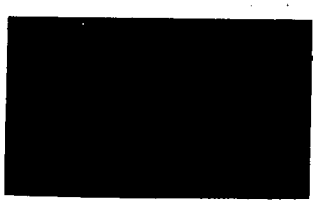
APPENDIX M

Survey Questionnaire as distributed
with closed-end question
responses indicated

SURVEY



Company logo



Company name

IMPROVEMENT SURVEY

INTRODUCTION

The following survey questionnaire has been prepared for several reasons. The most important results to you will be the answers provided by you in Parts III and IV. First a brief description of the questionnaire.

The first portion is background information whose chief value is in interpreting the results for the following sections. If, for example, in Part II we ask a question and exactly 50% say "no" and 50% "yes", reasonable inferences could not be drawn but, if on further checking, it is found that 95% of male clerical under 25 and 80% of engineers over 40 said "yes" while only 15% in other groups said "yes", some logical inference as to reasons for saying "yes" or "no" might be drawn.

Part III of the questionnaire has been prepared in co-operation with the heads of the departments participating in the original survey. Essentially, these are items about which your department head would like your opinion. What has this got to do with you? Firstly, it can give your department head information on which to base decisions about many matters which affect the performance and ease of your job. Secondly, the results of Part III will be returned to all personnel in the department as well as the department head.

Part IV will be questions of interest to the personnel department and are items which fall outside of the specific needs of the department head. General results from this section will also be distributed.

The second section consists essentially of measurement tools which have been used by other researchers to find amongst other things, profiles of general organizational characteristics such as leadership styles, decision-making processes, etc. Results from this part are for research purposes only and will not be distributed. It is intended to repeat this portion of the questionnaire some time after the results of Parts III and IV have been distributed. The main benefit of these two successive surveys will be to evaluate the usefulness of a Part III or IV survey. The results will also be used as part of Dave Young's Masters level thesis in Business Administration. For best results, of course, as large a response as possible from throughout the department is required.

Your participation is purely voluntary. No one will know if you answer or not. The questionnaires themselves will never be made available to the company. The only results to be given to the company will be of a general nature indicating what responses were made and percentage or other statistical information covering the whole department or results combining the responses from all departments. Besides Dave Young's personal word for this, you may feel better to know that rather severe sanctions by the University could be imposed on him and possibly on his advisor at U. B. C. for any inappropriate disclosure of confidential information.

If you feel strongly that you do not wish to participate, you are free to dispose of the survey. The completed questionnaire should be placed in the stamped envelope supplied and mailed.

* * * * *

INSTRUCTIONS - PARTS I, III, IV

1. For many questions, a check mark in the space provided is all that is required.
2. For questions requiring a written response, descriptive but brief answers will be best.
3. If you feel that longer answers or more items need to be listed, continue on the back of the questionnaire.
4. If a question is not applicable to you because of your job category etc., place an "X" in the margin beside the question.
5. If a question is applicable, but you do not have an answer, simply leave it blank.
6. At the top of the next page there is a space for a nom de plume or code name. Make up any word or name you wish to use and fill in the space. Please make a point of remembering what your code name is so that you may use it again on a follow-up questionnaire. It is very important for statistical reasons that a paired comparison be made for some items that will appear on both questionnaires.

thesis page 321

Please Remember your Code Name or Nom De Plume

Nom De Plume or Code Name

PART I -- BACKGROUND

1. Department Combined Results Floor No. _____ Building _____

2. Major project number _____ (current or most recent)

If generally not associated with a specific project check here _____

3. Age: <20 _____ 20-25 _____ 26-30 14% 31-35 28% 36-40 20% 41-45 20%
46-50 16% 51-55 _____ 56-60 _____ 61-65 _____ >65 2%

4. Sex: Male 94% Female 6%

5. Marital Status: Married 98% Single 2%

6. What is your position (check one)
clerical 2% stenographer 2% draftsman 32% engineer 32% section or project leader 30%
departmental management 2% other, please specify _____

7. Is your position: Supervisory 40% Non-Supervisory 60%

Circle no. normally (or an average) supervised (directly or indirectly within this department)
4% 4% 12% 12% 17% 4% 12% 4% 8% 8% 8% 4%
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 >15 >20

8. Your Education: (check one)
post-graduate university 8% graduate university 38% some university 28%
high school graduation 26% some high school _____ no high school _____
Supplemental education other than indicated above 24% (check if any)

