

THE EFFECTS OF APPROPRIATELY PARTICIPATIVE LEADERSHIP
ON THE CORE DIMENSIONS OF CLIMATE

by

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ABSTRACT

Title of Dissertation: THE EFFECTS OF APPROPRIATELY
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CLIMATE

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A field experiment was conducted to determine some effects of the appropriateness of participative leadership styles on the core dimensions of climate. Climate is a construct that has received considerable attention in organizational research. The research on climate has revealed a core set of issues or dimensions that appear to be useful for capturing employees' perceptions across all or most organizations. Proposed core dimensions of climate have included role stress or harmony in the work environment, job challenge and autonomy, leadership facilitation and support, and workgroup warmth, empathy and cooperation.

I hypothesized that leadership style would affect employees' perceptions of these core dimensions of climate. The literature in psychology and organizational behavior shows significant agreement regarding the potential effect of leadership style on

climate, but little empirical work has been conducted in this area. The particular leadership style I studied concerned the appropriateness of participativeness of leaders' decision making styles.

I carried out a field experiment, using a two group pre- and post- experimental design. The experimental manipulation was a training program in appropriate participative decision making, with supervisors randomly assigned to a training or no-training control group. Pre- and post- measures of the core dimensions of climate and decision making style were collected prior to and following the training.

Appropriate participativeness in decision making (Vroom & Jago, 1988) was found to predict the three core dimensions of role stress, leadership facilitation and support, and workgroup cooperation, friendliness, and warmth. The quality of the supervisor-subordinate relationship, based on vertical dyad linkage theory, was found to contribute to the prediction of the core climate dimension of role stress.

It was concluded that leadership style has an effect on employees' perception of some, but not all of the core dimensions of climate. Implications of these results for research and practice regarding climate and leadership were explored.

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Introduction

Climate, that is, individuals' perceptions of their work environment, is a construct that has received considerable attention in organizational research (Glick, 1985; Jones & Jaames, 1979; Joyce & Slocum, 1984; Schneider, 1975). That research has revealed a series of core dimensions of climate, that appear to be applicable to all or most organizations (Campbell, Dunnette, Lawler, & Weick, 1970; James & James, 1989; Jones & James, 1979; Litwin & Stringer, 1978; Moos, 1976). One organizational variable that may be directly related to one or more of the core dimensions of climate, and that has been featured prominently in the thinking about organizational psychology in general and organizational climate in particular, is leadership, specifically the participativeness of the leader's decision making style (James & James, 1989; Jones & James, 1979).

The central thesis of my research effort is that the participativeness of leaders' decision making styles will be strongly related to the core dimensions of climate. The purpose of the current effort is to (1) propose a causal model to describe the relationship between the participativeness of leaders' decision making styles and the core dimensions of climate, and

(2) assess the relationships among the variables proposed in the causal model.

The following section (Chapter I) presents a review of the climate literature, including a review of the core dimensions of climate and the development of climates. Chapter II summarizes the leadership literature relating to participation in decision making. A synthesis of the literature presented in Chapters I and II is then presented in the form of a model in Section III. Chapter IV describes the methodology used to conduct this research. The last chapters, V, VI, and VII, present the results, discussion of the study, and conclusions, respectively.

I. Climate

Climate refers to workgroup members' shared perceptions of practices, policies, and procedures in an organization. The emphasis is upon shared meaning, that is, there is significant agreement among workgroup members regarding the climate of an organization.

Macro-climates

Macro vs micro climates. Two perspectives on climate have been espoused in the literature. The first perspective concludes that there is an overall unit or organizational climate called a macro-climate (Campbell et al., 1970; Litwin & Stringer, 1968; Moos, 1976). According to the macro-climate perspective, a set of core dimensions of climate can be identified and used to assess the overall climate of an organization or unit. The second perspective concludes that there are micro-climates for particular organizational facets, e.g. a climate for participation or a climate for creativity (Schneider, 1975).

On the surface these views appear to be mutually exclusive; however, they may be conceived of as complementary. As Jones and James (1979) noted, a core set of dimensions may exist (macro-climate) and be applicable to all organizational settings, and specific dimensions may exist that are applicable in specified

situations (micro-climates). Thus, the conceptualization of a macro-climate does not preclude the existence of micro-climates. The present effort focuses upon the macro-climate of organizations, while recognizing that micro-climates may also exist.

Core Climate Dimensions. A significant amount of research has been devoted to determining the core dimensions of macro-climate that might be useful for describing many social and organizational settings. As will be shown below, there is significant agreement regarding the existence of and identification (labeling) of what the core dimensions of climate might be.

In early research on the dimensions of climate, Litwin and Stringer (1968) developed a measure containing 9 dimensions, including structure, responsibility, reward orientation, risk, warmth, support, standards, conflict, and identity. A total of 50 survey items was chosen to represent the 9 dimensions. The survey was administered to employees of a public utility company and two manufacturing plants (n=518). Several of the dimensions achieved internal consistency estimates in excess of .80, including structure, reward, warmth, support, and identity. Based on analysis of the data collected at the public utility

company and manufacturing plants, Litwin and Stringer stated that the scales could be combined into four more abstract climate factors, (1) structure (structure), (2) challenge (responsibility, risk, standards). (3) reward and support (reward, support, conflict), and (4) social inclusion (warmth and identity).

Campbell et al. (1970) did an extensive review of the literature through about 1968, and postulated that there were four core climate dimensions, common to all studies that they cited. The dimensions they derived were (1) individual autonomy or degree of accountability, (2) degree of structure imposed upon the position or the degree to which job procedures are established, (3) reward orientation of the organization, and (4) consideration, warmth, and support or the nurturance and support received from the supervisor, subordinates, and peers.

Somewhat later Moos (1976) studied the core dimensions of climate for different environments, such as families, therapy groups, and work. He postulated that core climate dimensions could be identified for each environment. Moos' hypothesized core dimensions of work climate were based on his observation and interviews with participants in several settings, including work settings, educational settings, and

psychiatric treatment settings. Three dimensions were obtained for all settings (1) relationship, (2) personal development, and (3) system maintenance. Moos stated that the content of the dimensions was a function of the setting. The content of the dimensions in the work setting was outlined as follows: (1) relationship (involvement, peer cohesion, and staff support); (2) personal development (task orientation and competition); and (3) system maintenance (work pressure, clarity, control, innovation, and physical comfort).

In a more recent research effort, Jones and James (1979) determined that there are six core dimensions of climate. The researchers began by developing a potential measure of macro-climate. The measure, containing 145 items describing the Navy work situation, was administered to 4315 Navy personnel. Following a factor analysis, six dimensions emerged. The measure was then administered to firemen (n=504) and health managers (n=398). Five of the six dimensions replicated in all samples.

The dimensions that resulted from these analyses were (1) conflict and ambiguity, (2) job challenge, importance, variety, (3) leader facilitation and support (4) work group cooperation, friendliness,

warmth, (5) professional organization esprit, and (6) job standards. The sixth component, job standards, was supported in the fireman sample, but failed to be supported in the health manager sample.

In a later work, James and James (1989) discuss what they call perceptual measures of the meaning of work environments, i.e. measures of macro-climate. The dimensions they propose are similar to those provided above. First, role stress and lack of harmony is a dimension that encompasses role ambiguity, role conflict, role overload, subunit conflict, lack of organizational identification, and lack of management concern and awareness. Second, job challenge and autonomy refers to job challenge, variety, autonomy, and importance. The third dimension, leadership facilitation and support, includes leader trust and support, leader goal facilitation, leader interaction facilitation, psychological influence, and hierarchical influence. The fourth dimension is workgroup cooperation, friendliness, and warmth. This dimension encompasses work group cooperation, friendliness, and warmth. These dimensions, as provided by James & James, appear to adequately summarize the literature regarding the core dimensions of climate that have been previously explicated.

Table 1 presents a summary of the dimensions of climate that have appeared. It also attempts to group the dimensions according to the similarity of the definition of each of the dimensions by different reviewers/researchers. For example, all researchers include a dimension(s) relating to warmth and/or cooperation. As James and James (1989) conclude, this dimension is workgroup cooperation, friendliness, and warmth. In addition, all researchers agree on dimensions relating to challenge provided by the job; this is job challenge and autonomy.

It is important to note that although the researchers vary in the labeling of the dimensions that they use to represent a macro-climate, all researchers use a multidimensional framework to explain macro-climate (Campbell et al., 1970; James & James, 1989; Jones and James, 1979; Litwin & Stringer, 1968; Moos, 1976). These researchers conclude that macro-climate is a multidimensional construct and therefore, in my study, macro-climate will be operationalized in a multidimensional way.

Due to the considerable overlap in the conceptual definitions of the core dimensions of climate shown in Table 1, a single framework will be adopted for this study, the framework of James and James (1989). Their

Table 1.
Core dimensions of climate.

James & James (1989)	Jones & James (1979)	Moos (1978)	Campbell, Dunnette, Lawler, & Welck (1970)	Litwin & Stringer (1968)
	Job Standards		Structure	Structure
Job Challenge & Autonomy	Job Challenge	Personal Development -task orientation -competition	Autonomy	Challenge -responsibility -risk -standards
Role Stress & Lack of Harmony	Professional Organizational Esprit			
Leadership Facilitation & Support	Leadership Facilitation & Support	System Maintenance -work pressure -clarity -control -innovation -physical comfort	Reward	Reward & Support -reward -support -conflict
	Conflict & Ambiguity			
Workgroup Cooperation, Warmth, & Support	Workgroup Cooperation	Relationship -involvement -peer cohesion -staff support -physical comfort	Consideration, Warmth, & Support	Social Inclusion -warmth -identity

core dimensions will be adopted for two reasons. First, the James et al. framework summarizes the core dimensions as presented in all prior research on the issue. Second, this framework is based on a large body of empirical research, as discussed in Jones and James (1979). Two modifications must be noted regarding the dimensions of James and James (1989). First, the components of all dimensions are process variables, except for organizational identification (in the role stress dimension), which is an outcome variable. Thus organizational identification will be excluded from the framework for the current effort. Second, the component of management concern and awareness appears to more adequately represent the dimension of leadership facilitation and support, than role stress; thus, it will be moved to the leadership facilitation and support dimension. Table 2 summarizes the core dimensions, and the components of these dimensions, according to James and James (1989).

In summary, while from researcher to researcher there is some variability, a set of core dimensions of climate has been consistently found in prior research. My research effort is an attempt to understand how the core dimensions may be affected by the participativeness of leaders' styles. Prior to

Table 2.
Core dimensions of climate and their components.

ROLE STRESS AND LACK OF HARMONY

- Role ambiguity
- Role conflict
- Role overload
- Subunit conflict

JOB CHALLENGE AND AUTONOMY

- Job challenge and variety
- Job autonomy
- Job importance

LEADERSHIP FACILITATION AND SUPPORT

- Leader trust and support
- Management concern and awareness
- Leader goal facilitation
- Leader interaction facilitation
- Psychological influence
- Hierarchical influence

WORKGROUP COOPERATION, FRIENDLINESS, AND WARMTH

- Workgroup cooperation
- Workgroup friendliness and warmth
- Reputation for effectiveness

From James & James, (1989).

examining the effect of leaders' styles on the core dimensions of climate (role stress, job challenge, leadership facilitation, workgroup cooperation), it is necessary to review, in general, how the core dimensions evolve and change. The evolution and change of the core dimensions may explain how organizational factors, such as leaders' decision making styles, affect the core dimensions. Thus, an increased understanding of the evolution and change process may increase the understanding of how the participativeness of the leader's decision making style may affect the core dimensions of climate.

Development of Climate

According to Schneider and Reichers (1983), climates develop as a result of social interaction, organizational structure, and the selection-attraction-attrition cycle. These authors advocate the symbolic interactionism perspective for understanding the development of climates (Schneider & Reichers, 1983). The central thesis of this view is that meaning is attached to events based on interaction between people. As Schneider and Reichers (1983) state, "...climates emerge out of the interactions that members of a work group have with each other"(p. 30).

Schein (1985) has written about the development of culture in terms of group dynamics theory. Although Schein's (1985) work focuses upon culture, as opposed to climate, and upon group dynamics theory, as opposed to interactionism, he consistently uses group member interaction to explain the development of group culture and norms. Specifically, Schein (1985) states that group members learn how to work together and define their own roles in the group based on interaction. In addition, Schein states that "...the manner in which leaders and members interact at an emotional level will determine both the evolutionary stages of the group and its cultural style" (p. 171). Once again, interaction between group members, and for Schein also between leaders and members, is seen as a key element in group development and functioning. Thus, Schein's (1985) view is consistent with that of Schneider and Reichers (1983).

A similar view was presented by Louis (1980). Louis asserted that new members of an organization attempt to "make sense" of their organizational surroundings in several ways, including the use of others' interpretations of events. In order to gather information from others, the newcomer must interact with incumbent members of the organization. In this

case, the newcomer is relying upon interaction to "make sense" or understand his/her environment.

According to the above (Louis, 1980; Schein, 1985; Schneider & Reichers, 1983), work group members understand or "know" climate due to their interaction with other work group members. My hypothesis is that climates not only come to be known through interaction among work group members, but that the interaction itself may change the climate, especially when the interaction is about, or concerns, other changes in the work place. Interaction, by definition, is an active process and if change in the workplace affects that interaction then it follows that climate will also change. One way interaction may change in the work place would be through the introduction of newcomers. Another might be through changes in the occupants of leadership positions. A third change, and the one proposed for study here, concerns changes in interaction as a result of changes in leadership style, especially changes in leader participativeness.

Leadership style has played a central role in the history of organizational psychology and organizational climate (Lewin, Lippitt & White, 1939; Litwin & Stringer, 1968; McGregor, 1960; Schein, 1987). For example, as early as 1939, Lewin et al. discussed the

effect of the leader's style on "social climates" and concluded that the leader's style does indeed have an effect on the climate of a group. In addition, McGregor (1960) stated that the leader's behavior actually created the climate of the workgroup. Later researchers also emphasized the role of the leader in creating the work climate (Litwin & Stringer, 1968). In a more recent effort, Schein (1987) stated that "one cannot separate the process of leadership from the process of building culture" (p. 171). In summary, leadership has frequently been cited as a key determinant of climate.

Although, there seems to be significant agreement regarding the potential effect of leadership style on climate, there has been little empirical work on this relationship. Thus, the present study is based on the premise that leadership style may change the interaction between work group members and thus, change the climate. Therefore, the concept of participation in decision making offers a framework through which such exploration can occur.

According to the theories of Vroom and Yetton (1973) and Vroom and Jago (1988), the leader's decision making style in large part determines the participation of work group members in the decision making process. In climate terms, the leader's decision making style

may determine the work group interaction patterns relating to decision making and may thus, be a significant determinant of various macro-climate issues that have appeared in the literature.

The following section begins with a review of the participation literature, followed by a review of the generic dimensions of participation in any setting. Then the section describes participation in leader decision making, as conceptualized by Vroom and Yetton (1973) and Vroom and Jago (1988).

II. Participation in Decision Making

Participation

Prior to exploring the role of participation in leader decision making, an overview of the participation literature is presented. Participation has received extensive attention in the organizational sciences (Cotton, Vollrath, Froggatt, Lengnick-Hall & Jennings, 1988; Dachler & Wilpert, 1978; Locke & Schweiger, 1979; Miller & Monge, 1986; Wagner & Gooding, 1987). Indeed, research in participation has been summarized in several reviews in recent years (Cotton et al., 1988; Miller & Monge, 1986; Wagner & Gooding, 1987). Each of these literature summaries is reviewed in this section.

A recent meta-analysis of participation was conducted by Miller and Monge (1986). This analysis was based on 47 studies, including laboratory experiments, field experiments, and correlational data. From these studies, 41 reported the relationship between participation and satisfaction and 25 reported the relationship between participation and productivity. Across all studies, the effect of participation on satisfaction and productivity was significant. However, the correlations obtained between participation and these outcomes was significantly higher in laboratory

studies using nonorganizational participants than in field studies. Thus, the authors suggested that studies be conducted using organizational subjects in natural settings (Miller & Monge, 1986).

Following the work of Miller and Monge (1986), Wagner and Gooding (1987) also conducted a meta-analysis. Wagner and Gooding sought to determine whether the robust effects of participation that were reported by Miller and Monge (1986) were true relationships or due to artifacts. Wagner and Gooding (1987) examined 118 correlations between participation and outcomes (satisfaction and/or productivity) from 48 studies. One of the most interesting findings came from an examination of several methodologies and the participation-outcome relationship in each type of methodology. Methodologies were classified as (1) percept-percept, wherein data regarding the participation and outcome measure were collected from the same source, or (2) multisource, in which data were collected from different groups or objective data were collected. Correlations between participation and outcomes (task performance, satisfaction, and decision acceptance) that used a percept-percept methodology were significantly higher than correlations (between participation and outcomes) that used a multisource

methodology. The authors conclude that collecting participation data and outcome data from the same people may have resulted in spuriously inflated relationships. In summary, Wagner and Gooding (1987) suggested that researchers interested in studying correlates of participation should attempt to obtain participation and outcome data from different sources.

The most recent review of the participation literature was conducted by Cotton et al. (1988). Cotton et al. (1988) divided studies into six basic categories, participation in work decisions (formal participation in decision making program), consultative participation (e.g. Scanlon plans and quality circles), short-term participation (single laboratory effort or several day training), informal participation (no formal mechanism for participation), employee ownership, and representative participation. Each type of study was examined for the effect of participation on performance and satisfaction. Participation was found to have a positive effect on performance and satisfaction for the informal participation and employee ownership groups. Participation was found to have a positive effect on performance for the participation in work decisions group. Results were inconclusive for the consultative participation group. No effect was found in the short-

term participation and representative participation groups. Based on these results, Cotton et al. (1988), suggested that participation was most effective in changing performance and satisfaction when there was a direct program for participation in decision making and/or employee ownership.

In summary, the reviews of Miller and Monge (1986), Wagner and Gooding (1987), and Cotton et al. (1988), suggested that researchers should use organizational subjects in natural settings for the study of participation. The reviews also led to the recommendation that researchers use different people for the collection of participation data and outcome data (Miller & Monge, 1986; Wagner & Gooding, 1987).

As the above reviews revealed, many studies have been conducted on participation in work, or work-like (laboratory) settings. The reviews included studies of the effects of participation on many issues, including goal setting, performance appraisal, and decision making (Greller, 1975; Greller, 1978; Latham, Mitchell, & Dossett, 1978; Vroom & Jago, 1988).

The central thesis of the present work is that when participative practices exist in an organization, the effects may be more than simply effects on performance and satisfaction, but may be effects on the

general climate of the work place. That is, I hypothesize that participative practices may affect the core dimensions of climate.

