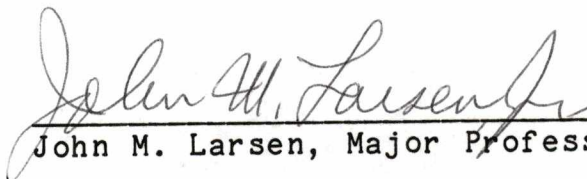
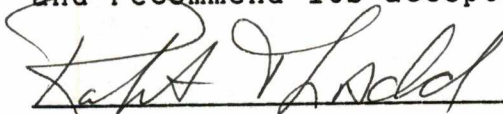
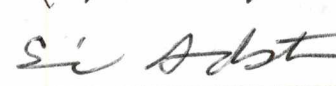
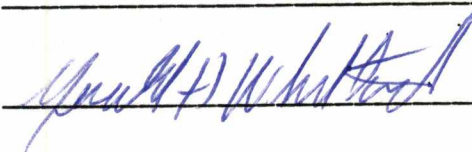


To the Graduate Council:

I am submitting herewith a dissertation written by William A. Johnson entitled "Climates in Organizations: Using Psychological and Collective Climates to Explain the Organization Structure-Job Satisfaction Relationship." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Industrial and Organizational Psychology.


John M. Larsen, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:


The Graduate School

CLIMATES IN ORGANIZATIONS:
USING PSYCHOLOGICAL AND COLLECTIVE CLIMATES
TO EXPLAIN THE ORGANIZATION STRUCTURE-
JOB SATISFACTION RELATIONSHIP

A Dissertation
Presented for the
Doctor of Philosophy
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The University of Tennessee, Knoxville

William A. Johnson
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ABSTRACT

The concept of climate in organizational settings has received widespread attention in recent years despite admonitions and concerns about the utility of such a construct. The purpose of this paper was to explore two of the most pressing climate issues: the role of climate as an intervening variable between organization structure and job satisfaction, and the level at which psychological climate scores could be aggregated to represent collective climates in organizations.

An initial set of analyses was directed towards the discovery and measurement of underlying dimensions of work climate. A principal components analysis of the climate perceptions of 912 employees of an insurance organization revealed 11 components of climate which cross-validated against an independent sample of 1,218 employees. These 11 empirically-derived climate components could be generalized with a high degree of association across widely diverse jobs, positions, and geographical areas.

A second set of analyses examined the interrelationships among organization structure, work climate, and job satisfaction. Canonical analyses indicated that organization structure was significantly related to job satisfaction (Canonical R-Squared=.28) and

work climate (Canonical R-Squared=.42) and that climate was also highly associated with job satisfaction (Canonical R-Squared=.62). When the influence of climate was statistically removed from the structure-satisfaction relationship, a 16% decrease in prediction resulted, providing initial support for the premise that climate functions as an intervening variable between organization structure and job satisfaction.

Mixed findings from the final set of analyses argued against the aggregation of psychological climate scores to represent collective climates. Although reliable and significant mean score differences were exhibited between structurally-different employee groups, there was relatively little agreement among employees within these collectives regarding their perceptions of climate.

Several implications were drawn out on the basis of this study's results. These included conceptual implications regarding the underlying components of work climate, the role of collective climates in organizations, and the potential of climate as an important construct linking organizational and psychological theory and research. In addition, practical suggestions were made for improving management of the work environment, organizational intervention strategies, and employee communication processes.

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I. LITERATURE REVIEW

The concept of climate has occupied a popular position in both the industrial-organizational psychology and organizational behavior literature over the past twenty years. An indication of this popularity is best evidenced by the appearance of at least twelve separate reviews of the climate literature since the mid-1960's (Campbell, Dunnette, Lawler, & Weick, 1970; Field & Abelson, 1982; Forehand & Gilmer, 1964; Hellriegel & Slocum, 1974; James & Jones, 1974; Joyce & Slocum, 1979; Naylor, Pritchard, & Ilgen, 1980; Payne & Pugh, 1976; Powell & Butterfield, 1978; Schneider, 1975, 1983; Woodman & King, 1978). It also appears that climate research is still going strong even though each review has invariably criticized the conceptualization, measurement, and analysis of the climate construct.

Currently, most of the discussion and criticism in the climate literature has revolved around three major issues. These consist of the proper unit of theory for climate, the most appropriate level for the measurement and aggregation of perceptual climate measures, and the role of climate in psychological and organizational theory.

The Unit of Theory for Climate

One of the most important conceptual issues in climate research has dealt with the "ownership" of climate; that is, the proper unit of theory for climate research. Discussions revolving around the proper unit of theory for climate have split researchers into two distinct groups: those who claim that climate is a property of organizations, and those who advocate that climate is a purely psychological or individual attribute.

Climate as an Organizational Attribute

The idea that climate operated as an organizational property was probably first proposed by Forehand and Gilmer (1964) who defined organizational climate as:

the set of characteristics that describe an organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over time, and (c) influence the behavior of people in the organization (p. 362).

A somewhat similar view was expressed by Tagiuri and Litwin (1968) although they felt that Forehand and Gilmer's (1964) definition was deficient in terms of individual perceptions. They referred to climate as an overall quality of an organization's environment that influenced its members through their experiences with a particular set of the organization's characteristics.

Thus, Tagiuri and Litwin (1968) proposed that climate represented an organization as its members experience it in a holistic, subjective sense.

Pritchard and Karasick (1973) also redefined organizational climate to include the perceptions of its members. They viewed climate as:

a relatively enduring quality of an organization's internal environment distinguishing it from other organizations; (a) which results from the behavior and policies of members of organizations, especially top management; (b) which is perceived by members of the organization; (c) which serves as a basis for interpreting the situation; and (d) acts as a source of pressure for directing activities (p. 126).