Please indicate your total equivalent years of formal education including school, university, supplemental vocational, etc. 10 - 24 years

Please indicate degrees, if other than engineering _____

Please indicate nature of supplemental education if other than technical or engineering _____

9. Recognized Qualifications:
professional engineer 55% E.I.T. _____
qualified for P.Eng. but not registered 15% technologist _____ technician II _____
not qualified but near P.Eng. requirements 18% technician I _____ technician III _____
others - please specify (e.g. H.N.C., H.T.S., etc.) 12%

10. Number of professional organizations of all kinds (not including P.Eng.) in which you hold membership.
Circle Number: 0 71% 1 21% 2 7% 3 4 5 >5 of those responding

11. Total length of service with company (including all previous employment periods with company).
<6 mo. 2% <1 year 4% over 1 yr. 8% over 2 6% over 3 _____ over 4 2%
over 5 12% over 6 10% over 7 14% over 8 28% over 12 8% over 16 6%

12. Have you returned to this company after previous employment here? (check one)
above service not broken 66% above service broken once 32% above service broken twice 2%
above service broken 3 times _____ above service broken 4 times _____ above service broken 5 times _____
above service broken >5 times _____

BE SURE TO FILL IN A CODE NAME or NOM DE PLUME AT THE TOP OF THE PAGE

INSTRUCTIONS - PART II (A)

1. Please note that there are no "right" or "wrong" answers. Work swiftly once you have grasped the method of recording your responses. Do not spend too much time on any one item, since we are interested in your first reaction to each statement.

2. For the following sequence of questions treat each item as a continuous variable from the extreme at one end to that at the other end.

3. For each question we would like you to provide 3 responses on the line below the item.

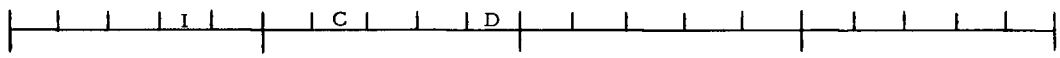
   (a) Fill a D in the space which, in your opinion, best describes your department.

   (b) Fill in a C in the space which, in your opinion, best describes the company (in general) outside your department.

   (c) Fill in an I (1 or I) in the space which, in your opinion, describes the ideal point, that is the point at which you would like your department to fall.

EXAMPLE:

Amount of Co-operative teamwork present	Very substantial Amount	A moderate Amount	Relatively Little	None



4. Please attempt complete answers for all items.

* * * * *

PART II (A)

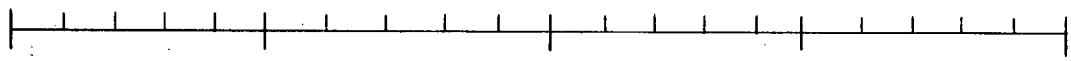
D = Department
C = Company (in general)
I = Ideal (department)

1. Leadership processes used				
(a) Extent to which superiors have confidence in subordinates	Have no confidence and trust in subordinates	Have condescending confidence and trust, such as master has in servant	Substantial but not complete confidence and trust; still wishes to keep control of decisions	Complete confidence and trust in all matters
(b) Extent to which subordinates, in turn, have confidence and trust in superiors	Have no confidence and trust in superiors	Have subservient confidence and trust, such as servant has to master	Substantial but not complete confidence and trust	Complete confidence and trust
*(c) Extent to which superiors behave so that subordinates feel free to discuss important things about their jobs with their immediate superior	Subordinates feel completely free to discuss things about the job with their superior	Subordinates feel rather free to discuss things about the job with their superior	Subordinates do not feel very free to discuss things about the job with their superior	Subordinates do not feel at all free to discuss things about the job with their superior
*(d) Extent to which immediate superior in solving job problems generally tries to get subordinates' ideas and opinions and make constructive use of them.	Always get ideas and opinions and always tries to make constructive use of them	Usually gets ideas and opinions and usually tries to make constructive use of them	Sometimes gets ideas and opinions of subordinates in solving job problems	Seldom gets ideas and opinions of subordinates in solving job problems