Facets of Participation

Dachler and Wilpert (1978) determined that there are five facets of participation, (1) formal/informal, (2) indirect/direct, (3) accessibility/inaccessability to decision making, (4) decision content, importance and complexity, and (5) social range: individual or group decision making. These facets may serve as a convenient framework for exploring the effects of participation on various outcomes.

The first facet, formal/informal, refers to the basis of participation. Participation may be based on legal contracts or management policies (formal) or may be based on group consensus or norms (informal). The second facet, direct/indirect, refers to the closeness of the individual to the participation. With direct participation, the individual participates; with indirect participation, a representative or proxy of the individual participates. The third facet, access to participation in the decision, refers to an "...influence-power sharing continuum..."(Dachler & Wilpert, 1978, p. 14). The continuum range is from no participation to total participation, (e.g. the

manager decides alone to the group decides (Vroom & Yetton, 1973). The fourth facet, decision content, importance, and complexity, refers to the attributes of the situation or decision. The decision attributes will be further discussed below as what Vroom and Yetton call problem attributes. The fifth facet, social range, refers to who is involved in the decision making process. For example, two selected individuals or an entire organization may be involved in the decision making process.

According to Dachler and Wilpert (1978), these facets are generic; that is, each can be applied to all situations in which participation occurs. The work of Dachler and Wilpert (1978) is unique because it provides facets of participation. Most other authors study a specific issue called participation, but do not formulate the generic facets of participation (Cotton et al., 1988; Miller & Monge, 1986; Wagner & Gooding, 1987).

The facets of participation illuminated by Dachler and Wilpert (1978) provide a framework for studying participation that can be applied to all situations. As discussed in the following section (and summarized in Table 3), Vroom and Yetton (1973) and Vroom and Jago (1988) use facets of participation, similar to those

Table 3.
Vroom and Yetton (1973) and Vroom and Jago (1988) Problem
Attributes, as They Relate to Dachler and Wilpert's (1978)
Facets of (1) decision content, complexity and importance and
(2) social range.

Vroom and Yetton (1973) *****	Vroom and Jago (1988) *****	Dachler & Wilpert (1978) *****
Quality Requirement	Quality Requirement	Importance
Commitment Requirement	Commitment Requirement	Social Range
Leader Information	Leader Information	Content
Problem Structure	Problem Structure	Complexity
Commitment Probability	Commitment Probability	Social Range
Goal Congruence	Goal Congruence	Complexity
Subordinate Conflict	Subordinate Conflict	Complexity
	Subordinate Information	Content
	Time Constraints	Importance
	Geographical Dispersion	Importance
	Time Motivation	Importance
	Time Development	Importance

explicated by Dachler and Wilpert (1978), in the definition and development of a model of leadership style based on participation in decision making. These theories are summarized in the following sections.

Vroom and Yetton Model

In this section, the Vroom and Yetton theory (1973), a classic theory of leadership, is first reviewed. Then a revised model, presented by Vroom and Jago (1988), is presented. Both are presented to provide further information about participation through the leader's style of decision making.

The model developed by Vroom and Yetton is one that identifies how leaders vary in the degree to which subordinates participate in decision making. In the model, leaders range from using a highly autocratic decision making style (that requires little or no subordinate input) to using a group decision making style (that requires the group to make the decision; Vroom & Yetton, 1973; Vroom & Jago, 1988). It is my hypothesis that each leader's style of decision making may be conceptualized as affecting the interactions among group members and thus, may affect the climate of the work group.

Vroom and Yetton (1973) developed a model of leader decision making based on the premises that (1)

explicit decision making styles exist and (2) the best or most effective decision making style can be determined for each situation by fitting the chosen style to the situation. As discussed below, Vroom and Yetton define "the situation" or context in terms of problem attributes. The model of decision making is a branching decision tree (Figure 1). At seven points on the tree, the leader or manager must answer questions about the situation in order to determine the path to follow. When the leader or manager has answered the seven questions, thus, reaching the end of the decision tree, the recommended decision making style is presented.

It should be noted that the most general decision making model is presented in Figure 1. Two additional models exist, the time efficient model and the time investment model. The time efficient model always calls for the decision strategy to be the quickest, without regard for any subordinate development that may occur as a result of subordinate participation. The time investment model always calls for the decision strategy to emphasize subordinate development without regard for time. The time efficient model and the time investment model would only be used when more than one decision making style is seen at the end of a branch in Figure

- A. DOES THE PROBLEM POSSESS A QUALITY REQUIREMENT?
- B. DO YOU HAVE SUFFICIENT INFORMATION TO MAKE A HIGH-QUALITY DECISION?
- C. IS THE PROBLEM STRUCTURED?
- D. IS ACCEPTANCE OF DECISION BY SUBORDINATES IMPORTANT FOR EFFECTIVE IMPLEMENTATION?
- E. IF YOU WERE TO MAKE THE DECISION BY YOURSELF, IS IT REASONABLY CERTAIN THAT IT WOULD BE ACCEPTED BY YOUR SUBORDINATES?
- F. DO SUBORDINATES SHARE THE ORGANIZATIONAL GOALS TO BE ATTAINED IN SOLVING THIS PROBLEM?
- G. IS CONFLICT AMONG SUBORDINATES OVER PREFERRED SOLUTIONS LIKELY?

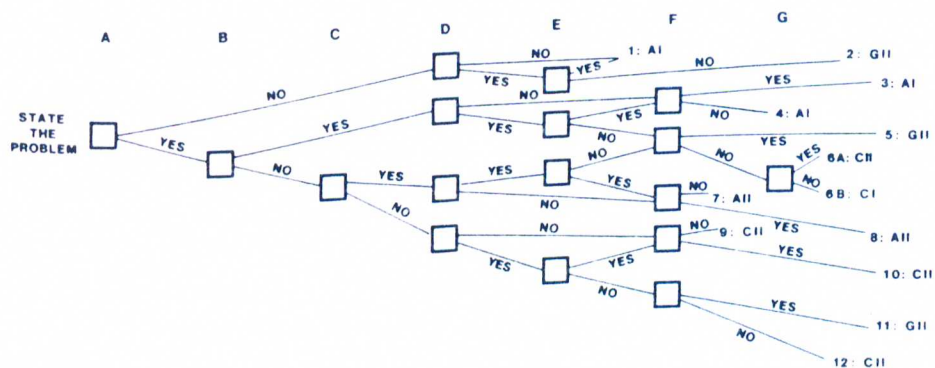


Figure 2.
Vroom, Yetton, and Jago decision making tree.
Excerpted from Vroom and Jago (1989).

1. Regardless of the model used, the decision styles are defined in the same manner.

Decision making styles. One of five decision making styles is recommended for each situation in which the model is used. The decision making styles are autocratic (2 types), consultative (2 types), and group oriented. Two types of autocratic decision making are found in the model, AI and AII. In the AI condition, the leader solves the problem alone. In the AII condition, the leader obtains information from subordinates, but makes the decision alone. Two types of consultative decision making styles are found in the model, CI and CII. In the CI condition, the leader gives information to relevant subordinates and gathers information from them individually. In the CII condition, the leader gathers subordinates together as a group and gathers information from them. In both consultative conditions, the leader may or may not use the subordinates' input. There is only one group condition, GII. In the GII condition, the leader gathers subordinates together as a group and gathers information from them. The problem and information are then evaluated and the group attempts to reach a consensus.

As one can surmise from the descriptions of the decision making styles, they comprise a continuum from

AI (most autocratic) to GII (group). This continuum is similar to the access to participation continuum discussed above in Dachler and Wilpert (1978). They state that there is a continuum, ranging from no participation to total participation, in decision making. Vroom and Yetton's AI decision making style corresponds to Dachler and Wilpert's no group member participation end of the continuum, while the GII style corresponds to Dachler and Wilpert's total participation end of the continuum.

According to Vroom and Yetton, each decision style is appropriate under certain circumstances. The leader can determine the best decision making style by answering questions about the situation or what they call problem attributes.

Problem attributes. Seven problem attributes form the basis for decision rules that are used to determine the most effective decision making style. The problem attributes are similar to Dachler and Wilpert's decision attributes and social range. As stated above, Dachler and Wilpert discuss decision attributes, such as decision importance and complexity, and social range or who should be involved, as well as the type and intensity of involvement. As will be explained below, these variables correspond to several of the problem

attributes. As Figure 1 shows, a "yes" response requires the leader to follow one branch of the tree and a "no" response requires the leader to follow a different branch of the tree. Following the tree's rules yields the most effective decision making style, given the problem attributes.

The seven problem attributes or decision rules are the: (1) importance of the decision quality; (2) leader's information relevant to the problem; (3) extent to which the problem is structured; (4) importance of acceptance of decision by subordinates for effective implementation; (5) probability that the leader's decision will be accepted by subordinates; (6) congruence of organizational and subordinate goals; and (7) conflict or disagreement among subordinates. The leader must evaluate each problem on the basis of the seven problem attributes. For example, the model states that when, (1) the decision quality is important, (2) the leader possesses little information, (3) the problem is not structured, (4) the subordinate acceptance is important, (5) the leader's decision is unlikely to be accepted, (6) the organization and subordinate goals are similar, and (7) there is conflict among subordinates, a participative style of decision making (GII) should be used.

These attributes or rules are not situation specific. They were created to offer insight into the decision making process for all problems. As one can determine from the above review, Vroom and Yetton (1973) and Dachler and Wilpert (1978) emphasize the same continuum of participation; thus, Dachler and Wilpert's decision content dimension roughly corresponds to Vroom and Yetton's leader information regarding the problem. Dachler and Wilpert's decision complexity includes the structure of the problem, the congruence of organizational and subordinate goals, and conflict or disagreement among subordinates. Dachler and Wilpert's importance dimension is represented by the problem attribute of importance of decision quality. The social range dimension of Dachler and Wilpert is represented by the importance of subordinate acceptance and probability of subordinate acceptance. The relationship between the Vroom and Yetton decision rules and the Dachler and Wilpert dimensions is summarized in Table 3. As will be discussed later, Table 3 also includes the Vroom and Jago decision rules.

Validity of model. As Yukl (1981; 1989) states, there are relatively few empirical studies of the Vroom and Yetton model, but the extant evidence is promising.

Four validity studies of the model will be summarized here.

The first study was conducted by Vroom and Jago (1978). This field study asked managers to report on problems that they had recently faced. Each manager reported the decision style that s/he had actually used, whether or not this decision style resulted in an acceptable solution, and the decision style that would have been recommended by the Vroom and Yetton model. Vroom and Jago (1978) report that when leaders selected the decision making style determined by the model, 68% of their solutions were thought, by the managers, to be successful and 32% were thought to be unsuccessful. When leaders selected a decision making style that violated the model, 22% of their solutions were thought, by them, to be successful and 78% were thought to be unsuccessful. According to these results, the model accurately predicted the best decision making style in most cases. However, a potential problem in the design must be noted: all data were collected from self-reports.

Field (1982) conducted a laboratory experiment to study the quality of the Vroom and Yetton model for determining the appropriate decision making style. Business school students were asked to solve decision

making problems using one of the decision making styles outlined by the Vroom and Yetton model. Solution effectiveness was assessed by judges, without knowledge of the Vroom and Yetton model. Field concluded that the decisions that were based on the Vroom and Yetton model decision rules (problem attributes) were more effective than decisions made without use of the model. Although the laboratory study offered more control than the Vroom and Jago (1978) field study, the naturalness of the setting was decreased and the use of nonorganizational participants may have affected the results.

Margerison and Glube (1979) assessed the effect of following the decision style recommended by the Vroom and Yetton model, as opposed to not following the decision recommended by the model, in 47 small firms. The leaders of the small firms were presented with 31 cases describing realistic situations requiring decisions and were asked to determine which decision making style (AI to GII) they would use for each case. A mean score was computed to represent each leader's decision making style. Subordinates were asked to complete measures of satisfaction. In addition, productivity data were collected for each firm. Margerison and Glube (1979) found that use of the

appropriate decision making style was significantly positively related to subordinate satisfaction and productivity. This study was especially interesting in that it examined the effect of the Vroom and Yetton model on satisfaction and productivity, as opposed to just the managers' self reports of decision success or failure.

In a more recent study, Tjosvold, Wedley, and Field (1986) concluded that the Vroom-Yetton Model reliably predicted successful decision making strategies. In this study MBA candidates, with a minimum of 6 years of managerial experience, were asked to recall two decisions that they had made in the workplace: one decision with a successful outcome and one decision with an unsuccessful outcome. Subjects were then asked to determine what type of decision style they used (according to the Vroom Yetton continuum of decision making styles) and what type of decision was recommended by the Vroom Yetton model. Results indicated that more successful decisions were made when the managers had used the decision making style recommended by the Vroom-Yetton model and more unsuccessful decisions were made when the managers used a decision making style that was not recommended by the Vroom-Yetton model. This study offers additional

support for the model. It is particularly interesting because participants had a significant amount of managerial experience. A limitation is that self reports were used to both estimate the success of the decisions and reports of the decision making style used.

The Vroom and Yetton model and leadership theory have received some support (Field, 1982; Tjosvold et al., 1986; Vroom & Jago, 1978); however, Vroom and Jago (1988) state that there are problems inherent in the model.

Problems with the model. Vroom and Jago (1988) report that the Vroom and Yetton model is plagued by five problems. First, as is illustrated in Figure 1, most branches yield several possible decision strategies; no single solution is clearly found to yield the most effective decision making strategy. Second, there is no differentiation between choosing a decision process that violates one rule and decision processes that violate more than one rule. Third, only yes and no answers are allowed at each point on the decision tree; there are no scales to reflect the grey areas (answers that reflect partial agreement). Fourth, several important situational attributes are ignored. For example, the quality and amount of information possessed

by the subordinates, the time constraints surrounding the problem, and geographical dispersion of possible participants are not considered. Fifth, Vroom and Jago (1988) state that the model is "...too primitive..." (p. 88) because "...it oversimplifies complex human phenomena..." (p. 88). The revised Vroom and Jago normative model (1988) attempts to deal effectively with each of the problems of the earlier model, while retaining the seemingly valid components.

Vroom/Jago Normative Model

The revised Vroom and Jago (1988) model moves away from the "theory of leadership" emphasis and focusses on participation in decision making. The decision making styles (AI, AII, CI, CII, GII) described above are retained in the new model. The primary differences are the use of decision equations and the increased number of problem attributes.

Decision equations. The branching tree of the Vroom and Yetton model has been replaced by decision equations:

- (1)
$$\text{Decision effectiveness} = \frac{\text{decision quality} + \text{decision commitment}}{\text{decision time penalty}}$$
- (2)
$$\text{Overall effectiveness} = \text{decision effectiveness} - \text{cost} + \text{development}$$

As one can surmise from the decision equations, overall effectiveness is the criterion of primary concern. It is affected by decision effectiveness (comprised of decision quality, leader and subordinate commitment to the decision, and decision time penalty), cost of bringing subordinates together to participate, and the potential subordinate development if the subordinates participate. Each of the problem attributes is mathematically combined to produce the effectiveness scores. A thorough discussion of the mathematical manipulations required to reach the overall effectiveness score is beyond the scope of this paper; however, a complete description can be found in Appendix B of Vroom and Jago (1988). The use of decision equations is said to be superior to the branching tree model because the decision equations include several important variables, decision time penalty, cost of participation, and subordinate development (Vroom & Jago, 1988).

Problem attributes. The problem attributes in the Vroom and Yetton model and the attributes that are missing in this model (subordinate information, time constraints, geographical dispersion, motivation-time, motivation-development), provide the basis for the problem attributes in the revised Vroom and Jago model.

Twelve problem attributes are considered in the new model, compared to the 7 problem attributes in the old model, (1) importance of the quality of the decision, (2) importance of subordinate commitment to the decision, (3) amount of information possessed by the leader, (4) degree of structure of the problem, (5) probability of subordinate commitment if the leader makes the decision alone, (6) goal congruence between the subordinates and the organization, (7) probability of subordinate conflict over solutions, (8) amount of information that subordinates have about the problem, (9) time constraint, (10) geographical dispersion as reflected in the cost of bringing the subordinates together, (11) importance of minimizing decision making time, and (12) importance of subordinate development.

The Vroom and Yetton model problem attributes and the Vroom and Jago problem attributes were summarized in Table 3 (p.), including their relationships with the Dachler and Wilpert (1978) dimensions of participation. As stated above, several of the original Vroom and Yetton problem attributes have been retained in the Vroom and Jago model; these problem attributes maintain the same relationship with the Dachler and Wilpert (1978) participation dimensions that was outlined in a previous section. The added problem attributes

represent the Dachler and Wilpert (1978) participation dimensions as follows: (1) subordinate information corresponds to decision content; and (2) quality requirement (importance of a high quality decision), time constraints, geographical dispersion (cost of bringing people together), time motivation, and time development correspond to decision importance.

Each problem attribute is rated by the leader on a five point scale (1 = no or no importance and 5 = yes or critical importance), with the exception of time constraint and geographical dispersion, which are rated as either 1 (no) or 5 (yes). The ratings result in a recommended decision making style, using varying levels of participation.

Summary. The basic thrust of the model is to determine the level of participation in decision making that is most likely to increase overall effectiveness. My hypothesis is that the participativeness of the leaders' decision making styles represents levels of participation that affects the core dimensions of climate. In order to assess this basic hypothesis, participants will be selected from an organization in which a variety of levels of participative decision making are required, according to the Vroom-Yetton Model.

III. Model and Hypotheses

Model

Participative decision making has been shown to have an effect on a number of outcomes, but its relationship to the core dimensions of climate is my focus. Many organizational psychology and organizational climate researchers have emphasized the role of the leader in creating the work environment for subordinates (Lewin et al., 1939; Litwin & Stringer, 1968; McGregor, 1960; Schein, 1987). However, there is a paucity of research on the effects of leader style on climate and a lack of a framework in which to test these effects. The decision making style or the participativeness of the leader's behavior provides such a framework. My study used the participativeness of the leader's decision making style, specifically how appropriately the leader uses different levels of participativeness as defined by Vroom and Yetton (1973), as a framework for the empirical assessment of the effects of the leader's style on the climate of a setting.