Payne and Pugh (1976), however, took issue with the proposition that climate is based solely in terms of its member's perceptions. Although they acknowledged that climate may be relatively subjective due to the nature of perceptions, they felt that it could be measured through objective characteristics of the organization's environment. Regardless of whether climate was measured objectively or perceptually, most early climate researchers tended to regard climate as an organizational property.

Criticism of climate as an organizational property came under heavy attack in the 1970's. Hellriegel and Slocum (1974) indicated a dissatisfaction with objective measures of climate by claiming that they were too far removed from individual behavior and were difficult to

interpret in relation to each other and organizational behavior. James and Jones (1974) made the point more forcefully by saying that organizational climate operationalized in this manner was synonymous with organizational situation and offered little more than a semantically appealing "catch all" term. In their view, climate factors operationalized in this manner were best considered under other current concepts such as organizational context and organizational structure.

By far the most criticism has been leveled at the use of perceptual measures to represent climate as an organizational phenomenon. Much of this criticism has been generated from a seminal article by Guion (1973). In it, he lambasted the practice of administering a climate questionnaire to organizational members, calling the summated responses "organizational climate," and then referring to climate as an organizational main effect. When climate was measured in this manner, he concluded that:

The idea of a "perceived organizational climate" seems ambiguous; one can not be sure whether it implies an attribute of the organization or of the perceiving individual (p. 120).

He also went on to criticize the widespread use of perceptual measures instead of a more difficult yet appropriate attempt to study or manipulate organizational attributes more directly. He stated that the use of

perceptual climate measures was "more a function of methodological convenience than a deliberate intention to move to a different construct" (p. 121).

Guion (1973) further suggested that if climate was to be considered an organizational attribute but measured perceptually, then the accuracy of individual perceptions should be subjected to a construct validation. This would be demonstrated in two ways: (1) by validating perceptions against objective, external measures of the situation, or (2) by imposing a criterion of consensus of perceptions whereby an item would be considered an organizational attribute only if there was 100% agreement among organization members. Stipulation of these criteria have raised several important points which will be discussed later in this paper.

Guion (1973) was so highly critical of the lack of construct validity that he accused climate researchers of reinventing the wheel; that is, measuring the same old constructs under new names. As an example, he took issue with a study by Pritchard and Karasick (1973) who administered a climate survey to 76 managers from two organizations and discovered that climate was more highly related to job satisfaction than it was to job performance. Guion (1973) felt that their perceptual climate measures reflected individual attributes such as

employee attitudes and job satisfaction more so than any organizational attributes. He concluded that:

when the construct used is perceived organizational climate, the Pritchard and Karasick hypothesis reduces to "job satisfaction measured by one method is a function of job satisfaction measured by another one," and it is not a suprising finding that one measure of job satisfaction is more closely related to another than either is to an operationally independent measure of job performance (Guion, 1973, p. 124).

As further evidence that perceived climate researchers were reinventing the satisfaction wheel, Guion (1973) referred to a study conducted by Johannesson. Johannesson (1971, 1973) administered a measure of perceived organizational climate, the Job Descriptive Index (JDI), and the Science Research Associates Employee Attitude Survey (SRA) to 499 employees in one organization. He then performed a cluster analysis of these items and found considerable overlap between the JDI, the SRA, and perceived organizational climate thus leading him to conclude that they were all measuring the same individual construct.

Needless to say, Guion's (1973) and Johannesson's (1973) criticisms set off a wave of research aimed at delineating the conceptual and empirical boundaries between perceived organizational climate and job satisfaction. Some of this controversy will be dealt with in a later section although a thorough discussion of this

issue is beyond the scope of this paper and can be found elsewhere (Downey, Hellriegel, Phelps, & Slocum, 1974; Johannesson, 1973; Joyce & Slocum, 1979; Lafollette & Sims, 1975; Lawler, Hall, & Oldham, 1974; Payne, Fineman, & Wall, 1976; Newman, 1977; Schneider & Snyder, 1975). When the controversy finally subsided, it appeared that there were indeed distinct conceptual and empirical differences between both climate and satisfaction although climate researchers were now attuned to the problems inherent in using perceptual measures to describe organizational attributes.

Climate as an Individual Attribute

The idea that climate operates on an individual as opposed to an organizational level was first developed in a series of articles by Schneider and his associates (Schneider, 1972, 1973, 1975; Schneider & Bartlett, 1968, 1970; Schneider & Hall, 1972). These authors also viewed climate as a set of global perceptions which individuals held regarding their work environment. Where they differed from other researchers was that, even though they saw climate to be based on both individual and organizational characteristics, they viewed it solely as a property of the perceiving individual. They proposed that climate perceptions were the result of a psychological

process of concept formation where an individual attaches meaning to various organizational attributes. These climate perceptions then function as a frame of reference for guiding individual attitudes and behavior. Therefore, they disagreed with other climate researchers who thought that common, or shared climate perceptions among organization members meant that climate could be considered an organizational attribute. Although they felt that shared climate perceptions may be important for predicting the behavior of many individuals "what is psychologically important to the individual must be how he perceives his work environment, not how others may choose to describe it" (Schneider & Bartlett, 1970, p. 510).

Numerous other researchers now view climate as an individual phenomenon and it appears that those adopting the organization as the unit of analysis are now in the minority (Payne & Pugh, 1976). For example, Naylor et al. (1980) view climate to be the result of an individual judgment process where a class of traits is attributed to an entity outside of the individual. Likewise, Joyce and Slocum (1979) have convincingly argued that, when dealing with perceptions, climates "are always psychological in nature regardless of what division, group, or other unit of the organization they refer to" (p. 324).