2.	Character of motivational forces				
(a)	Underlying motives tapped	Physical security, economic needs, and some use of the desire for status	Economic needs and moderate use of ego motives, e.g. desire for status and achievement	Economic needs and considerable use of status and other major motives, e.g., desire for new experiences	Full use of economic, status and other major motives, as, for example, motivational forces arising from group goals
(b)	Manner in which motives are used	Fear, threats, punishment, and occasional rewards	Rewards and some actual or potential punishment	Rewards, occasional punishment, and some involvement	Economic rewards based on compensation system developed through participation; group participation and involvement in setting goals, improving methods, appraising progress toward goals, etc.
*(c)	Kinds of attitudes developed toward organization as a whole and its goals	Attitudes are strongly favorable and provide powerful stimulation to behavior implementing organization's goals	Attitudes usually are favorable and support behavior implementing organization's goals	Attitudes are sometimes hostile and counter to organization's goals and are sometimes favorable to the organization's goals and support the behavior necessary to achieve them	Attitudes usually are hostile and counter to organization's goals
*(d)	Amount of responsibility felt by each member of organization for achieving organization's goals	Personnel at all levels feel real responsibility for organization's goals and behave in ways to implement them	Substantial proportion of personnel, especially at higher levels, feel responsibility and generally behave in ways to achieve the organization's goals	Managerial personnel usually feel responsibility; rank and file usually feel relatively little responsibility for achieving organization's goals	High levels of management feel responsibility; lower levels feel less; rank and file feel little and often welcome opportunity to behave in ways to defeat organization's goals
*(e)	Attitudes toward other members of the organization	Favorable, cooperative attitudes throughout the organization with mutual trust and confidence	Co-operative, reasonably favorable attitudes toward others in organization; may be some competition between peers with resulting hostility and some condescension toward subordinates	Subservient attitudes toward superiors; competition for status resulting in hostility toward peers; condescension toward subordinates	Subservient attitudes toward superiors coupled with hostility; hostility toward peers and contempt for subordinates; distrust is widespread
*(f)	Satisfaction derived	Relatively high satisfaction throughout the organization with regard to membership in the organization, supervision, and one's own achievements	Some dissatisfaction to moderately high satisfaction with regard to membership in the organization, supervision, and one's own achievements	Dissatisfaction to moderate satisfaction with regard to membership in the organization, supervision, and one's own achievements	Usually dissatisfaction with membership in the organization, with supervision, and with one's own achievements
3.	Character of communication process				
(a)	Amount of interaction and communication aimed at achieving organization's objectives	Very little	Little	Quite a bit	Much with both individuals and groups

(b) Direction of information flow

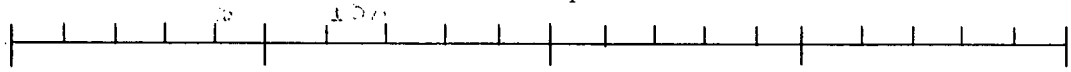
Downward	Mostly downward	Down and up	Down, up, and with peers



*(c) Downward communication:

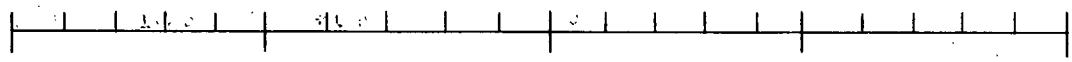
(1) Where initiated

Initiated at all levels	Patterned on communication from top but with some initiative at lower levels	Primarily at top or patterned on communication from top	At top of organization or to implement top directive



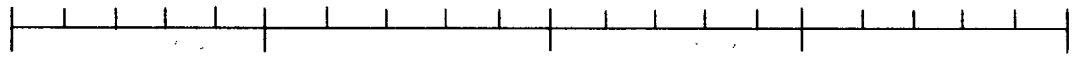
(2) Extent to which superiors willingly share information with subordinates

Provide minimum of information	Gives subordinates only information superior feels they need	Gives information needed and answers most questions	Seeks to give subordinates all relevant information and all information they want



*(3) Extent to which communications are accepted by subordinates

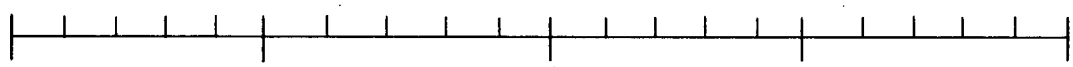
Generally accepted, but if not, openly and candidly questioned	Often accepted but, if not, may or may not be openly questioned	Some accepted and some viewed with suspicion	Viewed with great suspicion



(d) Upward communication:

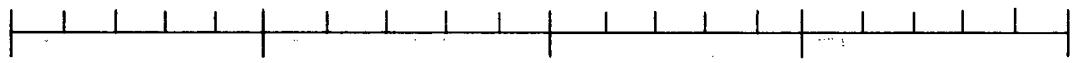
(1) Adequacy of upward communication

Very little	Limited	Some	A great deal



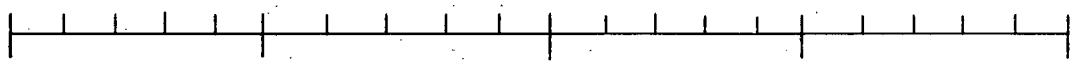
(2) Subordinates' feeling of responsibility for initiating accurate upward communication along project lines

None at all	Relatively little, usually communicates "filtered" information and only when requested, may "yes" the boss	Some to moderate degree of responsibility to initiate accurate upward communication	Considerable responsibility felt and much initiative; group communicates all relevant information



* (3) Forces leading to accurate or distorted upward information on projects

Virtually no forces to distort and powerful forces to communicate accurately	Occasional forces to distort along with many forces to communicate accurately	Many forces to distort; also forces for honest communication	Powerful forces to distort information and deceive superiors

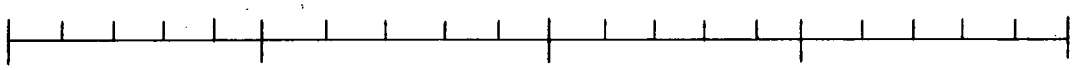


* (4) Accuracy of upward communication within department(s)

Accurate	Information that boss wants to hear flows; other information may be limited or cautiously given	Information that boss wants to hear flows; other information is restricted and filtered	Tends to be inaccurate

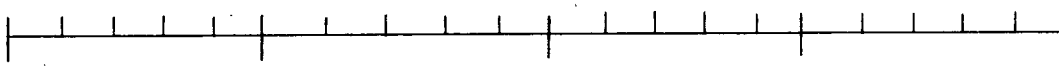
(e) Sideward communication, its adequacy and accuracy with other engineering departments

Usually poor because of competition, corresponding hostility	Fairly poor because of competition	Fair to good	Good to excellent



(f) Sideward communication, its adequacy and accuracy with other non-engineering departments

Usually poor because of competition, corresponding hostility	Fairly poor because of competition	Fair to good	Good to excellent



*(g)	Friendliness between superiors and subordinates	Usually very close	Fairly close	Can be moderately close if proper roles are kept	Far apart
4.	Character of interaction-influence process				
*(a)	Amount and character of interaction	Extensive, friendly interaction with high degree of confidence and trust	Moderate interaction, often with fair amount of confidence and trust	Little interaction and usually with some condescension by superiors; fear and caution by subordinates	Little interaction and always with fear and distrust
*(b)	Amount of co-operative teamwork present	Very substantial amount	A moderate amount	Relatively little	None
(c)	Extent to which subordinates can influence the goals, methods and activity of their units and departments				
	(1) As seen by superiors	None	Virtually none	Moderate amount	A great deal
	(2) As seen by subordinates	None except through "informal organization"	Little except through "informal organization"	Moderate amount directly	Substantial amount directly
(d)	Amount of actual influence which superiors can exercise over the goals, activity and methods of their units and departments	Believed to be substantial but actually moderate unless capacity to exercise severe punishment is present	Moderate to somewhat more than moderate; especially for higher levels in organization	Moderate to substantial, especially for higher levels in organization	Substantial but often done indirectly, as, for example, by superior building effective interaction-influence system
*(e)	Extent to which an effective structure exists enabling one part of organization to exert influence upon other parts	Highly effective structure exists enabling exercise of influence in all directions	Moderately effective structure exists; influence exerted largely through vertical lines	Limited capacity exists; influence exerted largely via vertical lines and primarily downward	Effective structure virtually not present
5.	Character of decision-making process				
(a)	At what level in organization are decisions formally made?	Bulk of decisions at top of organization	Policy at top, many decisions within prescribed framework made at lower levels but usually checked with top before action	Broad policy decisions at top, more specific decisions at lower levels	Decision making widely done throughout organization, although well integrated through linking process provided by overlapping groups
(b)	How adequate and accurate is the information available for decision making at the place where the decisions are made?	Information is generally inadequate and inaccurate	Information is often somewhat inadequate and inaccurate	Reasonably adequate and accurate information available	Relatively complete and accurate information available based both on measurements and efficient flow of information in organization