Figure 2 presents a hypothetical model of the effect of the participativeness encouraged by the leader's decision making style (pdm = the participativeness of

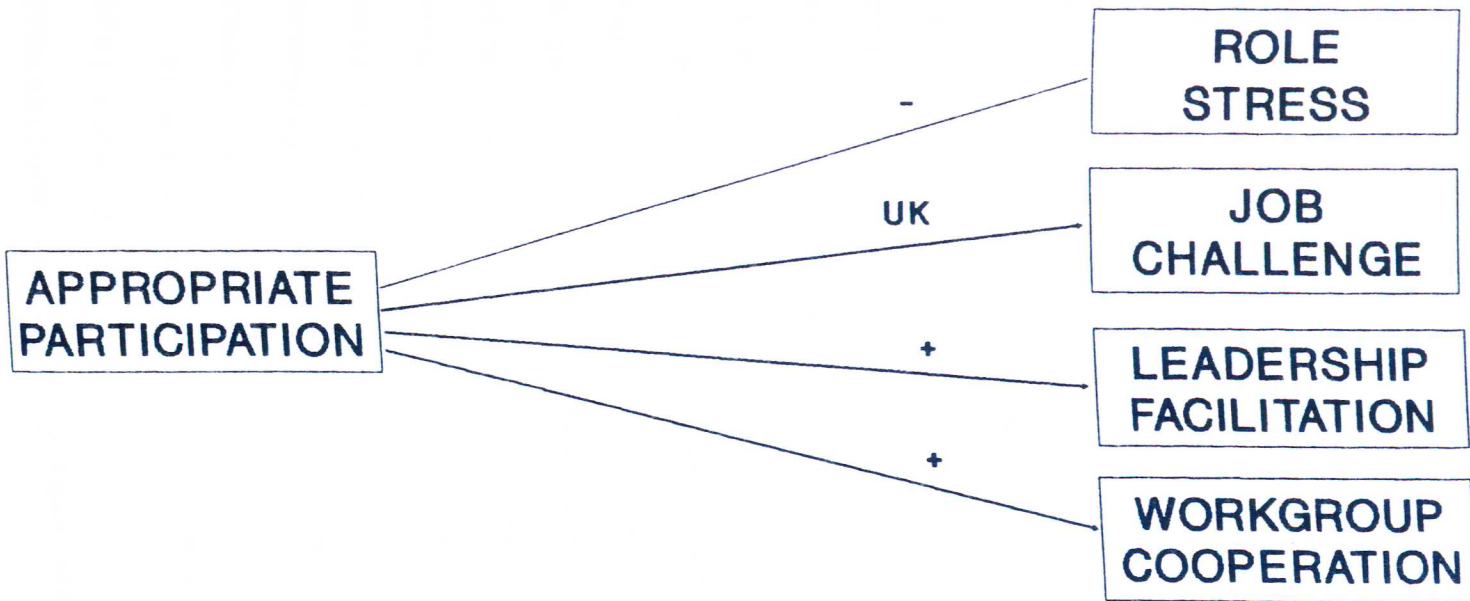


Figure 2.

Hypothesized model of the relationships between appropriate participation in decision making and the core dimensions of climate.

the leader's decision making style) on the core dimensions of climate.

The manner in which pdm affects each core dimension of climate (role stress and harmony, work challenge and autonomy, leadership facilitation and support, workgroup cooperation and warmth) is summarized below. Although hypotheses are formed at the dimension level, it is necessary to review the components of each dimension in order to formulate these hypotheses; therefore, the following section discusses the potential effect of pdm on each component.

Role stress. The first dimension that pdm may affect is role stress and harmony. According to James and James (1989), the dimension of role stress and harmony (role conflict, role ambiguity, role overload, subunit conflict, lack of organizational identification, lack of management concern and awareness) reflects individuals' desires for clarity, harmony, and justice.

This view is in accordance with Katz and Kahn's (1978) role theory. Role theory states that organizations are role systems and that organizational effectiveness may be a function of the allocation of tasks to roles. The role of an individual becomes more

complex when the individual becomes involved with more than one portion, or subsystem, of an organization. Complexity arises in part due to: (a) each subsystem holding a different set of priorities for role expectations (role conflict), (b) subsystems holding different sets of priorities for the tasks to be performed by each unit (subunit conflict), (c) the individual's lack of information regarding the priorities and expectations of subsystems (role ambiguity), and (d) the assignment, to a role, of more tasks than can be accomplished (role overload).

The provision of information about the workers' priorities, expectations for their work, and number of tasks, may be achieved by allowing appropriate incumbent participation in the decision making process. For example, in the terms of Vroom and Yetton, when the leader does not have enough information to make a decision and subordinates have information about a decision, subordinates should be consulted. Thus, appropriate participation is an information sharing process. In this manner, appropriate participation leads to a more effective decision and also provides workers with additional information about their work environment. Thus, conflict and ambiguity can be reduced. An appropriate level of participation must be

emphasized, because simply increasing participation may not reduce role stress. For example, requiring an incumbent to participate when that incumbent does not have any relevant information about the problem may add to the incumbent's confusion (or experienced ambiguity) and thus, cause an increase in ambiguity. One may hypothesize that role conflict, role ambiguity, and subunit conflict, are negatively related to pdm.

The effect of pdm on role overload is less clear. A possible explanation for the hypothesized negative relationship between pdm and role stress is that incumbent participation in decision making provides the incumbent with an opportunity to inform the manager and coworkers that s/he is overloaded. With this information, the manager and/or coworkers may then modify the workload.

Additional support for the effect of pdm on role stress is found in the theoretical model proposed and tested by Jackson (1983). In this model it is postulated and demonstrated that participation has an effect on various facets of role stress, including role conflict and role ambiguity.

Based on the ideas and empirical evidence presented above, an appropriate pdm leadership style is hypothesized to affect the core climate dimension of

role stress and lack of harmony. Specifically, appropriate participation is hypothesized to reduce the experience of role stress and lack of harmony.

Job challenge and autonomy. According to James and James (1989), the job challenge and autonomy core dimension of climate (e.g., job challenge and variety, job autonomy, job importance) is based on individuals' desires for challenge, independence, and responsibility.

Job challenge, autonomy, and importance have been related to theories of job enrichment and enlargement (Hackman & Oldman, 1975). In those theories, job challenge is the degree to which the incumbent finds the job to be challenging or stimulating. Autonomy, on the other hand, relates to the worker's ability to decide how to perform his or her tasks, independently of supervisors and coworkers. A job that is high in autonomy allows a worker to perform with little reliance upon supervisors and coworkers. Another important concept, job importance, is the strength of the effect that one's job has on others. For example, the job of a purchasing officer who controls all goods coming into a manufacturing plant is high in importance because it has a strong effect on many other groups within the organization.

Although this dimension, job challenge and autonomy, is interesting in the organizational context, there appears to be no theoretical justification for hypothesizing that a worker's participation in decision making will affect perceptions of job challenge, autonomy, or importance.

Theoretically and empirically, this dimension has been linked to outcomes such as satisfaction and turnover (Turner & Lawrence, 1965); however, a relationship between participation and job challenge or autonomy has not been explored in the literature. In the current effort, no hypotheses are made about the effects of the appropriateness of the leader's pdm style on the core climate dimension of job challenge and autonomy.

Leadership facilitation and support. James and James (1989) state that the leadership facilitation and support dimension of climate (e.g., leader trust and support, leader goal facilitation, leader interaction facilitation) is based on individuals' desires for work facilitation, support and recognition. This core dimension of climate is especially important for this study because the study focusses on the participativeness of leaders' decision making styles.

The theory of leader decision making described earlier suggests that participation in decision making causes workers to perceive the leader as trusting the participants' ability to provide information and as being supportive (Vroom & Jago, 1988). Decision making styles that require appropriate participation automatically bring participants together, providing the potential for interaction. Appropriate participation ensures that participants have relevant information to share, have an interest in the outcome, etc. and thus, have the ability to interact with other group members. In this situation, the leader may be perceived as facilitating interaction. In contrast, a requirement for inappropriately high participation may result in participants who are unable to provide any information and thus, do not interact. Similarly, inappropriately low participation may indicate that group members with relevant information are not allowed to contribute or interact with others. Therefore, appropriate participation may affect leader trust, support, and interaction facilitation.

In a non-experimental field study, participation was highly correlated with perceptions of the leader as supportive and a facilitator of interactions among group members (Watson & Michaelson, 1984).

The second variable in the leadership facilitation dimension is management concern and awareness. Research in the field of communications has linked subordinate participation in the communication process with satisfaction with management and overall job satisfaction (Muchinsky, 1977; Sims & LaFollete, 1975). One variable inherent in satisfaction with management is the perception of management concern or desire to be aware. That is, managers who encouraged participation in the communication process were perceived as more concerned and having a greater desire to be aware. Appropriate participation may be perceived as management awareness, as opposed to inappropriately high or low participation, which may be perceived as an indication that management is not aware because, for example, it fails to include subordinates with relevant information or includes subordinates with no relevant information, in the decision making process. Once again, pdm may have an effect on the perception that management is concerned and aware.

The effect of participation on goal facilitation has also been explored. Preston and Heintz (1949), for example, showed that group members with participatory leaders (leaders who facilitated member participation) believed that the group's task was more interesting and

that they were more efficient in completing the task. Thus, a participative leadership style may result in a perception of leader goal facilitation.

I turn now to psychological and hierarchical influence which, according to Swift (1984), is a product of participation. Participation is said to result in the perception of greater power over one's environment. Therefore, leaders who use a more participative decision making style may affect subordinates' perception of psychological and hierarchical influence.

Based on the above information, the appropriateness of the pdm leadership style is hypothesized to affect the core climate dimension of leader facilitation and support.

The dimension of leader facilitation and support is particularly important because participation is conceptualized and operationalized as participation in leader decision making. Participation in decision making and the climate dimension of leader facilitation and support focus on leader behavior. This similarity in focus on behavior leads to a hypothesis of a particularly strong relationship between appropriateness of participation and the core climate dimension of leader facilitation and support.

Workgroup cooperation, friendliness, and warmth.

The final core dimension of climate, workgroup cooperation, friendliness, and warmth, is based on individuals' desires for warm and friendly social relations (James & James, 1989). Theories of group behavior address these issues.

According to Zander (1982), interaction between group members is essential for a group to form. The Vroom and Yetton decision styles form a continuum from no participation (autocratic) to participation of one or more group members individually with the leader (consultative) to total group participation and decision making (group). As one moves up the continuum from autocratic to group decision making, participation and interaction between group members is increased. Zander states that members of groups encourage "harmony", as opposed to disharmony. A state of harmony includes behavior such as, "...praising, approving, agreeing, or helping one another..." (p. 127). Harmony embodies the warmth, cooperativeness, and friendliness of this core dimension of climate. The hypothesis that groups encourage more harmonious behavior, than disharmonious behavior, was supported in a laboratory study conducted by Zander (1982) and an observational study conducted by Bales (1954).

Additional support is found in the work of Cartwright (1968). Cartwright (1968) states that the opportunity to participate in decision making is an incentive for individuals to be attracted to a group and become involved with the group. Consequences of involvement with the group include loyalty to the other group members and feelings of security within the group.

However, simply sitting in a group is not sufficient to ensure participation in decision making. Both Cartwright (1968) and Zander (1982) view participation as an active process. For active participation to occur, the individuals must have relevant information or be concerned with the outcomes or a similar situational variable, as described by Vroom and Yetton. If the individuals do not have valuable information, a vested interest, etc, then they may be unable or unwilling to participate in decision making. Therefore, for pdm to lead to group cooperation and warmth, the participation must be appropriate. Once again, appropriate participation is linked to the socioemotional outcomes of workgroup cooperation, warmth, and friendliness.

In a more recent effort, Tjosvold (1985) conducted a laboratory experiment to determine the effects of

participation on several dependent variables. Participants were placed in a high participation condition (cooperation) or a low participation condition (competitiveness). Participants in the high participation condition perceived others as more helpful and more responsive to ideas, and trusted others more. This study supports a hypothesis that participation leads to the perception of workgroup cooperation, warmth, and empathy.

In addition, Jackson (1983) hypothesized that participation leads to an increased perception of social support. Jackson's (1983) social support is similar to James and James' (1989) workgroup cooperation, friendliness and warmth. In both works, this variable represents the subordinates' perception of the social environment as supportive.

Based on the above information, the appropriateness of the pdm leadership style is hypothesized to affect the core climate dimension of work group cooperation, friendliness, and warmth.

Vertical dyad linkage theory. One additional variable that may be relevant to the present study is the quality of the supervisor-subordinate dyad's interaction, what Graen and others call vertical dyad linkage or VDL (Graen & Scandura, 1987; Vecchio &

Gobdel, 1984). Each supervisor and subordinate are said to be part of a dyad in which there is relatively unique interaction. That is, VDL theory postulates that supervisors do not treat each subordinate similarly or in accord with an average leadership style. Research has supported the premise of differential treatment of subordinates (Dansereau, Graen, & Haga, 1975; Vecchio & Gobdel, 1984).

Supervisors' differential treatment of subordinates is said to lead to relationships with varying degrees of quality. That is, subordinates who are perceived as trustworthy and competent by the supervisor are said to have a high quality relationship with their supervisor. Alternatively, subordinates who are perceived as less trustworthy and competent by their supervisor are said to have a low quality relationship. According to VDL theory, the quality of the supervisor-subordinate relationship will affect all interaction between the supervisor and subordinate.

If the quality of the supervisor-subordinate relationship affects all interaction between the two, the quality of the supervisor-subordinate relationship may have important consequences for the present study. For example, the quality of the relationship may affect the level of subordinate participation that is sought

by a supervisor. Specifically, supervisors may allow more participation for subordinates with whom they have high quality relationships and allow less participation for subordinates with whom they have low quality relationships, regardless of the most appropriate level of participation as defined by Vroom and Yetton's problem attributes. The question in the current study of appropriate participativeness then becomes, does the quality of supervisor-subordinate relationships determine the level of subordinate participation that supervisors seek, over and above training leaders to be more appropriately participative in decision making.

If the quality of the relationship does not determine the appropriateness of participation sought by supervisors, an alternative perspective is possible. It may be that supervisors who are trained to become more appropriately participative change their behavior toward subordinates. That is, leaders may still differentially involve subordinates in decision making; however, the more appropriately participative supervisors may use situation factors to determine who will be involved in making a decision, rather than simply allowing the quality of their relationships with each subordinate to determine participation.

An additional way in which the quality of the supervisor relationship could affect the present study is in the subordinates' perceptions of climate.

Research has shown that subordinates with a high quality supervisor-subordinate relationship have more positive perceptions of climate (Kozlowski & Doherty, 1989). In addition, those with a high quality supervisor-subordinate relationship tend to show less variability regarding their perceptions of climate, than do those with a low quality supervisor-subordinate relationship.

In summary, VDL research and theory suggest that the relationship between the quality of the supervisor-subordinate relationship and appropriate participation in decision making should be examined in order to determine if the quality of the relationship and/or the appropriateness of participation affects subordinate perceptions of climate. Separate hypotheses are not made about the quality of supervisor-subordinate relationships and its effect on the the subordinates' experiences of the work environment. However, the relationships among appropriate participation, quality of supervisor-subordinate relationships, and climate should be explored, as defined above.

Hypotheses

I. Leaders' use of appropriate participation in decision making decreases the perception of role stress and lack of harmony in the environment.

II. Leaders' use of appropriate participation in decision making will be explored here for effects on the perception of job challenge and autonomy in the environment.

III. Leaders' use of appropriate participation in decision making increases the perception of leadership facilitation and support in the environment.

IV. Leaders' use of appropriate participation in decision making increases the perception of workgroup cooperation, friendliness, and warmth in the environment.

V. The leaders' use of participative decision making is hypothesized to have the strongest effect on the core dimension of leadership facilitation and support. Participative decision making will have a significant, but weaker effect on the dimensions of role stress and workgroup cooperation, as compared to the effect on leadership facilitation:

A significant difference will be found between the relationships of (1) pdm and leadership facilitation and (2) pdm and role stress.

A significant difference will be found between relationships of (1) pdm and leadership facilitation and (2) pdm and workgroup cooperation.

IV. Method

Overview

Leader participativeness was experimentally manipulated in a field experiment to study the effect of the participativeness of leaders' decision making styles on the core dimensions of climate. The original data were collected using a modified Solomon Four Group Design (Solomon, 1949). Subjects were randomly assigned to one of four groups, then pretest and posttest data were to be collected and were mailed to the researcher. Pretest data were collected and mailed as planned. Posttest data were collected, but before they could be mailed to the researcher, many surveys were destroyed in a fire. The surviving surveys allow for analysis according to a two group design (Group 1: Pretest, Training, Posttest; Group 2: Pretest, Posttest) and the data have thus been analyzed in this manner.

The manipulation was a training program, designed to train managers to appropriately use pdm where "appropriately" is defined by the Vroom-Jago perspective. This training program was administered to a randomly selected group of managers. In order to ensure that the training had changed the managers' behavior, a measure of the participativeness of managers' decision making style, administered to

managers prior to and immediately following training served as a manipulation check. In addition, a climate measure was used to assess the core dimensions of climate (role stress and lack of harmony; job challenge and autonomy; leadership facilitation and support; workgroup cooperation, friendliness, and warmth) as perceived by each manager's subordinates. For managers in the experimental group these climate data were collected prior to the training of the manager and approximately one month following their training. Simultaneously, climate data were collected from the subordinates of managers in the control condition.

Participants

A site for data collection was located with the assistance of Kepner-Tregoe, the owner of the Vroom-Yetton participative decision making training package. After discussing my dissertation with several Kepner-Tregoe trainers, they agreed that the study had merit and suggested that I contact a list of their prospective participative decision making training clients. I contacted several organizations that were interested in receiving the training during the summer of 1989.

In exchange for participating in the study, I offered to present the results of my study to the

managers and offered to summarize the managers' decision making styles before and after training, as assessed by their performance on the cases, which are discussed later in this chapter. The first organization that agreed to participate was a midwestern utility company. This site had over 40 units, each of which contained a manager and subordinates, and employed approximately 250 individuals. All of the units were responsible for operation or maintenance of the equipment necessary to provide gas and electricity to the local area.

A sample of 11 units, each consisting of a manager and subordinates, was used in this experiment. Each unit was randomly selected for the experimental (training $N = 6$ units) or control (no training $N = 5$ units) condition. Random assignment without replacement was accomplished by assigning each unit a number and selecting the experimental and control conditions using a random number generator. Managers not randomly selected for training, as required in the experimental condition, were scheduled to be trained following the completion of the study.

Empirical evidence from James, Demaree, and Wolf (1988) and Rouiller (1989) indicates that 3 to 6 subordinates per unit are adequate to achieve high

interrater reliability in the climate measure, the dependent variable of interest here. In this study, surveys were administered to all subordinates in the experimental and control conditions; thus, data were obtained from 3 to 10 subordinates for each of the 11 units. The number of subordinates considered for analysis on the pretest is 56 ($n=56$), with 36 in the experimental group ($n=36$) and 20 in the control group ($n=20$) and 61 for the posttest ($n=61$), with 39 in the experimental ($n=39$) and 22 in the control ($n=22$). Many subordinates responded to the pretest and posttest; there were 71 unique respondents for the pretest and posttest ($n=71$). The response rate for the units, whose data survived the fire was 80%. The number of participants in each unit for the pretest and posttest is summarized in Table 4.