One of the most significant steps towards advancing climate theory and research was taken by James and Jones (1974). After reviewing many of the same arguments as presented in this paper, they proposed a reconceptualization of the climate construct. What they recommended was:

that a differentiation be made between climate regarded as an organizational attribute and climate regarded as an individual attribute. When regarded as an organizational attribute, the term organizational climate appears appropriate. When regarded as an individual attribute, it is recommended that a new designation such as "psychological climate" be employed (p. 1108).

This psychological climate / organizational climate distinction has gained widespread acceptance since James and Jones' (1974) article. Basically, psychological climate has come to represent the meaning an individual attaches to his or her work environment while organizational climate represents the summated, averaged meanings attached to a particular organizational feature by its members (Schneider & Reichers, 1983).

One of the methodological benefits to be realized when climate is considered as an individual property is that the use of perceptual measures is now appropriate. The accuracy of perceptions or the requirement that perceptions be validated against objective, external criteria are not issues when climate is viewed as an individual attribute. This is because what is important

is an individual's perception of the situation and not the actual objective situation itself (Guion, 1973). In a sense, perceptions are "real" to the perceiving individual and he or she will react to and be influenced by these perceptions. In addition, the unit of analysis is now the individual and individual data such as job performance, satisfaction, and attitudes can be compared with climate measures without committing the "ecological fallacy" (Hannan, 1971) which occurs when switching from one unit of analysis to another.

Perhaps the most important benefit of viewing climate as an individual attribute is the abundance of psychological theory and research which is available to guide further refinement and development of the climate construct. Joyce and Slocum (1979) have shown how Kurt Lewin's (1936) ideas of life space, Henry Murray's (1938) theories of personology, and Husserl's (1931) components of phenomenology provide a foundation for a theory of climates in organizations. Naylor et al. (1980) propose climate as a set of environmental contingencies operating in an expectancy theory of behavior in organizations while Schneider and Reichers (1983) draw heavily on the symbolic interactionist perspective of George Herbert Mead (1934) to explain the origins of climate. Also, in an excellent paper by James, Hater, Gent, and Bruni (1978), the authors

have drawn a parallel between climate theory and both interactional psychology and social learning theory. In doing so, they have encouraged climate researchers to develop more sophisticated theory and empirical designs to take into account the multivariate and dynamic processes underlying climate perceptions. To the best of this author's knowledge, no well-defined theory or rationale has been advanced which views organizational climate from the perspective of organizational theory.

Summary and Conclusions

The concept of climate was born when researchers came to believe that a certain set of organizational characteristics served to influence the behavior of individuals in the organization. Most of these early researchers viewed climate as a property of the organization and, hence, referred to the construct as "organizational climate."

However, the view of climate as an organizational attribute generated a good deal of criticism in the 1970's. When climate was conceived of as a set of objective organizational characteristics, it was attacked as being a new name for existing situational variables, such as organizational structure and context. When it was conceived of as a set of organizational characteristics as

experienced and reported through its members, it came under attack as being an individual attribute due to the nature of individual perceptions. In addition, when the aggregation of member perceptions were used to represent climate as an organizational property, exceedingly stringent conditions were proposed as necessary before this could be legitimately accomplished. These conditions consisted of the validation of climate perceptions against external, objective criteria and the stipulation that absolute agreement exist among organization members regarding their perceptions of the work environment.

Due to the logic behind these criticisms, the majority of current researchers now view climate as an individual attribute and sometimes refer to the construct as "psychological climate" to distinguish it from the idea of climate as an organizational attribute. Climate is now widely viewed as a psychological process whereby the individual attempts to apprehend order and assign meaning to the work environment through perceptions of climate. Further, climate is distinguished from other psychological concepts such as job satisfaction and work attitudes because of its emphasis on description as opposed to evaluation of the work situation.

Once the individual was accepted as the appropriate unit of theory for climate, methodological issues became

secondary and an expanse of theory began evolving to guide further development and refinement of the climate construct.

The Role of Climate in Psychological and Organizational Theory and Research

Much of the confusion surrounding the appropriate unit of theory for climate has been paralleled by research aimed at understanding the appropriate role of climate in psychological and organizational theory. To date, the climate construct has been operationalized and examined from the perspective of a dependent variable, an independent variable, and an intervening variable.

Climate as a Dependent Variable

Researchers who have employed climate as a dependent variable believe that the construct is caused, or is the result of, factors which operate outside of the individual. Into this category fall organizational theorists who view climate as an organizational property and contend that certain organization structure and process variables will interact to produce an organization's climate. Also in this category is a number of other researchers who believe that climate is shaped by

unique experiences outside of the organization, such as biographical influences, and as such may be altered by new experiences. Finally, there are those who speculate that climate is caused by both organizational and individual experiences and have thus chosen to investigate the relative influence of both factors as climate determinants. It appears that most researchers have adopted the perspective of climate as the result of external factors since the majority of studies have examined climate as a dependent variable (Hellriegel & Slocum, 1974; Joyce & Slocum, 1979).

Organizational structure variables have been repeatedly examined to determine their influence on climate perceptions. For example, both Stimson and LaBelle (1971) and George and Bishop (1971) have found that the degree of centralization and bureaucratization will affect the climate perceptions of teachers in educational organizations. In a survey of 258 elementary school teachers in Paraguay, Stimson and LaBelle (1971) reported that teachers perceived a "closed" climate when they taught in schools marked by a highly structured and centralized administration. Similarly, George and Bishop (1971) have discovered that teachers who operate in school systems that are smaller and less bureaucratic (in terms of rules, regulations, and use of formal structure for

decision making) tend to describe their organization as having a more "open" climate than do teachers in a more bureaucratic school system.