* (c)	To what extent are decision makers aware of problems, particularly those at lower levels in the organization	Generally quite well aware of problems	Moderately aware of problems	Aware of some, unaware of others	Often are unaware or only partially aware
(d)	Extent to which technical and professional knowledge is used in decision making	Used only if possessed at higher levels	Much of what is available in higher and middle levels is used	Much of what is available in higher, middle and lower levels is used	Most of what is available anywhere within the organization is used
* (e)	Are decisions made at the best level in the organization as far as: availability of the most adequate and accurate information bearing on the decision	Overlapping groups and group decision processes tend to push decisions to a point where information is most adequate or to pass the relevant information to the decision-making point	Some tendency for decisions to be made at higher levels than where most adequate and accurate information exists	Decisions often made at levels appreciably higher than levels where most adequate and accurate information exists	Decisions usually made at levels appreciably higher than levels where most adequate and accurate information exists
(f)	To what extent are subordinates involved in decisions related to their work?	Not at all	Never involved in decisions; occasionally consulted	Usually are consulted but ordinarily not involved in the decision making	Are involved fully in all decisions related to their work
(6)	Character of goal setting or ordering				
*(a)	Manner in which usually done	Except in emergencies, goals are usually established by means of group participation	Goals are set or orders issued after discussion with subordinates of problems and planned action	Orders issued, opportunity to comment may or may not exist	Orders issued
*(b)	To what extent do the different hierarchical levels tend to strive for high performance goals?	High goals sought by all levels, with lower levels sometimes pressing for higher goals than top levels	High goals sought by higher levels but with occasional resistance by lower levels	High goals sought by top and often resisted moderately by subordinates	High goals pressed by top, generally resisted by subordinates
(c)	Are there forces to accept, resist, or reject goals?	Goals are overtly accepted but are covertly resisted strongly	Goals are overtly accepted but often covertly resisted to at least a moderate degree	Goals are overtly accepted but at times with some covert resistance	Goals are fully accepted both overtly and covertly

7.	Character of control processes				
* (a)	How accurate are the measurements and information used to guide and perform the control function, and to what extent do forces exist in the organization to distort and falsify this information?	Strong pressures to obtain complete and accurate information to guide own behavior and behavior of own and related work groups; hence information and measurements tend to be complete and accurate	Some pressure to protect self and colleagues and hence some pressures to distort; information is only moderately complete and contains some inaccuracies	Fairly strong forces exist to distort and falsify; hence measurements and information are often incomplete and inaccurate	Very strong forces exist to distort and falsify; as a consequence, measurements and information are usually incomplete and often inaccurate
(b)	Extent to which the review and control functions are concentrated	Highly concentrated in top management	Relatively highly concentrated, with some delegated control to middle and lower levels	Moderate downward delegation of review and control processes; lower as well as higher levels perform these tasks	Review and control done at all levels with lower units at times imposing more vigorous reviews and tighter controls than top management
(c)	Extent to which there is an informal organization present and supporting or opposing goals of formal organization	Informal organization present and opposing goals of formal organization	Informal organization usually present and partially resisting goals	Informal organization may be present and may either support or partially resist goals of formal organization	Informal and formal organization are one and the same; hence all social forces support efforts to achieve organization's goals
(d)	Extent to which control data (e.g., accounting, productivity, cost, scheduling, etc.) are used for self-guidance or group problem solving by managers and non-supervisory employees, or used by superiors in a punitive, policing manner	Used for policing and in punitive manner	Used for policing coupled with reward and punishment, sometimes punitively; used somewhat for guidance but in accord with orders	Used for policing with emphasis usually on reward but with some punishment; used for guidance in accord with orders; some use also for self-guidance	Used for self-guidance and for co-ordinated problem solving and guidance; not used punitively
8.	Performance characteristics				
(a)	Productivity	Mediocre productivity	Fair to good productivitity	Good productivity	Excellent productivity
* (b)	Excessive absence and turnover	Low	Moderate	Moderately high when people are free to move	Tends to be high when people are free to move
(c)	Lost or wasted time and effort	Relatively high unless policed carefully	Moderately high unless policed	Moderate	Members themselves will use measurements and other steps in effort to keep losses to a minimum
* (d)	Checking and inspection	Useful to help people guide own efforts	Useful as a check	Useful for policing	Necessary for policing

	1							8	

1 5 10

RESEARCH CODING

PART II (B)

LEADERSHIP STYLE QUESTIONNAIRE

Below is a list of items that may be used to describe your present (or most recent) project leader* and department head. Each item describes a specific kind of behaviour, but does not ask you to judge whether the behavior is desirable or undesirable. Consider each item as a separate description, even though several items may appear to be similar.