Procedure

As noted earlier, a field experiment was conducted. The design originally planned for was a modified Solomon Four Group Design (Solomon, 1949); however, unforeseen circumstances led to the use of a two group design. Units, each consisting of a manager and his/her subordinates, had been randomly selected for the training or no training condition. The original design is summarized in Figure 3. As previously stated,

Table 4.
 Number of participants in training condition units and no
 training condition units.

	PRETEST	POSTTEST
Training condition:		
Unit 1	7	10
Unit 2	7	6
Unit 3	6	7
Unit 4	5	6
Unit 5	5	5
Unit 6	6	5
No training condition:		
Unit 1	5	6
Unit 2	3	3
Unit 3	4	4
Unit 4	4	4
Unit 5	4	5

Figure 3.
Experimental Design: Solomon Four Group Design

	PRETEST	TRAINING	POSTTEST
	T ₁	T ₂	T ₃
1.	***** Climate (Subordinates) Dec Style (Subordinates) Dec Style (Managers) *****	***** PDM *****	***** Climate (Subordinates) Dec Style (Subordinates) Dec Style (Managers) *****
2.			***** Climate (Subordinates) Dec Style (Subordinates) Dec Style (Managers) *****
3.	Dec Style (Managers) ***** Climate (Subordinates) Dec Style (Subordinates) *****	PDM *****	Dec Style (Managers) ***** Climate (Subordinates) Dec Style (Subordinates) *****
4.			***** Climate (Subordinates) Dec Style (Subordinates) Dec Style (Managers) *****

T₁: Preceding training.
T₂: Immediately following training.
T₃: 30 days following training.

Manipulations checks:
Decision Style measure completed by managers to assess
manager learning.
Decision Making Style measure completed by subordinates
to assess transfer of training.

PDM = Participative decision making training for
managers.

Note: Each measure will be completed by the group appearing
directly below the measure in parentheses.

the organization contained over 40 units. Several of these units were omitted from the study due to their recent formation (less than 6 months as a unit) or small size (fewer than 3 subordinates). The remaining 34 units were randomly selected for each of the 4 conditions, resulting in: (1) 9 units in condition 1, (2) 8 units in condition 2, (3) 9 units in condition 3, and (4) 8 units in condition 4.

Following the loss of data, the surveys of (1) 6 units were returned in condition 1, (2) 2 units returned in condition 2, (3) 5 units returned in condition 3, and no units returned in condition 4. Thus, the original condition 1 data were analyzed as the experimental (training) condition data and the original condition 3 data were analyzed as the control (no training) condition data. The training condition participants received a pretest, training, and a posttest. The no training condition participants received a pretest and a posttest. These conditions are summarized in Figure 4.

Units in condition one received the pretest (T₁), followed by the participation training, and then the posttest (T₃). Units in condition two received the pretest (T₁) and then the posttest (T₃). Each of these instruments is briefly described below and elaborated

Figure 4.
Experimental Design: Modified Two Group Pre Post Design

	PRETEST	TRAINING	POSTTEST
	T ₁	T ₂	T ₃
*****	*****	*****	*****
1.	Climate (Subordinates)		Climate (Subordinates)
	Dec Style (Subordinates)		Dec Style (Subordinates)
	Dec Style (Managers)	PDM	Dec Style (Managers)
*****	*****	*****	*****
2.	Climate (Subordinates)		Climate (Subordinates)
	Dec Style (Subordinates)		Dec Style (Subordinates)
	Dec Style (Managers)	Dec Style (Managers)	
*****	*****	*****	*****

T₁: Preceding training.
T₂: Immediately following training.
T₃: 30 days following training.

Manipulations checks:

- Decision Style measure completed by managers to assess manager learning.
- Decision Making Style measure completed by subordinates to assess transfer of training.

PDM =Participative decision making training for managers.

Note: Each measure will be completed by the group appearing directly below the measure in parentheses.

upon in the Instruments section, which immediately follows this section.

At the pretest (T₁) subordinates completed the climate measure and subordinate report of manager decision making style measure. Also at T₁, the managers completed the manager decision making style measure. The PDM training was then administered to the managers only. The manager decision making style measure at T₂ was administered to the managers at the completion of training. At the posttest (T₃) subordinates completed the climate measure and subordinate report of manager decision making style measure.

The instructions for the completion of the climate and subordinate report of manager decision making style measure, T₁ and T₃, appear in Appendix A. Briefly, participants were told that this was a study of the leadership and climate of their units, assured of confidentiality, and assured of anonymity. The same instructions were given to the experimental and control condition participants.

Instrument Development

Climate. A climate measure was used to assess the core dimensions of climate outlined in Section II. This measure was administered to the members of each unit to

determine the climate of the unit. In all units both pre and post measures were taken.

The core dimensions were assessed, based on items from Jones and James (1979), as well as items written for the present effort. All items to be used may be found in Appendix B. As noted in Appendix B, several items appear verbatim from Jones and James (1979); however, most were rewritten to be representative for this study.

The actual items used in the measure of the core dimensions of climate were determined through a sorting procedure. Subject matter experts (SMEs) were selected for the sorting procedure, based on their knowledge of the climate literature. Each SME was employed as an industrial/organizational psychologist or was a graduate student in industrial/organizational psychology.

These SMEs (N=8) were presented with instructions for sorting, descriptions of the core dimensions (role stress, job challenge, leadership facilitation, and workgroup cooperation) and all items, which appear in Appendix B. SMEs were asked to individually sort each item into the core dimension it best fit.

Items for which there was 100% agreement among the SMEs were retained for use. This procedure resulted in the retention of 69 of the original 85 items.

The climate measure was formatted using a 6 point Likert scale of frequency, with anchors ranging from very infrequently (1) to very frequently (6). A copy of the survey used for data collection may be found in Appendix A (following the instructions to subordinates). Survey items 1 - 59 and 65 to 74 are climate items. Other items in the survey in Appendix A are discussed below.

Decision making style. Two decision making style measures were administered, one to managers and one to subordinates. Both of these measures served as manipulation checks to determine the effectiveness of training. A decision making style measure completed by the managers prior to training (T1) and at the end of training (T2) was used to assess manager learning of the training program principles. The second decision making style measure was completed by subordinates at the pretest (T1) and the posttest (T3), and was used to assess whether or not the managers' newly learned behaviors had transferred to the job setting.

Learning: Manager manipulation check. Learning was assessed by comparing the managers' scores on a pre- and post- measure of their use of appropriate decision making styles. Each measure contained 30 comparable cases that were representative of situations managers

face in their organization. The cases were written and copyrighted by Kepner-Tregoe, based on cases presented by Vroom and Yetton (1973). Managers were asked to choose the decision making style, on a continuum from highly authoritative (AI = 1) to group decision making (GII = 5), that they would use when presented with each case situation. Score sheets, which instructed the managers to circle the best choice (AI to GII) for each case, were obtained from Kepner-Tregoe. Case sets and a score sheet appear in Appendix C.

Transfer: Subordinate manipulation check. Transfer of training was measured by asking subordinates to assess how their managers would respond to an actual work situation that was presented in scenario format. One case, describing a realistic work situation, was presented to subordinates in the pretest, and a second comparable case was presented to subordinates in the posttest. Subordinates were asked to assess how their manager would respond to each case. The pretest and posttest cases used to assess transfer of training appear in Appendix D.

Quality of supervisor-subordinate relationship.
The Leader Member Exchange (LMX) measure was used to assess the quality of supervisor-subordinate dyad interaction at the pretest (T1) and posttest (T3). The

LMX measures the quality of the interaction, as reported by subordinates. LMX scores are treated as continuous, assessing the continuous variable of quality of the supervisor-subordinate relationship. The LMX was used to assess differences in the quality of supervisor-subordinate relationships prior to and following manager training.

The LMX, developed by Graen and his colleagues (Graen, Novak, & Sommerkamp, 1982; Scandura & Graen, 1984), has been used in several studies reported in the literature (e.g., Graen, Liden, & Hoel, 1982; Kozlowski & Doherty, 1989). The internal consistency reliability of this measure has been assessed. In an experiment using a repeated measures experimental design, Cronbach's Alpha was found to be relatively high at each of the testing times ($\alpha = .86$ at Time 1, $\alpha = .84$ at Time 2 or 26 weeks after Time 1). Based on this information, the researchers concluded that the measure achieved internal consistency reliability and stability over time (Scandura & Graen, 1984). The validity of the measure was determined by demonstrating its relationship with productivity and job satisfaction (Graen et al., 1982).

The LMX appears in the survey in Appendix A, Part III, items 1 to 7.

Intervention: Participation Training Program

Development

The participation training program adheres to the facets of participation outlined by Dachler and Wilpert (1978) and the problem attributes outlined by Vroom and Yetton (1973). The basis of the program was developed by Vroom and Yetton and then modified and prepared for presentation to managers by Kepner-Tregoe. The training program is currently owned and administered by Kepner-Tregoe.

A two day training program was administered by a consultant to Kepner-Tregoe, which consisted of a (1) discussion of the leader behaviors (AI, AII, CI, CII, GII), (2) review of the case set completed before the seminar (decision making style measure), (3) feedback on how each participant scored on the decision making style measure, (4) presentation and discussion of the problem attributes, (5) group practice on choosing the most effective solution for cases (using the problem attributes to choose the leader behavior), (6) application of problem attributes and leader behaviors to actual work settings, (7) development of skills in conflict resolution and consensus building, and (8) application of all training materials to actual work settings.

V. Results

Prior to the analysis of data for hypothesis testing, descriptive statistics (means, standard deviations, internal consistency reliability, interrater reliability of measures, and the equivalence of the experimental and control groups) are discussed. Results are then tested in three parts. First, the effectiveness of the manager training program in appropriate participative decision making is evaluated. Second, the relationship between appropriate participation and the core dimensions of climate is assessed, as specified in the hypotheses. In addition, the main effects of (1) appropriate participation and (2) training on each dimension of climate are assessed. Third, the effect of appropriate participation upon the quality of supervisor-subordinate relationships and the effects of the quality of the supervisor-subordinate relationships upon the core dimensions of climate are assessed.

Descriptive Statistics

Means and standard deviations. At the preliminary stage of analysis, means and standard deviations were computed for all measures. These descriptive

statistics, for the pretest and posttest (for the experimental and control condition participants), are summarized in Table 5. Differences in pretest and posttest means, as will be seen later, are attributable to effects of training on the experimental group.

Internal consistency reliability. The internal consistency reliability of each core dimension of climate was assessed using Cronbach's Alpha, as summarized in Table 5. Cronbach's Alpha for each scale, at the pretest, was as follows: role stress and lack of harmony (alpha = .76), job autonomy (alpha = .77), leadership facilitation (alpha = .93), and workgroup cooperation (alpha = .82). Internal consistency at the posttest was as follows: role stress and lack of harmony (alpha = .82), job autonomy (alpha = .80), leadership facilitation (alpha = .91), and workgroup cooperation (alpha = .91). All dimensions exceeded the minimum Alpha of .70 as recommended by Nunnally (1978).

Interrater reliability. The interrater reliability, that is the degree to which the perceptions of the workgroup climate were shared by the members of each unit, was assessed according to the James et al. (1984) technique. This method was chosen because it, as opposed to other methods such as Shrout

Table 5.
Pretest Descriptive Statistics: Dimension correlations,
means, standard deviations, and internal consistency
reliability (Cronbach's Alpha).

	MEAN	SD	ROLE STRESS	JOB CHALL	LDR FAC	WKGROUP COOP
ROLE STRESS	2.94	.53	(.76)	-.32	-.16	.05
JOB CHALL	3.38	.44		(.77)	.22	-.25
LDR FAC	2.91	.59			(.93)	.15
WKG COOP	3.53	.60				(.82)

* = $p \leq .05$

() = Cronbach's Alpha

Posttest Descriptive Statistics: Dimension correlations,
means, standard deviations, and internal consistency
reliability (Cronbach's Alpha).

	MEAN	SD	ROLE STRESS	JOB CHALL	LDR FAC	WKGROUP COOP
ROLE STRESS	2.42	.54	(.82)	-.01	-.44*	-.52*
JOB CHALL	3.36	.48		(.80)	.21	-.07
LDR FAC	3.20	.46			(.91)	.46*
WKG COOP	3.71	.73				(.91)

* = $p \leq .05$

() = Cronbach's Alpha

and Fleiss' (1979) ICC, attempts to deal with the range restriction problems that often occur in field studies (James et al., 1988). Interrater reliabilities for each unit on each dimension of climate ranged from .85 to .98, as reported in Table 6.

Dimension intercorrelation. Dimension intercorrelations are also summarized in Table 5. At the pretest, no dimensions were significantly intercorrelated. At the posttest, the leadership facilitation dimension was significantly correlated with the role stress dimension ($r = -.44$, $p < .05$) and the workgroup cooperation dimension ($r = .46$, $p < .05$). In addition, the workgroup cooperation dimension was significantly correlated with the role stress dimension ($r = -.52$, $p < .05$). The change in dimension intercorrelation is further discussed in Chapter VI, the Discussion, under the heading of Effectiveness of Training.

Equivalence of pretest groups. To ensure that any differences between the experimental and control groups at the posttest were due to the training and not due to differences in the groups prior to training, both groups' scores on each of the dimensions of climate were compared using t-tests. As reported in Table 7, no significant differences were found between groups on

Table 6.
Interrater reliability of the core dimensions of climate for each unit at the pretest (T₁) and posttest (T₃), assessed according to the James, Demaree, and Wolf (1983) procedure.

<u>UNIT</u>	<u>ROLE STRESS</u>	<u>JOB CHALLENGE</u>	<u>LEADERSHIP FACILITATION</u>	<u>WORKGROUP COOPERATION</u>
Group 1: Training				
1 Pretest (n=7)	.96	.97	.88	.96
Posttest (n=10)	.98	.98	.98	.97
2 Pretest (n=7)	.97	.97	.97	.95
Posttest (n=6)	.89	.91	.98	.96
3 Pretest (n=6)	.89	.97	.98	.96
Posttest (n=7)	.91	.96	.98	.97
4 Pretest (n=5)	.87	.98	.96	.95
Posttest (n=6)	.93	.95	.97	.93
5 Pretest (n=5)	.88	.95	.95	.97
Posttest (n=5)	.92	.95	.98	.96
6 Pretest (n=6)	.90	.93	.96	.96
Posttest (n=5)	.92	.97	.98	.93

Group 2: No training				
1 Pretest (n=5)	.96	.97	.97	.98

	Posttest (n=6)	.96	.97	.97	.96
2	Pretest (n=3)	.95	.89	.98	.96
	Posttest (n=3)	.95	.95	.95	.93
3	Pretest (n=4)	.89	.97	.98	.95
	Posttest (n=4)	.89	.97	.98	.94
4	Pretest (n=4)	.97	.85	.95	.95
	Posttest (n=4)	.97	.95	.96	.85
5	Pretest (n=4)	.98	.98	.98	.97
	Posttest (n=5)	.97	.95	.95	.93

Table 7.
Equivalence of experimental and control group on each
dimension of climate at the pretest as assessed by t-tests.

CLIMATE DIMENSION	EXPERIMENTAL GROUP	CONTROL GROUP	t
	PRETEST <u>M</u>	PRETEST <u>M</u>	
Role Stress & Lack of Harmony	3.01	2.80	1.32
Job Challenge & Autonomy	3.35	3.41	.44
Leadership Facilitation & Support	2.92	2.89	.19
Workgroup Cooperation, Friendliness, & Warmth	3.46	3.65	1.24

* = $p \leq .05$

any of the climate dimensions. Thus, the groups were treated as equivalent for hypothesis testing.

I. Effectiveness of Appropriate Participation Training

As noted above, two manipulation checks were administered in an effort to determine the effectiveness of the training program. First, manager learning was assessed, then the transfer of the managers' learned behavior from the training classroom to the work setting was assessed.

Learning. The learning measure was scored by determining the difference between (a) the level of participativeness that the Vroom and Yetton model prescribed for each case and (b) the level of participativeness chosen by each manager for each case. Absolute difference scores were summed to determine how different each manager's responses were from the responses prescribed by the Vroom and Yetton model. Absolute difference scores were chosen to emphasize the importance of appropriate levels of participation, not simply increased participation. The hypotheses did not differentiate between too little or too much participation, but simply between appropriate and inappropriate levels. Thus, an absolute difference score was computed.

Group means of the difference scores were computed for the pretest and posttest. Then a t test was conducted to determine whether or not there was a significant difference between the pretest and posttest scores.

In order to allow a difference score to be used for determining the change in participativeness, the most effective solutions for each case (according to the Vroom and Yetton decision tree) were the same in the pretest and posttest. That is, in case set 1 and in case set 2, AI was the best decision 12 times, AII was the best decision 4 times, CI was the best decision 1 time, CII was the best decision 7 times, and GII was the best solution 6 times. This was required to ensure that a difference in manager participativeness was due to a difference in the manager's style (pre and post training) and not simply due to a difference in the behavior prescribed by different cases.

No significant difference was found between the means of the experimental group ($M = 29.33$) and the control group ($M = 29.73$) at the pretest. However, a comparison of the mean of the experimental group difference scores at the pretest ($M = 29.33$) and the mean of their difference scores at the posttest ($M = 8.9$) revealed a significant difference between the two

means ($t = 19.57$, $p < .05$). No significant difference ($t = 1.66$, $p > .05$) was found between the control group means at the pretest ($M = 29.73$) and the posttest ($M = 27.61$). Based on this information, which is summarized in Table 8, it was concluded that managers in the experimental condition, who were trained in appropriate participation in decision making, had learned to make more appropriately participative decisions.

Transfer of training. Scoring of transfer was accomplished by determining the difference between (a) the level of participativeness that the Vroom and Yetton model prescribed for each case and (b) the level of participativeness that subordinates said their managers would use. Subordinates were asked to respond to one case at the pretest and one case at the posttest. An absolute difference score was assigned to each subordinate's rating of how appropriately participative his/her manager was by determining how different (the subordinate's report of) each manager's behavior was from the responses prescribed by the Vroom and Yetton model. Experimental and control group means of the difference scores were computed for the pretest and posttest. Then t tests were conducted for both groups, the experimental and control condition. These results are summarized in Table 9.

Table 8.