One's position in the organization structural hierarchy has also been examined to gauge its effect on climate. For instance, Schneider and Bartlett (1970) surveyed 126 managerial and 386 agency personnel in a life insurance organization and discovered a lack of overall organizational perceptual agreement but that climate perceptions were in agreement among managers and assistant managers as separate groups. In later studies, Schneider and Hall (1972) found that position level in the priesthood had an effect on climate while Schneider and Snyder (1975) discovered that five out of six climate dimensions differed significantly between hierarchical level groups for 522 employees in an insurance agency.

The effect of several other organization structure and process variables on perceptions of climate has also been explored in different studies. Both Litwin and Stringer (1968, Study #3) and Sorcher and Danzig (1969) have found that climate perceptions are influenced by an organization's decision-making discretion while Dieterly and Schneider (1974) have discovered that position level, degree of participation, and company orientation towards customers will all have effects on how an employee

perceives his or her work environment. Also, in an interesting study by Peterson (1975), technology was seen as a climate determinant. His results indicated that employees from organizations employing both small batch and process technologies perceived more favorable climates than employees from organizations which employed a mass production technology.

In a different vein, Golembiewski and his associates (Golembiewski, 1970; Golembiewski & Carrigan, 1970; Golembiewski & Munzenrider, 1973; Golembiewski, Munzenrider, Blumberg, Carrigan, & Mead, 1971) have explored the premise that climate perceptions can be altered by participation in human relations training. In a series of studies, these researchers have found that not only can human relations training reduce discrepancies between an individual's perceptions of his or her "ideal" climate and his or her "actual" climate, but that these altered perceptions can also be maintained over a period of time, and can occur even when the organization is going through massive reductions-in-force.

The relative effectiveness of both personal and organizational characteristics as determinants of climate perceptions has been explored by Gavin (1975) and Herman, Dunham, and Hulin (1975). Gavin (1975) measured individuals along several biographical variables and then

clustered these individuals into groups based on these biodata and organizational structure variables. When he examined group relationships with climate perceptions, he discovered that both biographical and organizational factors explain roughly the same amount of variance in climate. Herman et al. (1975) performed a somewhat similar study using the climate perceptions of 392 employees in a printing company. Their results conflicted in one aspect with Gavin's (1975) since they concluded that organizational characteristics account for more of the variance in climate than personal factors. Like Gavin, however, they discovered that job level and department affiliation were the two strongest climate determinants.

Climate as an Independent Variable

Researchers who have employed climate as an independent variable believe that the construct influences, or causes, subsequent individual attitudes and behaviors. In essence, these researchers conceive of climate as a psychological property and believe that different types of climate will produce different types of individual reactions. Relatively fewer researchers have examined climate as an independent variable and this category is primarily composed of psychologists who

believe that an employee's perceptions of climate will determine his or her subsequent job satisfaction and performance.

A number of studies have found a strong and consistent relationship between climate and job satisfaction (Ford & Jackofsky, 1978; LaFollette & Sims, 1975; Lawler, Hall, & Oldham, 1974; Litwin & Stringer, 1968; Muchinsky, 1977; Pritchard & Karasick, 1973; Schneider & Snyder, 1975). An example of a study which examined the climate-satisfaction relationship is one conducted by Friedlander and Margulies (1969). They administered both a climate questionnaire and a satisfaction questionnaire measuring three components of job satisfaction (interpersonal relationships, task-oriented self realization, and opportunities for recognizable advancement) to 95 employees of a research and development organization. Their results indicated that maximum satisfaction with each of the three satisfaction components required different climate perceptions (i.e. different "types" of climates). A similar study was carried out by Lyon and Ivancevich (1974) in a hospital setting. These researchers also discovered a strong relationship between climate and satisfaction and that the specific climate dimensions relating to satisfaction varied with the type of

satisfaction studied as well as with the employee's hierarchical level.

Several theoretical and methodological reasons have been advanced to explain the strong association between climate and satisfaction. Theoretically, most researchers believe that both climate and satisfaction are the result of a similar type of concept formation where the individual attempts to apprehend order in his or her environment (Naylor et al., 1980; Schneider, 1975). Whereas climate is seen as a macro description of certain aspects of the situation, satisfaction is viewed as going one step beyond description to include an evaluation of the situation. To the extent that these psychological processes are proximally close in the act of concept formation, both can be expected to covary highly. James et al. (1978) have offered an alternative theoretical explanation. They believe that, although climate and satisfaction may be conceptually distinct, both constructs are causally reciprocal with each other. Thus, the measurement of either construct would include, to some degree, the causal influences of the other construct.

Methodologically, some evidence exists to suggest that both climate and satisfaction questionnaires may be measuring the same construct. Campbell et al. (1970) pointed out that most measures of perceived climate

borrowed heavily from job satisfaction questionnaires by culling items from these measures. This observation, along with the problem of common-method variance, led Campbell et al. (1970) and Guion (1973) to believe that climate instruments were merely assessing satisfaction.