DIRECTIONS: For each item indicate the frequency of his behavior by selecting a number from the following scale and inserting it, in the appropriate column, on the line beside the items:

5 = Always, 4 = Often, 3 = Occasionally, 2 = Seldom, 1 = Never

NOTE: The term "group", as used in the items, refers to the department, division, or other unit of organization that is supervised by the person(s) being described.

* "Project Leader" has been used only for convenience. We wish to have a description of the senior person in the department (other than the department head) who normally supervises your project or work. If you are a "Project Leader" please leave this portion blank.

* * * * *

5 = Always, 4 = Often, 3 = Occasionally, 2 = Seldom, 1 = Never

	Project Leader	Dept. Head		
15-16	_____	_____	1.	He lets group members know what is expected of them.
17-18	_____	_____	2.	He is friendly and approachable.
19-20	_____	_____	3.	He encourages the use of uniform procedures.
21-22	_____	_____	4.	He does little things to make it pleasant to be a member of the group.
23-24	_____	_____	5.	He tries out his ideas in the group.
25-26	_____	_____	6.	He puts suggestions made by the group into operation.
27-28	_____	_____	7.	He makes his attitudes clear to the group.
29-30	_____	_____	8.	He treats all group members as his equals.
31-32	_____	_____	9.	He decides what shall be done and how it shall be done.
33-34	_____	_____	10.	He gives advance notice of changes.
35-36	_____	_____	11.	He assigns group members to particular tasks.
37-38	_____	_____	* 12.	He keeps to himself.
39-40	_____	_____	13.	He makes sure that his part in the group is understood by the group members.
41-42	_____	_____	14.	He looks out for the personal welfare of group members.
43-44	_____	_____	15.	He schedules the work to be done.
45-46	_____	_____	16.	He is willing to make changes.
47-48	_____	_____	17.	He maintains definite standards of performance.
49-50	_____	_____	* 18.	He refuses to explain his actions.
51-52	_____	_____	19.	He asks that group members follow standard rules and regulations.
53-54	_____	_____	* 20.	He acts without consulting the group.

PART III

DEPARTMENTAL

The following questions are ones that your department head is interested in having your answers:

1. Design standards -- Do you feel they are valuable in saving:

   drawing time Yes 96% No 4%

   cost of contract and other specifications Yes 96% No 4%

2. Design standards -- Are they adequate?

   few are suitable 4% some are 39% many are 31% most are adequate 27%

3. Design standards -- Do we have enough?

   far too many 2% too many 4% about right 47% too few 38% far too few 9%

4. Design standards -- What should be the procedure for making changes, deletions and additions to standards?

   Please comment _____

   _____

For questions 5 through 8 consider what you would tell a friend who was thinking about coming to work in this company.

5. What do you feel is good about working in this department? _____

   _____

6. What do you feel is good about working for this company in general? _____

   _____

7. What do you feel needs improvement in this department? _____

   _____

8. What do you feel needs improvement in this company? _____

   _____

9. What advantages or disadvantages do you see in working for a consulting firm of this size?

   22% - advantages only, 24% - disadvantages only, 54% - both

   _____

10. Would you be interested in attending or developing a course for employees on company procedures, guidelines, functions, etc.

    Yes 67% No 33%

11. If "yes" above, what should this course include? _____

    _____

12. Would you be willing to participate in night courses offered by the company in technical areas or management training?

    Yes 88% No 12%

13. Does your own immediate supervisor need more training on how to manage or supervise people?

    yes, a great deal 8% definitely 31% a little 37½% none 23%

14. What is the position of your immediate supervisor? (e.g. section leader, etc.) _____

15. What further information about this department would you find helpful? _____

    _____

16. Which departments need more information about your departments function and requirements in order to facilitate communications and co-operation?

    Department

    _____

    _____

17. Which departments do you need to find out more about in order to facilitate communications and co-operation?

18. Does the supervisory staff on your current project (or most recent) give you an accurate insight into client and project requirements?