Differences in appropriateness of managers' decision making means (a) at the pretest for the experimental and control groups; (b) at the pretest and posttest for the experimental group; (c) at the pretest and posttest for the control group. Assessed by managers' scores on case sets. Scores reflect the number of errors.

a. Differences in experimental and control group means at the pretest.

PRETEST	EXPERIMENTAL GROUP <u>M</u>	CONTROL GROUP <u>M</u>	<u>t</u>
APPROPRIATENESS OF MANAGERS' DECISION MAKING	29.33	29.73	.25

b. Differences in pretest and posttest means for the control group.

CONTROL GROUP	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
APPROPRIATENESS OF MANAGERS' DECISION MAKING	29.73	27.61	1.66

c. Differences in pretest and posttest means for the experimental group.

EXPERIMENTAL GROUP	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
APPROPRIATENESS OF MANAGERS' DECISION MAKING	29.33	8.9	19.57*

* = $p \leq .05$

Table 9.
Differences in appropriateness of managers' decision making means (a) at the pretest for the experimental and control groups; (b) at the pretest and posttest for the experimental group; (c) at the pretest and posttest for the control group. Assessed by subordinates' scores on pre- and post-cases. Scores reflect the number of errors.

a. Differences in experimental and control group means at the pretest.

PRETEST	EXPERIMENTAL GROUP <u>M</u>	CONTROL GROUP <u>M</u>	<u>t</u>
APPROPRIATENESS OF MANAGERS' DECISION MAKING	2.97	3.06	.37

b. Differences in pretest and posttest means for the control group.

CONTROL GROUP	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
APPROPRIATENESS OF MANAGERS' DECISION MAKING	3.06	2.61	1.62

c. Differences in pretest and posttest means for the experimental group.

EXPERIMENTAL GROUP	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
APPROPRIATENESS OF MANAGERS' DECISION MAKING	2.97	1.05	6.90*

* = $p \leq .05$

At the pretest no significant difference ($t = .37$, ns) was found between the experimental condition ($M = 2.97$) and the control condition ($M = 3.06$). A significant difference was found between the pretest score mean ($M = 2.97$) and posttest score mean ($M = 1.05$) for the training condition ($t = 6.90$, $p < .05$). A significant difference was not found between the pretest score mean ($M = 3.06$) and posttest score mean ($M = 2.61$) for the no training condition ($t = 1.62$, ns). It was concluded that, based on subordinates' reports of how managers would perform on a hypothetical case, managers were more appropriately participative after receiving training. That is, behaviors learned in the appropriate participation training had transferred to the job setting.

Summary. The two manipulation checks revealed that managers learned in the training program and that their learning transferred from the classroom to the job setting. Thus it was concluded that the training program was effective in training managers to be more appropriately participative in decision making.

II. Relationship Between Appropriate Participation and the Core Dimensions of Climate

The relationship between appropriate participation and each of the core dimensions of climate was assessed by comparing the experimental and control group pre- and post- ratings for each dimension of climate, as required by the hypotheses. First, the experimental group pretest means were compared to the posttest means for each dimension of climate. Then, the control group means were compared to the posttest means for each dimension of climate. Lastly, regression analyses were conducted (for the experimental and control groups combined) to examine the effect of appropriate participation and training on each dimension of climate.

These calculations were based on a combined pre- and post- sample of 6 units, with a total of 75 subordinates in the experimental/training condition and 5 units, with a total of 42 subordinates, in the control/no training condition, as previously summarized in Table 4. The results of these analyses are discussed in terms of the hypotheses presented in Chapter III. However, prior to these analyses, a discussion of statistical power is presented.

Power. Due to the intercorrelation of some of the dimensions of climate, statistical relationships among the dimensions and appropriate participativeness could

have been obscured. Thus, the issue of power and the occurrence of Type 1 and 2 errors, was addressed. One strategy considered was to simply divide .05 by 4 to achieve an alpha level of .0125 for each hypothesis, thereby decreasing the probability of Type 1 error, while increasing the probability of Type 2 error. The second possible strategy was to set the alpha level at .05 for each of the first four hypotheses and, thus, decrease the probability of Type 2 error, while increasing the probability of Type 1 error. This second strategy was adopted for hypothesis testing, as discussed below.

This was an exploratory effort; that is, the measures were preliminary efforts. Thus, it was possible that the theoretical rationale was accurate, but the measures were flawed, causing an increase in error variance. Empirically, these relationships had not been tested previously, so there was no information available regarding the expected strength of the effects. In addition, acceptance of a false hypothesis (Type 2 error) was considered from a practical standpoint. In all studies, the primary danger of increasing the possibility of Type 2 error is the potential harm to subjects. In the current study, subjects would not have been harmed if a Type 2 error

occured. As a matter of fact, subjects could actually have lost benefits if a Type 1 error had been committed. For example, a training program with potential benefits could have been discarded in error.

Based on the above, an alpha level of .05 was adopted for hypothesis testing. All analyses were conducted using a one-tailed test, with the exception of testing Hypothesis II. Hypothesis II called for an exploration of the relationship between appropriate participation and the job challenge dimension; that is, the direction of the relationship was not specified. Thus, a two tailed test was used for Hypothesis II.

Hypothesis I: Role stress. Hypothesis I proposed that appropriate participation in decision making would be negatively related to the climate dimension of role stress and lack of harmony in the environment. The following results, which offer support for the hypothesis, are summarized in Table 10. When the experimental group mean of role stress at the pretest ($M = 3.01$) was compared to the experimental group mean of role stress at the posttest ($M = 2.29$), a significant decrease in role stress was found ($t = 6.34$, $p < .05$). In contrast, a comparison of the control group means for role stress at the pretest ($M = 2.80$) and the posttest ($M = 2.67$) failed to yield a

Table 10.
Differences in mean scores for the role stress dimension of climate: (a) the experimental group at the pretest and posttest; (b) the control group at the pretest and posttest; and (c) the experimental and control groups at the posttest.

a. Experimental group: Differences in means scores at the pretest and posttest.

	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
ROLE STRESS	3.01	2.29	6.34*

b. Control group: Differences in mean scores at the pretest and posttest.

	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
ROLE STRESS	2.80	2.67	.72 ns

c. Posttest: Differences in experimental and control group mean scores.

	EXPERIMENTAL GROUP <u>M</u>	CONTROL GROUP <u>M</u>	<u>t</u>
ROLE STRESS	2.29	2.67	2.66*

* = $p \leq .05$

significant difference ($t = .72$, ns). Further support was added to the premise of a significant difference between the experimental and control groups at the posttest, when a significant difference ($t = 2.66$, $p < .05$) was found between posttest means of role stress for the experimental group ($M = 2.29$) and the control group ($M = 2.67$).

Further analyses for this hypothesis were conducted to determine if there was a main effect of appropriate participation on the subordinates' perceptions of role stress at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at the posttest yielded support. That is, appropriate participation was found to predict subordinates' perceptions of role stress ($R = .53$, $p < .05$), as can be seen in Figure 5.

In addition, analyses were conducted to determine if there was a main effect of training (training versus the no training control condition) on the subordinates' perceptions of role stress at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at the posttest yielded support. That is, training was found to predict subordinates' perceptions of role stress ($R = .47$, $p < .05$).

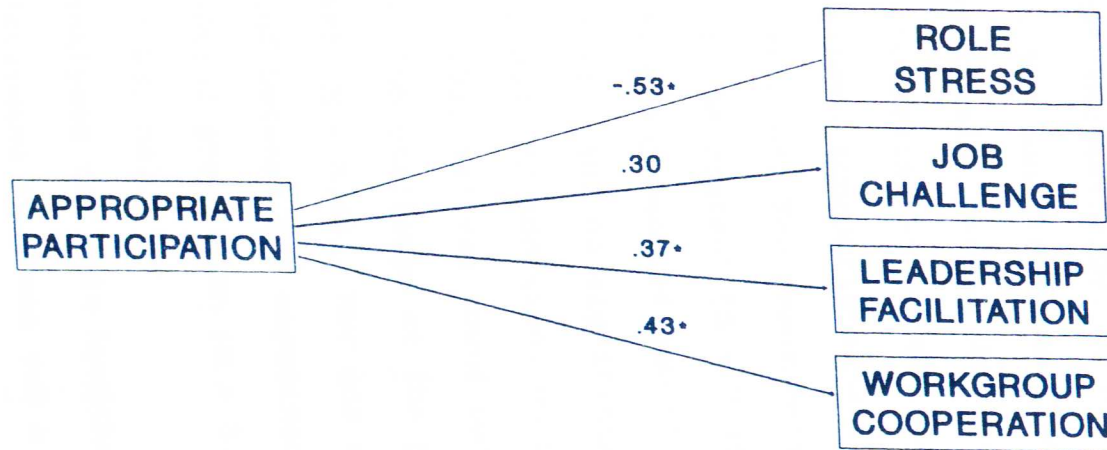


Figure 5.

Posttest model of the relationship between appropriate participation in decision making and the core dimensions of climate.

Exploratory hypothesis: Job challenge. No specific hypotheses were made regarding the effects of appropriate participativeness on the climate dimension of job challenge and autonomy. As discussed in this chapter, due to the non-directional nature of this exploratory hypothesis, two-tailed tests were used for testing this hypothesis. As summarized in Table 11, the relationship between appropriate participation and job challenge was explored. The experimental group mean of job challenge at the pretest ($M = 3.35$) was compared to the experimental group mean of job challenge at the posttest ($M = 3.31$), and no significant difference was found ($t = .35$, ns). In addition, no significant difference ($t = .33$, ns) was found between the control group means for job challenge at the pretest ($M = 3.41$) and the posttest ($M = 3.45$). Nor was a significant difference found between the experimental group mean ($M = 3.31$) and control group mean ($M = 3.45$) at the posttest ($t = 1.03$, ns).

Further analyses for this hypothesis were conducted to determine if there was a main effect of appropriate participation on the subordinates' perceptions of job challenge and autonomy at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at

Table 11.
Differences in mean scores for the job challenge dimension
of climate: (a) the experimental group at the pretest and
posttest; (b) the control group at the pretest and posttest;
and (c) the experimental and control groups at the posttest.

a. Experimental group: Differences in mean scores at the
pretest and posttest.

	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
JOB CHALLENGE	3.35	3.31	.35

b. Control Group: Differences in mean scores at the pretest
and posttest.

	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
JOB CHALLENGE	3.41	3.45	.33

c. Posttest: Differences in experimental and control group
mean scores.

	EXPERIMENTAL GROUP <u>M</u>	CONTROL GROUP <u>M</u>	<u>t</u>
JOB CHALLENGE	3.31	3.45	1.03

* = $p \leq .05$

the posttest did not offer support. That is, appropriate participation was not found to predict subordinates' perceptions of job challenge ($R = .30$, ns), as represented in Figure 5.

In addition, analyses were conducted to determine if there was a main effect of training (training versus the no training control condition) on the subordinates' perceptions of job challenge at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at the posttest failed to yield support. That is, training was not found to predict subordinates' perceptions of job challenge ($R = .26$, ns).

Hypothesis III: Leadership facilitation.

Hypothesis III proposed that appropriate participativeness would be positively related to the climate dimension of leadership facilitation and support. The following results, which offer support for the hypothesis, are summarized in Table 12. When the experimental group mean at the pretest ($M = 2.92$) was compared to the experimental group mean at the posttest ($M = 3.28$), a significant increase in leadership facilitation was found ($t = 2.98$, $p < .05$). In contrast, a comparison of the control group means for leadership facilitation at the pretest ($M = 2.89$) and

Table 12.
Differences in mean scores for the leadership facilitation dimension of climate: (a) the experimental group at the pretest and posttest; (b) the control group at the pretest and posttest; and (c) the experimental and control groups at the posttest.

a. Experimental group: Differences in mean scores at the pretest and posttest.

	<u>PRETEST</u> <u>M</u>	<u>POSTTEST</u> <u>M</u>	<u>t</u>
LEADERSHIP FACILITATION	2.92	3.28	2.98*

b. Control group: Differences in mean scores at the pretest and posttest.

	<u>PRETEST</u> <u>M</u>	<u>POSTTEST</u> <u>M</u>	<u>t</u>
LEADERSHIP FACILITATION	2.89	3.03	.81

c. Posttest: Differences in experimental and control group mean scores.

	<u>EXPERIMENTAL</u> <u>GROUP</u> <u>M</u>	<u>CONTROL</u> <u>GROUP</u> <u>M</u>	<u>t</u>
LEADERSHIP FACILITATION	3.28	3.03	1.91*

* = $p \leq .05$

the posttest ($M = 3.03$) failed to yield a significant difference ($t = .81$, ns). Further support was added to the premise of a significant difference between the experimental and control group means for leadership facilitation at the posttest, when a significant difference ($t = 1.91$, $p < .05$) was found between posttest means for the experimental group ($M = 3.28$) and the control group ($M = 3.03$).

Further analyses for this hypothesis were conducted to determine if there was a main effect of appropriate participation on the subordinates' perceptions of leadership facilitation at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at the posttest yielded support. That is, appropriate participation was found to predict subordinates' perceptions of leadership facilitation ($R = .37$, $p < .05$), as presented in Figure 5.

In addition, analyses were conducted to determine if there was a main effect of training (training versus the no training control condition) on the subordinates' perceptions of leadership facilitation at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at the posttest yielded support. That is, training was found to predict

subordinates' perceptions of leadership facilitation ($R = .35, p < .05$).

Hypothesis IV: Workgroup cooperation. Hypothesis IV proposed that appropriate participativeness would be positively related to the climate dimension of workgroup cooperation. The following results, which offer support for the hypothesis, are summarized in Table 13. When the experimental group mean at the pretest ($M = 3.46$) was compared to the experimental group mean at the posttest ($M = 3.89$), a significant increase in workgroup cooperation was found ($t = 2.63, p < .05$). In contrast, a comparison of the control group means for workgroup cooperation at the pretest ($M = 3.65$) and the posttest ($M = 3.33$) failed to yield a significant difference ($t = 1.40, ns$). Further support was added to the premise of a significant difference between the experimental and control groups at the posttest, when a significant difference ($t = 2.87, p < .05$) was found between posttest workgroup cooperation means for the experimental group ($M = 3.89$) and the control group ($M = 3.33$).

Further analyses for this hypothesis were conducted to determine if there was a main effect of appropriate participation on the subordinates' perceptions of workgroup cooperation at the posttest.

Table 13.

Differences in mean scores for the workgroup cooperation dimension of climate: (a) the experimental group at the pretest and posttest; (b) the control group at the pretest and posttest; and (c) the experimental and control groups at the posttest.

a. Experimental group: Differences in mean scores at the pretest and posttest.

	PRETEST M	POSTTEST M	t
WORKGROUP COOPERATION	3.46	3.89	2.63*

b. Control group: Differences in the mean scores at the pretest and posttest.

	PRETEST M	POSTTEST M	t
WORKGROUP COOPERATION	3.65	3.33	1.40

c. Posttest: Differences in experimental and control group mean scores.

	EXPERIMENTAL GROUP M	CONTROL GROUP M	t
WORKGROUP COOPERATION	3.89	3.33	2.87*

* = $p \leq .05$

Simple regression analysis of the data obtained from the experimental and control groups at the posttest yielded support. That is, appropriate participation was found to predict subordinates' perceptions of workgroup cooperation ($R = .43, p < .05$), as can be seen in Figure 5.

In addition, analyses were conducted to determine if there was a main effect of training (training versus the no training control condition) on the subordinates' perceptions of workgroup cooperation at the posttest. Simple regression analysis of the data obtained from the experimental and control groups at the posttest yielded support. That is, training was found to predict subordinates' perceptions of workgroup cooperation ($R = .42, p < .05$).

Hypothesis V: Relative Strength of Relationships.
Also of interest was the relative strength of the effect of appropriate participation on each of the core dimensions of climate. Appropriate participation was hypothesized to have the strongest effect on the dimension of leadership facilitation and support, a lesser effect on the dimensions of role stress and workgroup cooperation, and an unknown effect on the dimension of job challenge.

The Schumann and Bradley (Bradley & Schumann, 1957a; 1957b; Schumann & Bradley, 1959; Weiss, 1985) procedure was adopted for assessing these relationships. As stated by Weiss (1985), the Schumann and Bradley procedure yields a statistic, Observed W, that allows for the comparison of R^2 or F-ratios, with a single sample using more than one response mode. In the current study, each climate dimension represented a response mode.

When the Schumann and Bradley procedure was applied, no significant differences were found between the effect strengths. A significant difference was not found between (a1) the effect of appropriate participativeness on leadership facilitation and support and (a2) the effect of appropriate participativeness on role stress and lack of harmony (Observed W = 2.50, ns), nor between (b1) the effect of appropriate participativeness on leadership facilitation and support and (b2) the effect of appropriate participativeness on workgroup cooperation (Observed W = 1.34, ns). No specific hypothesis was made regarding (c1) the effect of appropriate participativeness on job challenge and (c2) the effect of appropriate participativeness on leadership

facilitation and support, and no significant differences were found (Observed $W = 1.90$, ns).

III. Control Variable: Quality of the Supervisor-Subordinate Relationship.

An individual-based leadership style in which the leader has unique relationships with subordinates could affect the results of the present study. Thus, as asserted in Chapter 3, relationships among appropriate participation, the quality of the supervisor-subordinate relationship (assessed with the Leader Member Exchange measure discussed in Chapter 4), and the core dimensions of climate were explored.

First, as summarized in Table 14, the effect of appropriate participation on the quality of the supervisor-subordinate relationship was assessed. No significant difference was found between the experimental group mean ($M = 2.43$) and the control group mean ($M = 2.25$) at the pretest ($t = 1.02$, ns), so it was concluded that the two groups were equivalent in the quality of supervisor-subordinate relationships at the pretest. Next the control group means at the pretest ($M = 2.25$) and the posttest ($M = 2.37$) were compared and no significant differences were found ($t = .68$, ns) in the quality of the supervisor-subordinate relationships. However, the experimental group pretest

Table 14.

Differences in the quality of the supervisor-subordinate (a) in the experimental and control group at the pretest; (b) in pretest and posttest means for the control group; (c) in pretest and posttest means for the experimental group; (d) in the experimental and control group at the posttest.

a. Differences in the experimental and control group means at the pretest.

PRETEST	EXPERIMENTAL GROUP <u>M</u>	CONTROL GROUP <u>M</u>	<u>t</u>
SUP-SUB RELATIONSHIP (VDL)	2.43	2.25	1.02

b. Differences in pretest and posttest means for the control group.

CONTROL GROUP	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
SUP-SUB RELATIONSHIP (VDL)	2.25	2.37	.68

c. Differences in pretest and posttest means for the experimental group.