More recent evidence suggests that the obverse may be closer to the truth; that is, many job satisfaction questionnaires may be measuring climate. For example, the Job Descriptive Index (Smith, Kendall, & Hulin, 1969), a widely-recognized measure of job satisfaction, contains both descriptive (climate) and evaluative (satisfaction) items. Schneider (1975) describes a study by Payne (1973) where items from the Work Itself scale of the JDI were sorted into clearly evaluative and clearly descriptive items. It was found that the evaluative items correlated highly with each other while the descriptive items did not. Further, the evaluative items correlated well with an independent measure of job satisfaction while the descriptive items did not achieve statistical significance with this measure. This finding was similarly confirmed by Smith, Smith, and Rollo (1974) when they factor analyzed the JDI and found two distinct factors, one evaluative and one descriptive. Schneider (1975) has further shown how other common measures of job satisfaction such as Porter's (1961) Need Satisfaction

Questionnaire are actually measures of climate. Thus, it appears that the strong relationship between climate and satisfaction may be due to an overlap in the measurement of both constructs. This should caution future researchers to be clear about which construct they wish to assess and then choose or develop measures which specifically tap those constructs.

A number of studies have also reported a significant relationship between climate and job performance although the relationship "is not as easily understood, or as persuasive, as the relationship between job satisfaction and climate" (Hellriegel & Slocum, 1974, p. 271). One of the most consistent studies was conducted by Friedlander and Greenberg (1971). In a study of 478 hard-core unemployed workers undergoing a training program, they found that persons who perceived their climate as supportive received higher performance ratings than those who perceived their climate as less supportive. A similar study by Wiley (1978) further reinforced these findings. He studied the effect of perceived climate for change to account for differences in performance improvement due to a management training program. Employing a before and after control group design on a sample of 75 supervisors, he discovered that posttraining self-report performance improvement was positively and significantly related to

the perceived climate for change in the trainee's workplace.

An inconsistency in the climate-performance relationship was pointed out earlier in a study by Kaczka and Kirk (1968). Using information from the data bank of the Institute for Social Research, They concluded that employee-centered climates usually, but not always, led to higher performance. As further evidence, Pritchard and Karasick (1973) found that only two of their eleven climate dimensions had any relationship to performance while Cawsey (1973) discovered that, in one organization, salesmen who perceived an achievement-oriented climate performed better than other salesmen while clerical employees who perceived a power-related climate were the better performers.

The complexity of the climate-performance inconsistency was also shown in a laboratory study by Frederiksen, Jensen, and Beaton (1972). These researchers created different climates by manipulating administrative procedures and measured performance using an in-basket test. They discovered that performance was higher in a consistent climate than in an inconsistent climate. Moreover, they found that relationships between the dimensions of performance on the in-basket varied as a function of the type of climate under which people worked.

For example, under climates permitting more freedom, persons tended to work more through their peers, while in more rules-oriented climates, individuals chose to work through their superiors. Thus, climate influenced not only the level of performance, but the patterns of performance as well.

It is unfortunate that a stronger, more consistent relationship between climate and performance has not been demonstrated. One possible explanation for this inconsistency may be a lack of correspondence between climate measures utilized in different studies. To the extent that the dimensions of climate which influence job performance are not being measured in some studies, inconsistency of results could be expected.

A more plausible explanation, however, may be that climate is simply not a major determinant of job performance. Schmidt, Hunter, and Pearlman (1981) have accumulated an impressive amount of data to show that ability is the single most important contributor to job performance. In fact, these researchers believe that the ability-performance relationship is so strong that other variables, such as climate, would have little room in which to influence performance. The strength of the ability-performance versus the climate-performance relationship was demonstrated in a study by Jones and

James (1979) where personnel composition held a stronger correlation with division performance than climate.

In an interesting theoretical paper, Schneider (1978) demonstrates how climate can serve to moderate the ability-performance relationship. Using several studies as evidence, he claims that this relationship is enhanced (i.e. validities are higher) when individuals work in an organization where the climate encourages the expression of individual differences instead of the suppression of those differences. This explanation may account for the finding of higher validities when performance in training programs is used as the criterion (cf. Friedlander & Greenberg, 1971; Schmidt et al.; 1981) since training programs tend to encourage individual differences in performance while organizations tend to suppress these differences (Katz & Kahn, 1978).

An excellent study which examined climate along with satisfaction and performance was conducted by Schneider and Snyder (1975). They utilized a climate instrument, two job satisfaction measures, and seven production and turnover indexes to gather data on 522 employees in 50 life insurance agencies. Their study provided several enlightening and important findings including the following:

- (a) climate and satisfaction measures are correlated for people in some positions in the agencies but not

for others; (b) people agree more on the climate of their agency than they do on their satisfaction; (c) neither satisfaction nor climate are strongly correlated with production data; and (d) satisfaction, but not climate is correlated with turnover data (p. 318).

In addition, they found that employees who described the climate of their agency in the most positive way were not necessarily the most satisfied.

A somewhat different approach using climate as an independent variable was demonstrated in studies by Franklin (1975) and Joyce, Slocum, and Abelson (1977). Franklin (1975) set out to test the theoretical linkages among climate, leadership, and group processes. In a longitudinal study using 246 groups, he discovered that climate was causally related to both leadership style and group processes. Joyce et al. (1977) attempted to reproduce Franklin's (1975) study by examining the causal relationship between climate and leader behavior. The results of their study, which involved 85 foremen over a 17-month period, indicated that leader behavior was indeed caused by climate.

Climate as an Intervening Variable

Researchers who hypothesize climate as an intervening variable believe that climate is caused by distinct individual and organizational experiences which in turn cause later attitudes and behaviors. Thus, because of its

intervening and perceptual nature, climate is seen as neither an independent variable subject to manipulation nor as an outcome variable. Researchers in this category consist of organizational psychologists who see climate as a psychological property which can aid in understanding the impact of organizational structure and processes on individual attitudes and behavior. In spite of its potential for helping to understand the link between organizational and individual behavior, relatively few studies have employed climate as an intervening variable.