Yes 24% Only partially 59% No 16%

19. To what extent do you feel that this is a problem originating in this department?

Always 2% Mostly 9% Often 34% Sometimes 52% Never 2%

20. To what extent do you feel that this is a problem originating with the project staff outside the department?

Always ____ Mostly 18% Often 41% Sometimes 36% Never 5%

21. Does the supervisory staff on your current (or most recent) project give the client an accurate insight into your requirements for information and decisions?

Yes 67% Only Partially 28% No 5%

22. To what extent do you feel that this is a problem originating in this department?

Always 3% Mostly 8% Often 14% Sometimes 64% Never 11%

23. To what extent do you feel this is a problem originating with project staff outside the department?

Always ____ Mostly 16% Often 24% Sometimes 47% Never 13%

24. What items would you suggest that the client be informed about?

25. What items about client or project requirements do you feel should be more carefully explained to you?

26. Does your supervisor provide you with sufficient background information for the task you perform?

Yes 54% Only Partially 42% No 4%

27. Do you usually have sufficient information from other departments in order to do your job efficiently? Yes 59% No 41%

Please check which departments you usually need more info from:

Electrical ____ Machine room ____ Pulping ____ Woodroom ____

Purchasing ____ Structural ____ Instrumentation ____ Scheduling ____

Site Development ____ Contracts ____ Steam ____

Others, please specify ____

28. When lack of information exists, indicate the normal or most common reason (Please check One Only)

inherent in consulting business 22%

due to particular role of this department 11%

due to lack of planning or co-ordination by project staff 24%

due to lack of planning or co-ordination in other departments 30%

due to lack of planning or co-ordination in this department 11%

due to lack of planning by me 2%

29. Do you feel that you have sufficiently close contact with management people senior to your immediate supervisor?

Yes 47% No 52%

30. Would you be happy about more such contact? Yes 71% No 29%

31. Who should initiate such contact? Me 8% My supervisor 34% Management people 58%

32. Do you feel that your performance is evaluated correctly? Yes 39% Partially 52% No 9%

33. What do you feel contributes most to poor work evaluation?

34. Do you feel you are given sufficient opportunity to learn so that your value (and evaluation) to the company is enhanced?
Yes 40% No 60%

35. Do you feel you are held back below your maximum capabilities?
Yes 20% Partially 60% No 20%

36. Contact with immediate supervisor?

Check Only One

a. far too much, cannot develop my own ideas ____
b. too much, not enough freedom 13%
c. about right 71%
d. too little, do not get sufficient information 13%
e. far too little, do not know what is expected 2%

37. Do you think there is sufficient reference material available?
Very adequate 6% Adequate 47% Fair 27% Not enough 16% Far too little 4%

38. What specific types of reference material do you feel needs improvement?

39. Do you use the company library for reference material?
Yes 63% No 33% Was not aware of company library facilities 4%

40. What importance would you attach to field visits?
Very important 57% Important 33% Minor importance 8% Unimportant 2%

41. If you had been asked to contribute one question to this survey - what would it be?

42. What would be your answer to that question?

43. What other comments about the survey would you like to make?

PART IV

GENERAL

The following questions relate to items outside of your department.

1. Do you read the staff news? Yes 98% No 2%
2. Does the staff news talk about those things of interest to you? Yes 82% No 15% 2% partially
3. Would you like to see changes in the staff news? Yes 50% No 50%
4. If you answered "yes" above, please indicate what you feel should be changed (i.e., additions, deletions, etc.)

_____

_____

_____

_____

5. Do you understand our current fringe benefit programs? Yes 85% No 15%
6. If you answered "no" above, please indicate areas where you would like more information:

   entire program _____ Please list specific items _____
7. Which parts of the fringe benefit program do you consider of most value?

_____

_____

8. Which parts of the fringe benefit program do you not consider valuable?

_____

_____

9. What changes in the current program would you suggest?

_____

_____

10. What features or coverage would you like to see included with the program?

_____

_____

11. Would you consider a company orientation course for new employees of value? Yes 82% No 18%
12. What other training or development beyond that provided within your department would you be interested in participating?

_____

_____

13. Would you like to see more effort by the company in diversifying outside of the pulp and paper industry?

    Yes 92% No 2%
    6% - Yes with emphasis(exclamations,etc.)

IMPORTANT

PLEASE BE SURE TO FILL IN

YOUR CODE NAME ON THE FIRST PAGE

THANK YOU FOR YOUR CO-OPERATION IN COMPLETING THE SURVEY