EXPERIMENTAL GROUP	PRETEST <u>M</u>	POSTTEST <u>M</u>	<u>t</u>
SUP-SUB RELATIONSHIP (VDL)	2.43	3.01	4.26*

d. Differences in the experimental and control group means at the posttest.

POSTTEST	EXPERIMENTAL GROUP <u>M</u>	CONTROL GROUP <u>M</u>	<u>t</u>
SUP-SUB RELATIONSHIP (VDL)	3.01	2.37	4.29*

* = $p \leq .05$

mean ($M = 2.43$) and posttest mean ($M = 3.01$) differed significantly ($t = 4.26, p < .05$), and a significant difference was found ($t = 4.29, p < .05$) between the experimental group posttest mean ($M = 3.01$) and the control group posttest mean ($M = 2.37$). Thus, subordinates of more appropriately participative managers reported higher quality relationships.

Further analyses were conducted to determine the effect of appropriate participation on the quality of supervisor-subordinate relationships at the posttest. Simple regression analyses yielded a significant effect of appropriate participation on the quality of supervisor-subordinate relationships ($R = .48, p < .05$).

Second, the relationship between the quality of the supervisor-subordinate relationship and each core dimension of climate was assessed. Four regression equations were constructed in which each of the four dimensions of climate (1: role stress; 2: job challenge; 3: leadership facilitation; 4: workgroup cooperation) was a dependent variable. For each regression equation, two independent variables were entered into the equation. First, appropriate participativeness was entered into the equation, followed by the quality of the supervisor-subordinate

relationship, to determine if the quality of the supervisor-subordinate relationship contributed to the prediction of each climate dimension score, above the prediction provided by appropriate participation.

For these analyses, which included the experimental (training) group and control (no training) group data at the posttest, the quality of the supervisor-subordinate relationship, as represented by subordinates' responses on the LMX, was treated as a continuous variable. The managers' level of appropriate participativeness was represented by their case set scores.

Upon examination of the R's and beta's for each regression equation, the quality of the supervisor-subordinate relationship was found to contribute significantly to the prediction of only one dimension of climate, role stress, which is summarized in Table 15. No significant relationships were found between the quality of the supervisor-subordinate relationship and the core dimensions of job challenge, leadership facilitation, or workgroup cooperation.

Table 15.
Relationship between appropriate participation, the quality of the supervisor-subordinate relationship, and the core dimensions of climate.

DEPENDENT VARIABLE	INDEPENDENT VARIABLE
	<u>Quality of Supervisor-Subordinate Relationship (Posttest Leader Member Exchange Measure)</u>
Appropriate Participativeness (Posttest Manager Case Scores)	R = .89 F = 15.95*

DEPENDENT VARIABLE	INDEPENDENT VARIABLES	
Core Climate Dimension	<u>Appropriate Participativeness (Posttest Manager Case Scores)</u>	<u>Quality of Supervisor-Subordinate Relationship (Posttest Leader Member Exchange Measure)</u>
ROLE STRESS	R = .53 F = 22.11* beta = .73*	R = .64 RINC = .11 beta = .41*
JOB CHALLENGE	R = .30 F = 5.30 beta = .39*	R = .35 RINC = .05 beta = .20,ns
LEADERSHIP FACILITATION	R = .37 F = 8.92* beta = .30*	R = .39 RINC = .02 beta = .14,ns
WORKGROUP COOPERATION	R = .43 F = 12.52* beta = .56*	R = .49 RINC = .06 beta = .22,ns

* = $p \leq .05$

VI. DISCUSSION

The central thesis of this work was that the appropriate participativeness of leaders' decision making styles would have an effect on the core dimensions of climate. Specifically, it is commonly agreed that work group members come to know climate through interaction (Louis, 1980; Schein, 1985; Schneider & Reichers, 1983), but the present work explored the idea that the interaction itself may change the climate. In the present study changes in interaction between leaders and subordinates were induced by training the leaders to use a more appropriately participative style of decision making.

Evidence of a change in leader behavior was collected using two approaches. First, the leaders were presented with a set of cases prior to and after training. A significant change in the scores of those trained indicated that learning had taken place. Second, subordinates were presented with a case and asked how their leaders would respond. According to subordinates' reports, leaders responded using a more appropriately participative style after their (the leaders) training. Thus it was inferred that a transfer of the learning from the classroom to the workplace had

occurred. These two factors may be construed as evidence that a change in leader behavior occurred; that is, leaders used participation in decision making more appropriately after training, than before. No pre-post effects were shown for managers who did not receive the training.

Based on the premise that leaders changed their behavior by using participative decision making more appropriately, the interaction patterns among the subordinates and between the supervisor and subordinates can be said to have changed. The change in the way managers dealt with their subordinates resulted in a change in three dimensions of climate, (1) role stress and lack of harmony, (2) leadership facilitation and support, and (3) workgroup cooperation, friendliness, and warmth. In addition, it was found that not only appropriate participation, but also the quality of the supervisor-subordinate relationship, had an effect on the role stress dimension of climate. Each of the hypotheses in the present study addressed the effect of appropriate participative decision making on a specific dimension of climate.

The theoretical implications of each hypothesis are discussed below, followed by methodological issues,

practical implications, and suggestions for future research.

Hypothesis I. Although preliminary analyses of the data supported the hypothesis that appropriate participation was negatively linked to the role stress dimension of climate, further analyses revealed a more complex relationship. That is, appropriate participation and the quality of the supervisor-subordinate relationship were both significantly negatively linked with the role stress dimension of climate. The effect of the quality of the supervisor-subordinate relationship on the core dimension of role stress is discussed in detail in the 'Quality of the Supervisor-Subordinate Relationship' section later in this chapter.

As explained in Chapter 3, Model and Hypotheses, this hypothesis was based on the assumption that appropriate participation in decision making would result in an increase in information sharing. Katz and Kahn's role theory, the theoretical basis for this hypothesis, led to the conclusion that increased information sharing would decrease the experience of several components of this climate dimension, such as role conflict, role ambiguity, and subunit conflict. Empirical support of this hypothesis led to the

conclusion that an increase in the leaders' use of appropriate participation did indeed decrease the role stress experienced by the subordinates.

Hypothesis II. No specific hypotheses were made regarding the effect of appropriate participativeness on the climate dimension of job challenge and autonomy. Data for this exploratory hypothesis failed to support an effect of appropriate participation or an effect of the supervisor-subordinate relationship. As stated in Chapters 3 and 5, respectively, no theoretical rationale was found for making hypotheses about the effect of appropriate participation in decision making. The lack of a theoretical rationale and empirical support for a significant relationship between appropriate participation and the job challenge and autonomy dimension of climate led to the conclusion that this dimension of climate was not related to appropriate participation.

Hypothesis III. Appropriate participation was hypothesized to be positively related to the perception of leadership facilitation and support. The data supported this hypothesis.

As discussed earlier, Vroom and Jago's theory of leader decision making suggested that appropriate participation in decision making caused subordinates to

perceive the leader as being supportive and trusting the subordinates' ability to provide information. The data from the present study suggested that more appropriate participation did indeed cause the subordinates to perceive the leader as being more supportive, thus empirically supporting this theory.

Hypothesis IV. Appropriate participation in decision making was hypothesized to increase the perception of workgroup cooperation, friendliness, and warmth in the environment. The data supported this hypothesis.

This hypothesis was based on theories of group behavior. Specifically Cartwright (1968) stated that opportunities for participation in decision making lead to the socioemotional outcomes of greater loyalty to the group and feelings of security within the group. These socioemotional outcomes are similar to cooperation, friendliness, and warmth. Thus, the present study provided additional support for Cartwright's theory of group behavior.

In addition, Zander (1982) stated that group members seek harmonious interaction or, in the terms of the present study, a cooperative, friendly, warm interaction. A supervisor's appropriate use of participation in decision making may facilitate

cooperative interaction. For example, one of Vroom and Yetton's decision attributes states that more subordinates should be consulted if there is likely to be conflict about a decision. The subordinates are brought together to encourage decision acceptance. By encouraging decision acceptance and discouraging turmoil, a more appropriately participative supervisor may increase the perception of cooperation. Thus, supervisors' appropriate use of participation in decision making led to interactions that were perceived as more cooperative, friendly, and warm. In this manner, the present study also offered support for Zander's theory of group behavior.

Hypothesis V. This hypothesis was formulated to examine the relative strength of the effect of appropriate participation on the leadership facilitation dimension versus the strength of the effect of appropriate participation on the role stress dimension and the workgroup cooperation dimension. In this study, theory and previous empirical investigations led to the hypothesis of a strong relationship between appropriate participativeness and leadership support, and weaker relationships between appropriate participativeness and role stress, and

appropriate participativeness and workgroup cooperation.

This hypothesis was not supported. The difference between the effect of appropriate participativeness on role stress and the effect of appropriate participativeness on leadership facilitation achieved a significance level of .07. This did not meet the alpha level established for the present study. There are several possible explanations why the difference failed to reach an alpha of .05. One possible reason is that the measures were flawed in such a way as to obscure the relationships. Additionally, the difference between the effect of appropriate participativeness on workgroup cooperation and the effect of appropriate participativeness on leadership facilitation might be attributable to the relatively strong relationship between these climate dimensions. The shared variance of the dependent variables, workgroup cooperation and leadership facilitation, may have obscured the true relationships.

Quality of the supervisor-subordinate relationship.

As discussed in Chapters 3 and 5, the relationships among appropriate participation, the quality of the supervisor-subordinate relationship, and the core dimensions of climate were assessed. Exploratory

analyses revealed a significant relationship between appropriate participation and the quality of the supervisor-subordinate relationship. That is, subordinates of more appropriately participative supervisors reported having higher quality relationships with their supervisors.

In addition, analyses revealed that, after controlling for appropriate participation, the quality of supervisor-subordinate relationships had a significant negative relationship with one dimension of climate, role stress and lack of harmony. An examination of the literature provides some insight into this finding.

Literature in VDL theory is based on the premise that supervisors and subordinates develop norms for their behavior and relationships through the process of role making within supervisor-subordinate dyads (Graen & Cashman, 1975; Graen & Scandura, 1987; Vecchio & Gobdel, 1984). These roles define the quality of the supervisor-subordinate relationship. As the label indicates, the role stress dimension of climate is also based upon roles. This dimension focusses on factors such as role conflict and role ambiguity, as described in Chapter 3. Typically, supervisors have access to information that can affect the role conflict and

ambiguity experienced by subordinates. For example, a supervisor can determine how a subordinate should prioritize work and thus, reduce role conflict or a supervisor can explain a subordinate's job assignment and thus, reduce role ambiguity. However, as noted by Graen and Scandura (1987), the role making process includes determination of how much information will be shared between the supervisor and subordinate. Thus, through role making the supervisor and subordinate define the quality of their relationship, and determine the amount of subordinate role conflict and role ambiguity that will exist due to a lack of sharing information. Thus, it is possible that the relationship between the quality of supervisor-subordinate relationship and role stress, found in the present study, is due to a lack of information sharing, as discussed by Graen and Scandura (1987). Future studies could specifically address the amount of information shared and how sharing information affects the role stress dimension of climate.

An interesting additional empirical question is how members with a high quality versus a low quality supervisor-subordinate relationship experience role stress, a question which was examined post hoc. The quality of the supervisor-subordinate relationship was

dichotomized at the mean into (1) a high quality relationship or an in-group member and (2) a low quality relationship or an out-group member. In order to examine this relationship, a partial correlation was computed between role stress and the quality of the supervisor-subordinate relationship, with the effects of appropriate participation removed (due to the strong relationship between appropriate participation and the quality of the supervisor-subordinate relationship). For the entire group, including in-group and out-group members, the partial correlation between role stress and quality of the supervisor-subordinate relationship, with appropriate participation removed, was $r = -.43$ ($p < .05$). For in-group members, the partial correlation between role stress and quality of the supervisor-subordinate relationship, with appropriate participation removed, was $r = -.40$ ($p < .05$). For out-group members the partial correlation between role stress and quality of the supervisor-subordinate relationship, with appropriate participation removed, was $r = -.13$ (ns). Thus, results indicate that, for in-group members, as the quality of the supervisor-subordinate relationship decreased, the role stress increased. However, for out-group members, there was no

significant relationship between the quality of the supervisor-subordinate relationship and role stress.

These results are consistent with VDL's basis in role making. If, as discussed earlier in this section, through the process of role making, the amount of information to be shared is determined for each supervisor-subordinate relationship, then it is reasonable to expect to find empirical differences in the amount of information shared in unique supervisor-subordinate dyads. Previous empirical work has demonstrated that out-group members report receiving significantly less leadership attention, including information sharing, than in-group members (Dansereau, Graen, & Haga, 1975). If less information is shared, out-group members may be unable to obtain information from their supervisors and begin to seek other sources of information. Out-group members may then gather role stress reducing information from these other sources (e.g., other supervisors, coworkers, written documentation, etc.). The information that out-group members obtain from these other sources may reduce the out-group members role conflict and role ambiguity. If out-group members are not dependent upon their supervisors for information because they have found other sources of information, it logically follows that

the supervisor becomes less important in providing information to reduce role stress. Thus, a weak empirical relationship between role stress and the quality of the supervisor-subordinate relationship, as was found in the present study, might be explained.

Workers' perceptions of role conflict and ambiguity have been frequently cited as stressors and linked to the experience of job stress (Beehr & Newman, 1978; Burke, 1976; Weiman, 1977). However, in many studies of job stress, workers from the same work group perceive different levels of role conflict and role ambiguity in their environment (Kidder, 1983). It may be that the quality of the supervisor-subordinate relationship was a determinant of the amount of role conflict and role ambiguity perceived, because differential information was provided to in-group and out-group members, and because in-group and out-group members sought information from different sources. Although a test of such a relationship is beyond the scope of the present work, it provides an area of future research. For example, it would be interesting to assess whether or not out-group members' ability to find sources of information, other than their supervisors, has an impact on their perceptions of role stress. In addition, if in- and out-group members

gather information from different sources, it would be interesting to see if specific or all sources (supervisor, other supervisors, coworkers, etc.) are linked to the perception of role stress (role conflict, role ambiguity, etc) and to the experience of stress (e.g., emotional exhaustion, anxiety, physiological symptoms).

Summary. By changing the appropriateness of leader participation, changes in the core climate dimensions of (1) role stress and lack of harmony, (2) leadership facilitation and support, and (3) workgroup cooperation, friendliness, and warmth, were demonstrated. In addition, appropriateness of participation was positively related to the quality of the supervisor-subordinate relationship and the quality of the supervisor-subordinate relationship was negatively related to the climate dimension of role stress.

Methodological Issues

Effectiveness of training. The current study used training regarding appropriate participation in decision making to change manager behavior. Specifically, managers learned to be more appropriately participative and this learned behavior transferred to the job setting. However, research has shown that

training programs may not be equally effective in changing the behavior of all trainees. According to this line of research, a post hoc hypothesis was made that appropriate participation decision making training may have been differentially effective for managers in the experimental (training) group.

In order to assess this post hoc hypothesis, two types of analyses were conducted. First, the variability of managers difference scores, for managers in the training condition, was assessed and compared at the pretest and the posttest. Second, the correlations between appropriate participation and subordinates' perceptions of each core dimension of climate at the pretest and posttest were assessed and compared, for managers in the experimental group.

The standard deviation of the managers' appropriate participation scores at the pretest was 2.69, while the standard deviation of the managers' scores at the posttest was 5.87, for managers in the training condition. As can be seen from these scores, the standard deviation at the posttest had increased. Tests for homogeneity of variances demonstrated that the variances of the pretest and posttest scores were not equivalent (Cochrans $C = .82$, $p < .05$; Bartlett-Box $F = 20.30$, $p < .05$). That is, there was greater

variability among trained managers at the posttest than at the pretest. Similar tests were applied for the control group; however, no significant differences were found between the variances at the pretest and posttest (Cochrans C = .61, ns; Bartlett-Box F = 2.69, ns).

Correlations between appropriate participation and each dimension of climate at the pretest and the posttest were compared to determine if there were any differences in the strength of the relationships at the pretest and the posttest, for managers in the training condition. In each of these comparisons appropriate participation was represented by the managers' scores on the case set, which assessed how appropriately participative the managers were at the pretest and the posttest.

First, the correlation between appropriate participation and the role stress dimension of climate at the pretest (Figure 6) was compared to the correlation between appropriate participation and role stress at the posttest (Figure 7). A significant difference ($z = 2.49, p < .05$) was found between the pretest correlation (appropriate participation by role stress $r = -.05, p < .05$) and the posttest correlations ($r = -.65, p < .05$); thus, it was concluded that there

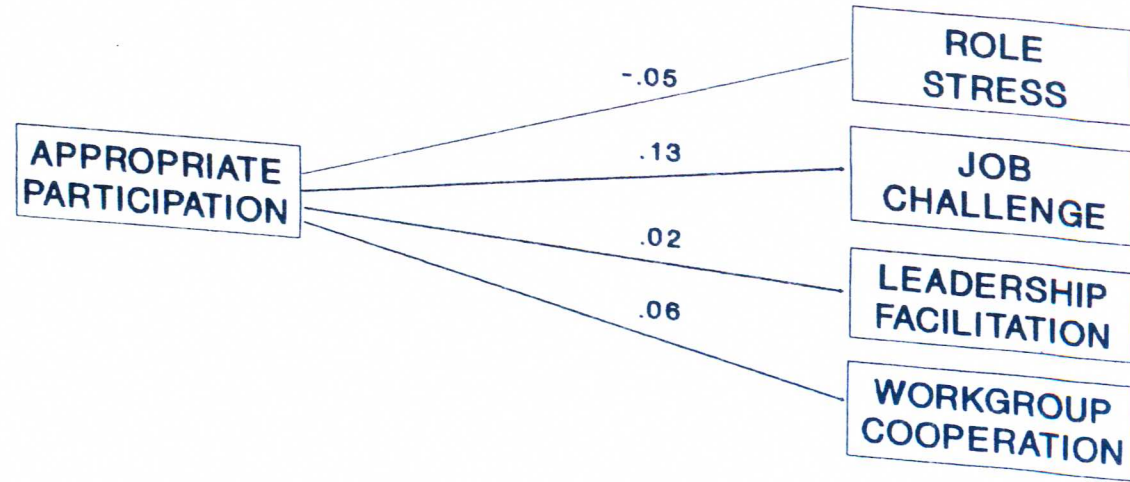


Figure 6.
Pretest model of the relationship between appropriate participation in decision making and the core dimensions of climate for trained supervisors.