Litwin and Stringer (1968, Study #1) hypothesized that different styles of leadership would create different climates which would then create different employee attitudes and behaviors. In a laboratory study, they instructed the leader to perform in such a manner so as to create three different types of climate (authoritarianism-oriented, democratic-friendly, and achievement-oriented) and then measured individual attitudes and performance in a business game. They found that the authoritarian climate led to low satisfaction and productivity, that the democratic-friendly climate led to high satisfaction and low performance, and that the achieving climate led to both high satisfaction and high productivity.

Although Litwin and Stringer (1968) conceived of climate as an intervening variable, their study did not

measure climate perceptually. They merely assumed that leader behaviors led to different climates. To the best of this author's knowledge, only two studies have specifically tested climate as an intervening variable between organizational attributes and individual attitudes. Newman (1975) examined the extent to which objective organizational characteristics and demographics explained both climate perceptions and work attitudes. He found that organization structure variables account for more variance in climate perceptions than individual employee demographic variables. He also discovered that climate perceptions were more strongly associated with work attitudes than were objective organization structure variables. He concluded that climate functioned as an intervening variable which could help in understanding the relationship between organization structure and work attitudes. Dunham (1977) also conceived of climate as an intervening variable between organizational and individual attributes. In his study, he explored the relationship between job task characteristics and work attitudes. His conclusion was different than that of Newman (1975), however, in that he discovered that climate did not intervene in any significant manner between task characteristics and work attitudes.

Summary and Conclusions

The importance of climate in organizational and psychological theory has been established by an impressive amount of research evidence generated by studies which have employed climate as a dependent, an independent, and an intervening variable. As a dependent variable, organizational researchers have shown how climate perceptions can be affected by external organizational factors such as technology, centralization, and position within the organizational hierarchy. In addition, changes in climate perceptions can also be brought about by other external factors such as participation in human relations training.

When employed as an independent variable, psychologists have shown how an individual's perceptions of climate can influence his or her subsequent attitudes and behaviors. Strong relationships have been discovered between climate and satisfaction although the strength of this relationship may be due in part to considerable theoretical and methodological overlap. Significant relationships have also been shown between climate and job performance but lack of consistent results may indicate that performance is more a function of ability than of climate. The discovery of climate as a causal determinant of turnover and leader behavior also leaves open the

possibility of significant relationships with other important yet unexplored types of work behavior.

Perhaps the most distressing finding in the climate research literature is the dearth of research employing climate as an intervening variable. Currently, most climate researchers believe that climate is influenced by a number of individual and organizational variables and serves as a frame of reference to guide subsequent attitudes and behaviors. Climate may be regarded as an important psychological construct which should function as a link between organizational and psychological theory and research. Surprisingly, only two studies have empirically tested this proposition, one with significant results, and one with nonsignificant results. If climate is ever to be established as a useful construct, its position as a link between organizational and individual variables needs to be established through a series of studies which employ climate as an intervening variable.

Collective Climates in Organizations

The realization that climate most probably operated on an individual level frustrated and embarrassed many organizational researchers. After all, the reason why researchers originally sought to develop climate measures

was because they believed that a relationship existed between climate influences and organizational or subunit functioning (Jones & James, 1979). While many researchers became discouraged and moved on to more concrete concepts, a number of other researchers entertained and developed the idea that climate could operate at a level somewhere between the individual and the organization. The idea of several climates within the same organization operating at an intermediate level has been referred to as "subsystem climates" (Powell & Butterfield, 1978), "group climates" (Howe, 1977), and "multiple aggregate climates" (Joyce & Slocum, 1979). To help encourage consistency across studies when describing this idea, climates conceptualized at this level will be referred to as "collective climates."

A Foundation for Collective Climates

After a review of the organizational climate literature, Powell and Butterfield (1978) came to an interesting conclusion regarding the ownership of climate. These authors acknowledged the possibility that climate could occur as both an organizational and an individual property. Instead of taking sides, however, they concluded that climate existed as a property of subsystems within an organization. They further suggested that subsystem climates could exist "whenever at least one

group (subsystem) of employees has different perceptions of the organization's climate than those outside the subsystem" (pp. 153-154).

Powell and Butterfield's (1978) reasoning was influenced by a number of studies which found differences in climate perceptions between different groups of employees in the same organization. For example, Johnston (1976) hypothesized that employees who had been present during different stages of an organization's life cycle would perceive their work environments differently. He grouped employees of a small organization into two classes based on tenure (six months to one year vs. over three years). He then discovered substantially different perceptions between the groups and concluded that "the small organization studied had two climates" (p. 101).

A number of other studies have also discovered significant differences between climate perceptions when employees were grouped into different subsystems. These include groups or subsystems based on hierarchical level (Friedlander & Greenberg, 1971; Payne & Mansfield, 1973; Pheysey, Payne, & Pugh, 1971; Schneider, 1972; Schneider & Bartlett, 1970; Schneider & Snyder, 1975), line vs. staff position (Gavin, 1975), department (Litwin & Stringer, 1968; Pheysey, Payne, & Pugh, 1971; Pritchard &

Karasick, 1973), personality characteristics (Johnston, 1974), and biographical influences (Gavin, 1975).

An examination of several studies such as these led Powell and Butterfield to conclude that "climate is a property of subsystems in organizations. Subsystems may consist of organizational members taken individually, in groups formed on any basis, or as a whole" (p. 155). They further proposed that climate existed independently for separate subsystems and that relationships between subsystem climates may or may not exist.

Although the idea of climate existing as a subsystem property is an appealing one, the conclusions reached by Powell and Butterfield (1978) seem to do more to skirt the issue than to grasp it and mold it into a viable concept. Considering both the individual and the organization as different forms of the same subsystem appears specious to this author. In addition, Powell and Butterfield (1978) offer no theoretical rationale or criteria on which to group individuals to form a subsystem other than that perceptions be "different." This roundabout, catch-all thinking will do little towards advancing the concept of a collective climate.

A more promising approach to the concept of collective climates was explicated by Howe (1977). He proposed the idea of a "group climate" and defined it as a

lack of variance among group members regarding climate dimensions and a significant difference between two or more groups in the same organization. He tested the premise of a group climate by examining the climate perceptions of two groups in a municipal organization. Although 13 of his 16 climate dimensions showed subject effects and did not meet the above criteria, he found that for three of the dimensions, climate responses were more a function of group membership than of person or person by group effects. Howe (1977) concluded that for those three dimensions, applying the criteria of group consensus and group differences resulted in a construct "in which the level of analysis is the group and not individuals" (p. 122).

The extension of climate as a group or subsystem property would seem to have great potential for advancing both individual and organizational theory and behavior. However, the idea that climate exists as a collective property is open to the same criticism that abounds when climate is considered as an organizational attribute. Most notably, there has been little theoretical rationale advanced to explain why climate arises at this level, or to explain why the climate perceptions of members of the same group can differ about similar aspects of their work environment. Guion's (1973) admonitions about using

individual perceptual measures to represent an organizational attribute would apply equally well when using perceptual measures to represent a group or subsystem attribute.

Fortunately, some preliminary theoretical work has been accomplished to advance the concept of a collective climate. As mentioned earlier, Johnston (1976) felt that climate evolved during different stages of an organization's life cycle. Thus, he offered a rationale for grouping employees according to time. A more theoretically sound approach has been offered by Joyce and Slocum (1979) using the intersubjectivity component of Husserl's (1931) theories of phenomenology. They claim that individuals will first become aware of their surroundings and then become aware of others around them who also have experiences in such surroundings. Using other's experiences as a model, the individual is thus able to constitute his or her "self":

Because these other people exist in approximately the same locales, some degree of consensus usually arises concerning descriptions of the environment. This consensus is the basis for what may be called an aggregate or organizational climate, as opposed to individual climates (Joyce & Slocum, 1979, p. 322).

Although these authors believe that collective climates can exist in organizations, they also acknowledge that the climate construct is an individual property because of its perceptual, phenomenological nature.

Thus, it appears that, on at least an initial theoretical level, the concept of climate may be extended to a larger unit such as a group or collectivity. Before this may be meaningfully accomplished, however, certain methodological issues must be dealt with. In the words of Joyce and Slocum:

Climates are always psychological in nature regardless of what division, group, or other unit of the organization they refer to. The real issue is how to sum these individual perceptions so as to adequately represent the larger unit (1979, p. 324).

This issue of summing, or aggregating, individual perceptions to represent collective climates is currently one of the trouble spots in future development of the climate construct. In fact, in a recent review of the climate literature, Schneider and Reichers (1983) have considered the aggregation problem as the most intractable methodological issue in the climate field. It is this issue of aggregating individual climate perceptions so as to extend the concept of psychological climate to collective climates to which we now turn.

Aggregation Problems in Collective Climate Research

Conventionally, climates have been represented by the aggregated, averaged perceptions of individuals in the unit (group or organization) whose climate is being assessed. However, since current climate theory and

research regards climate as an individual property, concerns about using aggregated perceptual data to represent the actual conditions in a situation should be addressed. Since perceptually-based data will reflect individual characteristics and psychological filtering processes as well as aspects of the actual situation, the aggregation of these data could lead to erroneous inferences regarding situational attributes. Thus it would seem logical that, before climate data could be legitimately aggregated, several conditions should exist which minimize the effect of individual perceptions.

Jones and James (1979) have examined both the conceptual and empirical arguments behind the climate aggregation issue. They have concluded that the rationale behind aggregation of perceptual climate scores seem to rest heavily on three basic assumptions:

first, that psychological climate scores describe perceived situations; second, that individuals exposed to the same set of situational conditions will describe these conditions in similar ways; and third, that aggregation will emphasize perceptual similarities and minimize individual differences (p. 206).

While the first assumption is usually met through rigorous development of the climate instrument, the remaining two assumptions should be assessed empirically, although the appropriate methodology for doing so has not yet been explicated.

Most climate studies investigating collective climates have concentrated on statistically different group means as a basis for aggregation. The rationale for using this index is that differences between mean climate scores for different groups within the organization should reflect situational rather than individual differences. This is the reasoning adopted by Powell and Butterfield (1978) when they suggest that evidence for subsystem climates is provided by differences in climate perceptions between different groups within an organization. As noted previously, between-group differences which are statistically different from zero have been discovered in numerous studies. This statistic, however, does not seem adequate enough to justify aggregation. For example, with a large enough sample, even a trivial difference may prove to be statistically significant. Also, very little is known about the degree of perceptual agreement within each group. If, as Powell and Butterfield (1978) have suggested, multiple climates can exist within the same organization, then it follows that one would be most justified in aggregating scores for the groups which have the most perceptual agreement concerning their climate. This would involve different statistical tests besides mean differences between groups.

Roberts, Hulin, and Rousseau (1978) have discussed aggregation problems in organizational science at length. They argue for the development of "composition theories" whereby a construct operationalized at one level of analysis is related to another form of that construct at a different level. They call for more sophisticated thinking and methodology in forming composition theories, especially when crossing from the individual to the organizational unit of theory and analysis. Of particular interest is their suggestion that within-groups variance statistics be employed when an individual measure is to be used to represent a larger unit such as a group or an organization. They claim that:

Since a variance statistic can be linked clearly to an organization, it can be interpreted unambiguously as an organizational characteristic and has meaning different from that contained in individual-level responses (p. 86).