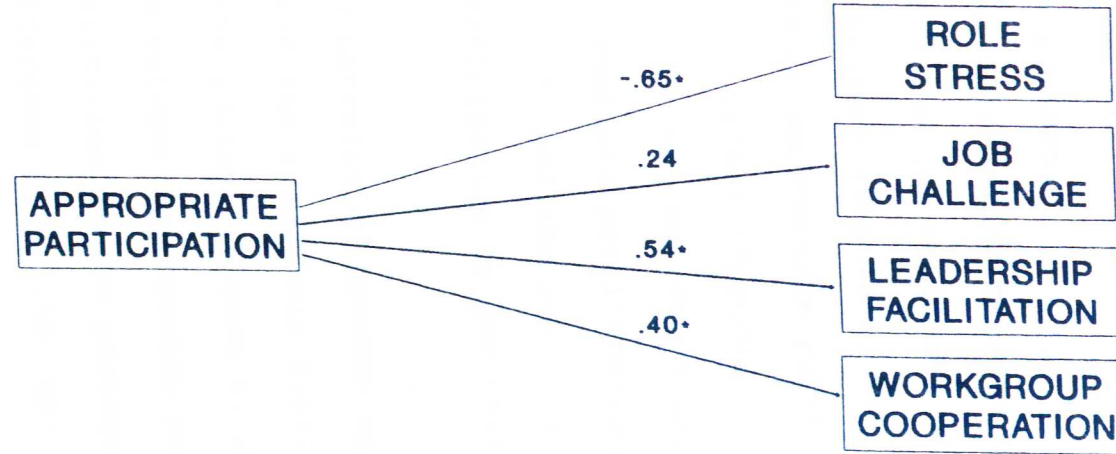


Figure 7.

Posttest model of the relationship between appropriate participation in decision making and the core dimensions of climate for trained supervisors.

was a significant change in the strength of the effect of appropriate participation at the posttest, when compared to the pretest.

Second, the correlation between appropriate participation and the job challenge dimension of climate at the pretest (Figure 6) was compared to the correlation between appropriate participation and job challenge at the posttest (Figure 7). No significant difference ($z = .45$, ns) was found between the pretest correlation (appropriate participation by job challenge at $r = .13$, $p < .05$) and the posttest correlation (appropriate participation by job challenge at $r = .24$, ns).

Third, the correlation between appropriate participation and the leadership facilitation dimension of climate at the pretest (Figure 6) was compared to the correlation between appropriate participation and leadership facilitation at the posttest (Figure 7). A significant difference ($z = 2.15$, ns) was found between the pretest correlation (appropriate participation by leadership facilitation $r = .02$, ns) and the posttest correlation (appropriate participation by leadership facilitation $r = .54$, $p < .05$). Thus, it was concluded that there was a significant increase in the strength

of the relationship for the posttest when compared to the pretest.

Fourth, the correlation between appropriate participation and the workgroup cooperation dimension of climate at the pretest (Figure 6) was compared to the correlation between appropriate participation and workgroup cooperation at the posttest (Figure 7). As graphically represented in Figure 6, the correlation between appropriate participation and workgroup cooperation at the pretest was $r = .06$ (ns), while the correlation at the posttest was $r = .40$ ($p < .05$). There was no significant increase in the strength of the relationship as assessed by testing the two correlations for a significant difference ($z = 1.41$, $p < .05$).

The increase in the standard deviation at the posttest, and the stronger relationship between appropriate participation and two dimensions of climate (the role stress and lack of harmony dimension and the leadership facilitation and support dimension) at the posttest supported the idea of differential effects of training. That is, as training literature would have led one to predict, training may have been more effective for some people than for others.

Threats to the Internal and External Validity of Results. The two group pre- and post- experimental design allows for the assessment of several threats to internal and external validity.

Internal validity. One potential threat to internal validity was differential selection. Differential selection was avoided by random selection of participants for each condition. In the present effort, units were randomly assigned to the experimental and control conditions and tested for significant differences at the pretest. No significant differences were found between groups.

In addition, experimental mortality, the differential loss of participants from each group, was a potential threat to validity. Although the turnover rate of the organization was low, identifying information was collected from participants at T1, T2, and T3, in order to assess mortality. More than 80% of the participants in the experimental and control groups responded to both the pre and post surveys.

Another possible threat to internal validity is maturation, or the effects within the individual due to the passage of time. Due to the relatively short experimental period, a maximum of 8 weeks, maturation was probably not a major threat.

History, or events occurring between T₁ and T₃ other than training, was also a potential threat to internal validity. Several participants were asked about events that may have occurred between T₁ and T₃. No specific events were identified. Given that all units studied here were in the same organization, differential history is unlikely to account for the observed effects.

Therefore, several threats to internal validity, differential selection, experimental mortality, maturation, and history, were assessed or controlled for.

External validity. Reactive effects due to pretesting and an interaction of pretesting and training were possible threats to external validity in this study. Although the original design of the study (Solomon Four Group) allowed for assessment of these threats, the two group experimental design does not allow for direct assessment. However, the lack of change in scores, on the dimensions of climate, in the no training group indicated that the reactive effects were minimal.

Revised model.

Based on the relationships between appropriate participation, the quality of the supervisor-

subordinate relationship, and each dimension of climate discussed earlier in this chapter, a revised model is presented in Figure 8. This revised model presents a summary of the findings in the present study.

A significant relationship is found between appropriate participation and three of the four core dimensions of climate: role stress, leadership facilitation, and workgroup cooperation. These relationships indicate that the subordinates of leaders who were more appropriately participative reported more positive perceptions of three dimensions of climate. These subordinates reported less role stress, more leadership facilitation, and more workgroup cooperation.

A significant relationship was also found between appropriate participation and the quality of the supervisor-subordinate relationship and between the quality of the supervisor-subordinate relationship and role stress. Appropriate participation was positively linked to the quality of the supervisor-subordinate relationship. In contrast, the quality of the supervisor-subordinate relationship was negatively related to the role stress dimension of climate.

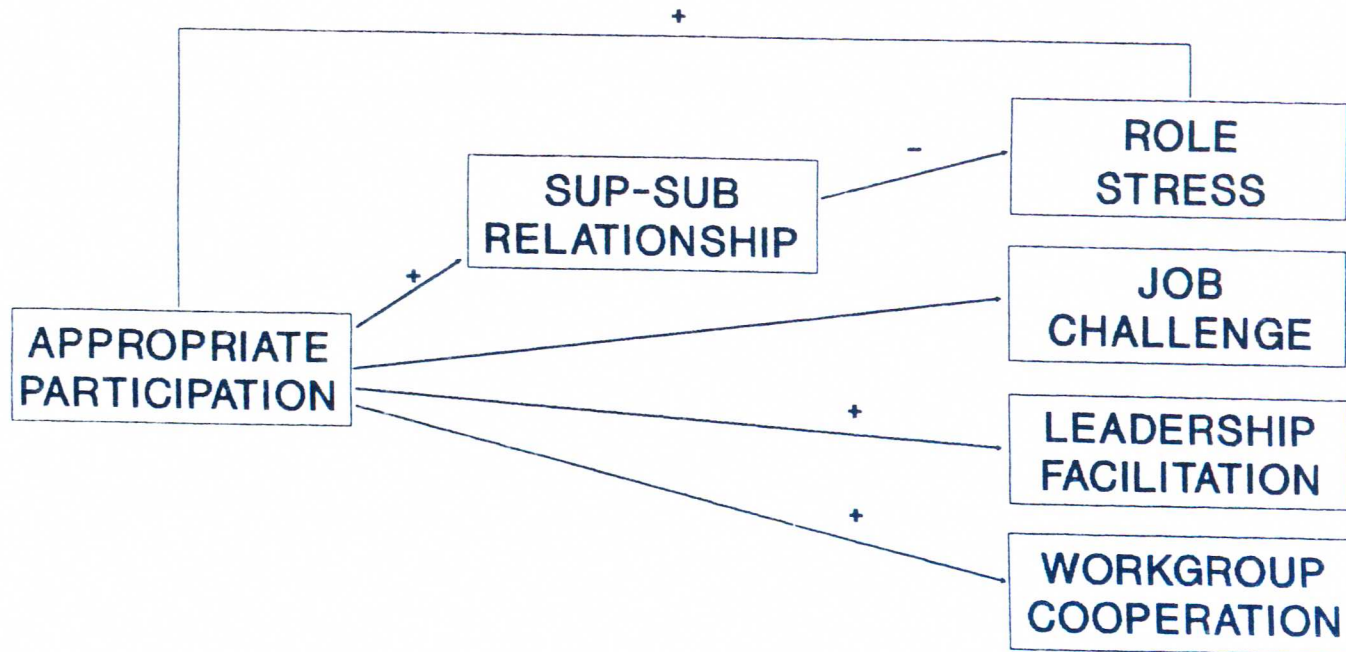


Figure 8.
Revised model of the relationship between appropriate participation, quality of the supervisor-subordinate relationship, and the core dimensions of climate.

Practical Implications

From a practical standpoint, the present work indicated that leadership style may be changed through training. That is, the behavior exhibited by leaders may be modified by training. This change was reflected in an actual change in behavior and in effects the change had on three dimensions of climate. Therefore, it may be possible to change the climate in order to facilitate a change in organizational outcomes, such as satisfaction or productivity.

In addition, the utility of training managers to be more appropriately participative could be assessed. Landy, Farr, and Jacobs (1982) discuss the application of utility concepts to personnel functions, other than personnel selection, including training programs. The current study supports the notion that appropriate participation leads to more positive perceptions of several dimensions of climate. This may benefit the organization in a number of ways. Utility analysis could be instrumental in demonstrating the value of appropriate participation training.

The practical uses of the Leader Member Exchange (LMX) might also be expanded. First, in the present study, the quality of the supervisor-subordinate relationship, as assessed with the LMX, predicted

subordinates' role stress. In practical situations, the LMX might be able to be used as a predictor of subordinates' role stress. Second, the LMX might also be able to be used as a diagnostic tool to indicate supervisors with whom many subordinates indicate having a low quality relationship. In the present study, subordinates whose supervisors had received appropriate participativeness training reported higher quality supervisor-subordinate relationships, than the subordinates of untrained supervisors. Perhaps an LMX indicating low quality relationships could be used as an indicator of a need for appropriate participativeness training.

Future Research

Several avenues for future research are suggested by this study. First, future efforts might address the issue of a micro-climate for participation. As discussed in Chapter 3, the present focus was on macro-climates; however, micro-climates may also exist and be related to many variables. Specifically, there may be key aspects of the environment that comprise a micro-climate that either facilitate or inhibit appropriate participation.

Future efforts might also address the actual changes in leader and subordinate interaction patterns

brought about by training and how these changes affect micro-climates. In addition, different types of changes in interaction may produce changes in specific micro-climates.

Additional research at the macro and microclimate levels, might be conducted to assess the level of change in organizational outcomes, such as satisfaction and productivity, that hypothetically occurs when the climate is changed. Research may indicate differential effects on outcomes, depending upon the dimension of macro climate or the specific micro-climate, that is changed.

VII. CONCLUSION

The primary purpose of the current work was to determine the effect of participative leadership styles on the core dimensions of climate including role stress or harmony in the work environment, job challenge and autonomy, leadership facilitation and support, and workgroup warmth, empathy and cooperation. These core dimensions of climate appear to be applicable to all organizations.

Leadership style was examined as one organizational variable that could have been directly related to one or more of the core dimensions of climate. Literature in psychology and organizational behavior shows significant agreement regarding the potential effect of leadership style on climate, however little empirical work has been conducted in this area. The participativeness of leaders' decision making styles provided a vehicle for the study of leadership style and the core dimensions of climate.

Appropriate participativeness in decision making was found to predict the core dimension of role stress and lack of harmony, leadership facilitation and support, and workgroup cooperation, friendliness, and warmth. The quality of the supervisor-subordinate

relationship, based on vertical dyad linkage theory, was found to predict the core climate dimension of role stress. Thus, it was empirically demonstrated that leadership style has an effect on the climate of the organization.

Appendix A

Data Collection Survey (Administered to Subordinates)

Instructions

Survey Items

[REDACTED]

The attached survey is about your working conditions. Its purpose is twofold. First, we are trying to determine the quality of your working conditions and how they could be improved. Specifically, we are interested in the type of work you do and the way work is assigned. We also want to learn about your relationship with your manager and coworkers. Second, we are interested in the effect of participative management training on your unit or team.

Please be honest in answering the questions. This is your opportunity to tell us about your job. To protect the confidentiality of your questionnaire, we are using the following procedure. Your questionnaire has arrived in an envelope. When you have completed the questionnaire, please put it back in the envelope, and seal the envelope. Return that sealed envelope to [REDACTED] who is coordinating the return of the questionnaires. As soon as he has received all of the completed questionnaires, they will be mailed to me (Pamela Kidder) in the sealed envelopes.

All of the information that you provide is voluntary and confidential. Only group level information will be reported to management. That is, no information will be provided that will allow anyone in your management team to know what your individual responses were. We have asked you to include your name because we wish to match your responses now to your responses in a few weeks. No one at [REDACTED] will review the actual surveys.

In order to get an accurate assessment of working conditions, we have distributed this questionnaire now and will be sending out one more as a follow-up in 4 weeks.

If you have any questions, feel free to call [REDACTED]

If you agree to complete the survey, please sign below and turn to the next page.

Thanks for your cooperation.

[REDACTED]
[REDACTED]
[REDACTED]

Pamela J. Kidder
University of Maryland

Please sign here:

Please answer the following questions. As explained in the letter on the first page, your responses are confidential. No information will ever be presented in a way that would allow you to be identified.

NAME _____ GENDER ____ MALE ____ FEMALE
 SOCIAL SECURITY NUMBER ____ - ____ - ____
 JOB TITLE _____
 HOW MANY YEARS HAVE YOU HELD THIS POSITION AT YOUR ORGANIZATION? ____
 NUMBER OF PEOPLE IN YOUR UNIT OR TEAM: ____
 MANAGERS NAME: _____

PART I

Please tell us how often each of the following events occurs in your unit. Base your answer on the experience of your workgroup, whether it is called a unit or team or another name. On the line before each item:

Write a 1, if this happens **very infrequently**
 Write a 2, if this happens **infrequently**
 Write a 3, if this happens **sometimes**
 Write a 4, if this happens **frequently**
 Write a 5, if this happens **very frequently**

WORK ENVIRONMENT

- ____ 1. People in this unit are held responsible for things over which they have no control.
- ____ 2. People in this unit have to do things in certain ways that really should be done differently.
- ____ 3. People in this unit have to do things that are against their better judgment.
- ____ 4. The written rules about how people should do their jobs do not agree with what they are told to do.
- ____ 5. People in this unit know the standards against which their performance will be evaluated.
- ____ 6. People's job responsibilities are clearly defined.
- ____ 7. People in this unit know what is expected of them.
- ____ 8. No matter how much people in this unit do, there is always more to be done.
- ____ 9. People in this unit have to work a lot of overtime.
- ____ 10. There are not enough people in my unit to get the work done.
- ____ 11. People in this unit show signs of strain.

THE JOB

- ____ 12. The jobs in this unit demand that we work quickly or we won't get the work done.
- ____ 13. The amount of work people have to do keeps them from doing a good job.
- ____ 14. There is conflict among the units in this department.

- ____ 15. When people in this unit start assignments, they are not given enough time to complete them.
- ____ 16. Managers from different units tell us to do different things at the same time.
- ____ 17. People in this unit have opportunities to do creative work on their jobs.
- ____ 18. There is little variety in each of the jobs in this unit.
- ____ 19. The jobs in this unit are not very challenging.
- ____ 20. The jobs in this unit require a lot of skill to do them well.
- ____ 21. There is a lot of repetition within each of the jobs in this unit.
- ____ 22. The jobs in this unit challenge our abilities.
- ____ 23. People in this unit have an opportunity to do a variety of things on their jobs.

MANAGER-SUBORDINATE RELATIONS

- ____ 24. The manager in this unit gives us a lot of authority.
- ____ 25. People in this unit have freedom to decide how to do their jobs.
- ____ 26. In this unit control is assigned so that people have authority within their own work area.
- ____ 27. There are opportunities for independent action in this unit.
- ____ 28. People in this unit have a say about what goes on in their jobs.
- ____ 29. The work done in this unit is important.
- ____ 30. A lot of people are affected by how well the jobs in this unit are done.
- ____ 31. The jobs in this unit are important to the functioning of the rest of the organization.
- ____ 32. People outside of this unit rely on the work done in the unit.
- ____ 33. The manager of this unit does what s/he says s/he'll do.

- | | | | | | |
|--|--------------|--------------|-----------|------------|------------|
| | 1 | 2 | 3 | 4 | 5 |
| | very | infrequently | sometimes | frequently | very |
| | infrequently | | | | frequently |
- ___ 34. The unit manager knows who is doing a good job.
 - ___ 35. People in this unit know who has the authority to make decision about their jobs.
 - ___ 36. The manager of this unit is a straight shooter.
 - ___ 37. The manager in this unit rewards good performance.
 - ___ 38. The manager in this unit rewards people who give their best efforts.
 - ___ 39. The people in this unit trust statements made by our manager.
 - ___ 40. The manager in this unit acts as though everyone must be watched or they will slack off.
 - ___ 41. The manager in this unit is easy to approach.
 - ___ 42. The manager in this unit is friendly.
 - ___ 43. The manager in this unit stresses the importance of meeting work goals.
 - ___ 44. The manager in this unit shows us specific ways to improve our performance.
 - ___ 45. The manager in this unit makes sure we get the things we need to do our jobs.
 - ___ 46. People in this unit have the resources required to achieve their work goals.
 - ___ 47. The manager in this unit offers ideas for solving job-related problems.
 - ___ 48. The manager in this unit sets specific goals for us.
 - ___ 49. The unit manager pays attention to ideas and suggestions from people at this level.
 - ___ 50. The unit manager listens to what we say.
 - ___ 51. The manager in this unit asks for our opinions about problems.
 - ___ 52. The manager in this unit rejects our suggestions.
 - ___ 53. The manager in this unit listens to our problems.
 - ___ 54. The unit manager cares about our problems in the work place.
 - ___ 55. The unit manager is aware of the problems at our level.
 - ___ 56. The unit manager knows what is going on in the workgroup.
 - ___ 57. The manager in this unit can be influenced regarding things we're concerned about.
 - ___ 58. The manager in this unit is successful in obtaining recognition for our successes from higher management.

- | | | | | | |
|--|--------------|--------------|-----------|------------|------------|
| | 1 | 2 | 3 | 4 | 5 |
| | very | infrequently | sometimes | frequently | very |
| | infrequently | | | | frequently |
- ___ 59. The manager in this unit is successful in dealing with higher management.
 - ___ 60. The manager in this unit makes sure we are treated fairly by higher management.
 - ___ 61. The manager in this unit keeps us in good standing with higher levels of management.
 - ___ 62. The manager in this unit lets the workgroup make some decisions.
 - ___ 63. If the manager in this unit doesn't have enough information to make a decision, s/he will ask us for input.
 - ___ 64. The manager in this unit values our input when making decisions.

WORKGROUP RELATIONS

- ___ 65. The people in this unit help each other out.
- ___ 66. People in my unit cooperate to get the job done.
- ___ 67. There is a feeling of cooperation among the people in my unit.
- ___ 68. Communication is good among the people in my unit.
- ___ 69. We work together to solve problems in our unit.
- ___ 70. There is a friendly atmosphere among the people in this unit.
- ___ 71. People in this unit like each other.
- ___ 72. People in this unit are friendly towards each other.
- ___ 73. There is friction among the people in this unit.
- ___ 74. People in this unit trust each other.
- ___ 75. People on this job often think of quitting.
- ___ 76. Most people on this job are very satisfied with the job.

1 2 3 4 5
 very infrequently sometimes frequently very
 infrequently

PART II

For the following 10 questions, use the same scale provided above, but please describe your individual experience within your organization, not your entire workgroup's experience. As you did above, please write the number (1, 2, 3, 4, or 5) on the line beside each statement.

- _____ 1. Generally speaking, I am very satisfied with this job.
- _____ 2. I frequently think of quitting this job.
- _____ 3. I am generally satisfied with the kind of work I do in this job.
- _____ 4. I feel emotionally drained from my work.
- _____ 5. I feel used up at the end of the workday.
- _____ 6. I feel fatigued when I get up in the morning.
- _____ 7. I feel burned out from my work.
- _____ 8. I feel frustrated by my job.
- _____ 9. I feel I'm working too hard.
- _____ 10. I accomplish many worthwhile things in this job.

PART III

For the following 7 questions, please write the number (1, 2, 3, or 4) in the blank beside the question that best describes your individual experience in your organization.

- _____ 1. Do you usually feel that you know where you stand ... do you usually know how satisfied your immediate supervisor is with what you do?
 1) Never know where I stand 3) Usually know where I stand
 2) Seldom know where I stand 4) Always know where I stand
- _____ 2. How well do you feel that your immediate supervisor understands your problems and needs?
 1) Not at all 3) Well enough
 2) Some but not enough 4) Completely
- _____ 3. How well do you feel that your immediate supervisor recognizes your potential?
 1) Not at all 3) As much as the next person
 2) Some but not enough 4) Fully
- _____ 4. Regardless of how much formal authority your immediate supervisor has built into his or her position, what are the chances that he or she would be personally inclined to use power to help you solve problems in your work?
 1) No chance 3) Probably would
 2) Might or might not 4) Certainly would

- _____ 5. Again, regardless of the amount of formal authority your immediate supervisor has, to what extent can you count on him or her to "bail you out" at his or her expense when you really need it?
 1) No chance 3) Probably would
 2) Might or might not 4) Certainly would

- _____ 6. I have enough confidence in my immediate supervisor that I would defend and justify his or her decisions if he or she were not present to do so.
 1) Probably not 3) Probably would
 2) Maybe 4) Certainly would

- _____ 7. How would you characterize your working relationship with your immediate supervisor?
 1) Less than average 3) Better than average
 2) About average 4) Extremely effective

COMMENTS:

If there is anything you wish to add, please do so. All comments will be read.

Appendix B

Development of Items to Represent Core Dimensions of Climate:

Instructions

Climate Dimension Descriptions

Items for Subject Matter Expert Judgment

Thanks for helping with the current effort.

In order to develop the best possible measure of climate for my study, I am developing the survey using individual and group ratings. First, I have asked five people, like yourself, to rate the items on an individual basis. Second, I will be asking you and the other four raters to meet in a group to discuss the ratings. When there is 80% agreement on an item, it will be retained for use in the measure.

Most of these items were taken directly from Jones and James (1979) or rewritten (by me) from Jones and James (1979). Please be very critical. You are the final judge of whether an item should be retained.

Attached is a booklet. Each booklet contains a description of the core dimensions of climate and items for rating. Please review the core dimensions of climate. You will find that there are four dimensions, each with several sub-components. All of my hypotheses are at the dimension level; however, you also need the sub-components in order to understand what is encompassed by each dimension.

After familiarizing yourself with each dimension, please turn to the items. There are two blank lines beside each item. On the first line, please put the dimension number to which you believe the item refers (1 to 4). On the second line please put the dimension component to which you think the item refers (a,b,c, . . .). If an item is unclear, just mark it with an x. A sample item follows.

_____ Management is unaware of our problems.

These are the ratings the item would receive, if you believe that it represents dimension 3 (Leadership facilitation and support), component c (Management concern and awareness).

Please complete this process for all of the items. If you have any questions, don't hesitate to contact me.

In their final use, the items will be used with a Likert type scale, 1 = very infrequently and 5 (or 6) = very frequently. Respondents will be instructed to respond to the items as the people in their workgroup have experienced these phenomena.

COMPONENTS OF THE FOUR DIMENSIONS OF CLIMATE

DIMENSION 1. ROLE STRESS AND LACK OF HARMONY

In general this dimension concerns the workers' roles in the workplace and how their roles mesh with others' roles. The dimension is comprised of the following components.

a. **ROLE CONFLICT:** extent to which there is discord among internal demands (conflicting priorities within the worker), external demands (conflicting priorities from the organization), or discord among external demands and internal demands

b. **ROLE AMBIGUITY:** extent to which workers' lack knowledge of the expectations of them.

c. **ROLE OVERLOAD:** extent to which there are too many tasks that must be accomplished or too much work to do in the allotted time.

d. **SUBUNIT CONFLICT:** extent to which there are incompatible demands made by different units within an organization.

DIMENSION 2. JOB CHALLENGE AND AUTONOMY

In general, this dimension deals with the jobs.

a. **JOB CHALLENGE AND VARIETY:** extent to which the jobs challenge the workers and allow the workers to perform a variety of tasks, as opposed to a single, routinized task.

b. **JOB AUTONOMY:** extent to which workers have control over their own job or are allowed to work independently.

c. **JOB IMPORTANCE:** extent to which workers' output affects others or is important to others.

DIMENSION 3. LEADER FACILITATION AND SUPPORT

In general this dimension deals with the way the manager interacts with his/her subordinates and higher management.

a. **LEADER TRUST AND SUPPORT:** extent to which the manager exhibits trust of the workers, including their work ethics and quality of performance, and offers socioemotional support (as opposed to material support).

b. LEADER GOAL FACILITATION: extent to which the manager assists the subordinates in setting goals and achieving those goals, including the provision of needed materials.

c. MANAGEMENT AWARENESS AND CONCERN/PSYCHOLOGICAL INFLUENCE: extent to which management cares about the well being of the workers and the influence or power that the workers have over the managers.

d. HIERARCHICAL INFLUENCE: the extent to which the manager is able to influence or has power over higher management.

DIMENSION 4. WORKGROUP COOPERATION, FRIENDLINESS, AND WARMTH

In general this dimension deals with the interpersonal relations among the workgroup members.

a. WORKGROUP COOPERATION: extent to which there is sharing and cooperation among workers.

b. WORKGROUP FRIENDLINESS AND WARMTH: extent to which the workers like one another and express positive affect toward one another.

Remember, workgroup members will be asked to rate the frequency with which each of the following occurs, from 1 = very infrequently to 5 (or 6) = very frequently, based on their perceptions of their workgroup.

- ____ 1. There is a friendly atmosphere among the people in this workgroup.
- ____ 2. Many different people tell us what we should be working on.
- ____ 3. People in this workgroup like each other.
- ____ 4. The manager of this unit is a straight shooter.
- ____ 5. The manager of this unit does what s/he says s/he'll do.
- ____ 6. People in this unit have opportunities to do creative work on their jobs.
- ____ 7. The unit manager knows who is doing a good job.
- ____ 8. People in the unit have to do things in certain ways that really should be done differently.
- ____ 9. There is little variety in the jobs in this unit.
- ____ 10. People in this unit have to do things that are against their better judgment.
- ____ 11. The jobs in this unit require a wide range of skills.
- ____ 12. The jobs in this unit are not very challenging.
- ____ 13. People in this unit know who has the authority to make a decision about their jobs.
- ____ 14. No matter how much people in this unit do, there is always more to be done.
- ____ 15. The unit manager pays attention to ideas and suggestions from people at this level.
- ____ 16. People in this unit have to work a lot of overtime.
- ____ 17. There are not enough people in my unit to get the work done.
- ____ 18. The manager in this unit emphasizes high standards of performance.
- ____ 19. The manager in this unit stresses the importance of meeting work goals.
- ____ 20. People in the unit show signs of strain.
- ____ 21. The jobs in this unit demand that we work quickly or we won't get the work done.
- ____ 22. There are friendly and cooperative relationships among the different units in this department.
- ____ 23. There is poor communication among the units in this department.

- ____ 24. People in this unit know the standards against which their performance will be evaluated.
- ____ 25. The unit manager listens to what we say.
- ____ 26. The unit manager resists meaningful change.
- ____ 27. The jobs in this unit require a lot of skill to do them well.
- ____ 28. People are informed about things they need to know regarding their work.
- ____ 29. People in this unit have freedom to decide how to do their jobs.
- ____ 30. In this unit control is assigned so that people have authority within their own work area.
- ____ 31. It takes longer than necessary to coordinate important actions with other units.
- ____ 32. There are opportunities for independent action in this unit.
- ____ 33. The work done in this unit is important.
- ____ 34. The manager in this unit asks for our opinions about problems.
- ____ 35. The manager in this unit rejects our suggestions.
- ____ 36. The manager in this unit is successful in obtaining recognition for our successes from higher management.
- ____ 37. The jobs in this unit involve interesting problems.
- ____ 38. The people in this unit trust statements made by our manager.
- ____ 39. The amount of work people have to do keeps them from doing a good job.
- ____ 40. The manager in this unit listens to our problems.
- ____ 41. There is a lot of repetition in the jobs in this unit.
- ____ 42. The jobs in this unit challenge our abilities.
- ____ 43. The manager in this unit rewards good performance.
- ____ 44. The people in this workgroup help each other out.
- ____ 45. The unit manager cares about our problems in the work place.
- ____ 46. The manager in this unit rewards people who give their best efforts.
- ____ 47. A lot of people are affected by how well the jobs in this unit are done.
- ____ 48. The manager in this unit shows us specific ways to improve our performance.
- ____ 49. People in this unit don't have enough work to do.

- ____ 50. The manager in this unit gives us a lot of authority.
- ____ 51. The manager in this unit makes sure we get the things we need to do our jobs.
- ____ 52. People in this workgroup are friendly towards each other.
- ____ 53. The way things are planned here, everyone is getting in each other's way.
- ____ 54. People in my workgroup cooperate to get the job done.
- ____ 55. People in this unit have the resources required to achieve their work goals.
- ____ 56. The manager in this unit offers ideas for solving job-related problems.
- ____ 57. The unit manager is aware of the problems at our level.
- ____ 58. People in this unit have an opportunity to do a variety of things on their jobs.
- ____ 59. The unit manager knows what is going on in the workgroup.
- ____ 60. People in this unit are held responsible for things over which they have no control.
- ____ 61. There is conflict among the units in this department.
- ____ 62. People in this unit have a say about what goes on in their jobs.
- ____ 63. The jobs in this unit are important to the functioning of the rest of the organization.
- ____ 64. The manager of this unit treats us with respect.
- ____ 65. The manager in this unit can be influenced regarding things we're concerned about.
- ____ 66. The written rules about how people should do their jobs do not agree with that they are told to do.
- ____ 67. The manager in this unit is successful in dealing with higher management.
- ____ 68. The manager in this unit encourages us to think for ourselves.
- ____ 69. When people in this unit start assignments, they are not given enough time to complete them.
- ____ 70. The manager in this unit acts as though everyone must be watched or they will slack off.
- ____ 71. The manager in this unit makes sure we are treated fairly by higher management.
- ____ 72. People outside of the unit rely on the work done in the unit.
- ____ 73. There is a feeling of cooperation among the people in my workgroup.

- _____ 74. The manager in this unit changes our job duties without talking it over with us.
- _____ 75. The manager in this unit keeps us in good standing with higher levels of management.
- _____ 76. Communication is good among the people in my workgroup.
- _____ 77. People's job responsibilities are clearly defined.
- _____ 78. People have a chance to do different jobs in this unit.
- _____ 79. The manager in this unit is easy to approach.
- _____ 80. The manager in this unit is friendly.
- _____ 81. People in this unit know what is expected of them.
- _____ 82. We work together to solve problems in our work group.
- _____ 83. The manager in this unit sets specific goals for us.
- _____ 84. The overall objectives and goals of this unit are clearly defined.
- _____ 85. People in this workgroup trust each other.
- _____ 86. In this unit people decide how their jobs should be done.
- _____ 87. There is friction among the people in this workgroup.
- _____ 88. The manager in this unit sets a good example by his / her own behavior.

Appendix C

Manipulation Check:

Measure of Manager Learning

Manager Case Set 1

Manager Case Set 2

Case Set I - Case # 27

Seven product lines involving four of your eight workers will have to be disrupted to satisfy an emergency request from an important client. You are the supervisor and you naturally wish to disrupt these lines as little as possible. No additional personnel are available, and time limits to complete the new project are restrictive.

The plant is new and is the only industrial plant in an economically depressed area dominated by farming. You can count on everyone pulling his or her weight. Wages in the plant are substantially above farm wages, and their jobs depend on the profitability of this plant --- the first new industrial development in the area in the last 15 years.

Your subordinates are relatively inexperienced, and you have been supervising them more closely than you might if the plant had been in a well-established industrial area and your subordinates more experienced. The changes involve only standard procedures and are routine to someone of your experience. Effective supervision poses no problems. However, the rescheduling entails some decisions which could significantly affect the possibility of cost overruns on the new product. Your problem is how to reschedule the work so as to meet this emergency within the time limit, with minimum disruption to the existing product lines.

Case Set I - Case # 29

You have recently been transferred to a new job assignment in a new foreign location. You find that each of your subordinates has the title "Assistant Accountant," with no clearly defined allocation of responsibility. This situation has been workable in the past because your predecessor spent a great deal of time supervising their work.

One long-standing problem is the processing of accounts for the many small, often one-person businesses which supply you with the carvings and other native products you export. Your predecessor attempted to deal with these problems by mail, which was ineffective, and you have decided that it would be better for one of your subordinates to visit the firms concerned and sort out their difficulties in person.

The problem is which subordinate to use. Transportation is no problem, as they all ride to work in cars or on motor scooters and these calls would all be within 30 miles of the office. Bad business practices with respect to these small firms have been cutting heavily into profits. It is very important that whoever is chosen understands all procedures involved in the various business transactions concerned and can explain them to many different kinds of people.

The most senior accountant has been with the firm for 18 years, the second for 14 years, and the least senior for three years. All three are natives, but the more senior ones are traditional in their outlook, highly deferential to you, and would naturally expect the most senior to receive the assignment. You know that the least senior accountant has attended university abroad, and, as a result, might show more initiative and be less dependent upon supervision. This person is also more likely to believe that the position should be assigned on the basis of merit rather than seniority.

Whoever is given the job will be given an expense account. This is considered a symbol of high status and is of financial benefit as the company will cover the costs of operating the car or scooter.

Finally, whoever is chosen will be dependent upon the other two subordinates for information as to which firms to call on. You could supervise this, but your other commitments at the present time rule this out.

You have given the matter careful thought and it appears clear to you that one of the candidates would be much more effective than the other two in this position.

Case Set II - Case # 3

You are a department supervisor in a research and development department currently undergoing expansion. Because of the increased number of projects your department is responsible for, it is now necessary to revise the list of research equipment and supplies to be ordered as part of next year's budget.

Fortunately, the problem is relatively straightforward. You know the nature of the research projects, and you have the historical data needed to determine the type of equipment and supplies required. Given these variables it is a simple matter to calculate the specific type and quantity of equipment and supplies for the budget.

It is important that your estimates be reasonably accurate. Underestimates result in under supply of equipment and supplies, which take substantial time to approve and order after the year has begun. Overestimates result in unused equipment and surplus supplies that may not be able to be used in future years.

Your staff has been cooperative in the past. Minor discrepancies in the availability of supplies have never hampered their productivity. You know from past experiences that your staff members tend to exaggerate their requirements for equipment and supplies. They are always boasting that they have plenty of state-of-art equipment and never run out of necessary supplies; unfortunately, gross waste and extra costs result from unneeded equipment and supplies.

Appendix D

Manipulation Check:

Measure of Transfer of Training

Subordinate Case 1

Subordinate Case 2

SUBORDINATE CASE 1

There is a problem with the equipment in your workgroup. At any given time, several pieces of equipment are down, so you can't work. Your supervisor is concerned about the problem and is trying to find out why equipment is going down so often.

Your supervisor realizes that this is a complicated problem because production falls when everyone isn't able to work. You and your coworkers all have your own ideas about what can be done to solve the problem. As a matter of fact, each of you is pretty sure that you know how to solve this problem.

How will your supervisor make a decision about how to cut down on equipment failures?

Please circle the number of the statement that is closest to how you believe your supervisor would make the decision outlined above.

1. My supervisor would make the decision alone, without consulting anyone else.
2. My supervisor would ask us questions about the problem, without telling us anything about the problem, and then make the decision alone.
3. My supervisor would explain the problem to some of us individually (not as a group), gather our opinions, and then make the decision alone.
4. My supervisor would bring our group together, explain the problem, gather opinions, and then make the decision alone.
5. My supervisor would call us together and as a group, we would make the decision (together).

SUBORDINATE CASE 2

There are a number of safety hazards in your department. Several of your coworkers have been injured because of violations of the the safety guidelines established by the government and "midwestern utility" company. Your workgroup supervisor is responsible for safety in your department. Your supervisor is concerned that unless a solution is found quickly, someone could be seriously hurt.

Your supervisor realizes that this is a complicated problem because everyone needs to work at making the environment safe. You and your coworkers all have your own ideas about what can be done to solve the problem and you've let your supervisor know this. As a matter of fact, each of you is convinced that you have the best solution to the problem.

How will your supervisor make a decision about how to make your work safer?

Please circle the number of the statement that is closest to how you believe your supervisor would make the decision outlined above.

1. My supervisor would make the decision alone, without consulting anyone else.
2. My supervisor would ask us questions about the problem, without telling us anything about the problem, and then make the decision alone.
3. My supervisor would explain the problem to some of us individually (not as a group), gather our opinions, and then make the decision alone.
4. My supervisor would bring our group together, explain the problem, gather opinions, and then make the decision alone.
5. My supervisor would call us together and as a group, we would make the decision (together).

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