As an example, Roberts et al. (1978) cite a climate study performed by Drexler (1977). Drexler (1977) examined the climate perceptions of approximately 7,000 individuals from 21 organizations. He found that people within each organization tended to agree more regarding their climate perceptions than did people across organizations. This study led Roberts et al. (1978) to conclude:

this small within-organization variance relative to between-organization variance suggests that averaged

perceptions of climate might be a useful concept. Low variability in perceived climate is evidence supporting the contention that organizational characteristics are veridically assessed through individual perceptions (p. 86).

Unfortunately, Roberts et al. (1978) interpretation of the Drexler (1977) study may have been erroneous. Although the within vs. between organization variance premise is valid, a recent paper by James (1982) has shown that Drexler's (1977) statistical analysis was inappropriate and subject to an "aggregation bias" effect which provided inflated estimates of perceptual agreement. This finding reflects some of the confusion surrounding the appropriate means for assessing agreement and extending the climate concept beyond the individual.

Schneider and Reichers (1983) have also suggested that variance statistics should be considered before aggregating climate responses. Their contention is that:

To the extent that individuals agree in their perceptions of a particular practice or procedure, which would be indicated by a low standard deviation from the mean response, researchers can feel confident that their aggregated data reflects the reality of the situation for that group (p. 24).

Therefore, it appears that some measure of assessing within-group variance can serve as a useful criterion for determining agreement and providing justification for aggregation. Measures of intraclass correlation within aggregation groups would seem to be a useful statistic for assessing agreement since a high intraclass correlation

reliability coefficient can be associated with small within group variance (Bartko, 1976). Unfortunately, a criterion for an acceptable level of agreement has not yet been decided upon. Guion's (1973) suggestion of absolute agreement (consensus) appears overly restrictive while few other researchers have offered an alternative criterion for accepting aggregation statistics as valid indicators of situational attributes (Payne et al., 1976).

As noted previously, significant differences between group means can not be justified as the sole basis for aggregation, especially for large sample sizes. A more relevant statistic which can assess the power of the group to account for climate differences would be the omega-squared. This statistic is not as easily influenced by large sample sizes as the mean differences statistics and would provide a more practical measure of the aggregating procedure to account for the variance in climate perceptions between groups (Guilford & Fruchter, 1978). Thus, another criterion which can be used to justify the appropriate aggregation of climate data would be the magnitude of the omega-squared for each collectivity. To the extent that one aggregation group accounts for a substantially larger amount of variance in climate perceptions as compared to other aggregation groups, summing the perceptual data for this group can be

justified. Like the intraclass correlation, however, it appears that no existing criterion for acceptance of a particular value of omega square has been offered.

Another potentially useful method for assessing the adequacy of aggregated mean scores is suggested by classical test theory. If it can be assumed that each person in a group represents an independent measure of the work environment, then Ebel's (1951) Spearman-Brown conversion of the intraclass correlation can be used to estimate the reliability of the mean score. If differences between individual climate perceptions are considered error variance, then the aggregated mean score should contain less error variance than the individual scores (Lord & Novick, 1968). The end result would be that the aggregated mean score would minimize individual differences. Unfortunately, this statistic is also influenced by large sample sizes and may produce an inflated estimate when used to assess the mean reliability of climate in large groups.

One of the most practical suggestions for determining the appropriate level at which to aggregate climate scores has been provided by Jones and James (1979). They claim that aggregation is justified to the extent that an empirical demonstration shows:

that the aggregated scores are meaningfully and predictably related to other situational measures and

to organizational or individual criteria. The use of aggregated perceptual data is enhanced to the extent that the scores help to predict and understand organizational or subunit functioning (p. 208).

Thus it may be that the most useful criterion is a practical one. To the extent that climate data are significantly associated with more macro situational and outcome variables, aggregation seems justified. It must be remembered, however, that if significant relationships are discovered at this level of analysis, the researcher will not be able to generalize his or her conclusions beyond the aggregation group to either psychological or organizational variables (Borgatta & Jackson, 1980; Hannan, 1971).

Summary and Conclusions

A recent climate concept which has found its way into the literature is that of a "collective climate." This concept refers to the idea of climate as a group or subsystem property, (as opposed to an individual or organizational attribute), and was predicated on the discovery of significant differences between climate perceptions for multiple groups within the same organization. If discovered to be a viable concept, the idea of climate as a collective property would have great potential for explaining and predicting sub-unit functioning.

Unfortunately, the collective climate construct is open to the same criticism as the concept of climate as an organizational attribute. Since climate is currently seen as an individual property, certain theoretical and empirical criteria must be met before the concept of climate can be extended to represent larger units.

Certain theoretical ideas have been advanced to justify grouping employees together to represent collective climates. These include grouping on the basis of time, work group, and location. Several empirical criteria have also been proposed to justify aggregating climate scores to represent larger collectives although their usefulness remains to be demonstrated. These empirical criteria include procedures for determining statistical differences between climate perceptions for each group, indices of agreement within each group, the power of each grouping to account for climate differences, indices of climate mean score reliability, and significant relationships of aggregated climate scores with other macro situational and outcome variables. To the extent to which each grouping satisfies the above criteria, aggregation of perceptual climate scores to represent a collective climate can be justified. Once the justification for collective climates has been

established, its usefulness in organizational and psychological theory can be examined.

II. METHOD

Research Strategy

Empirical research which has examined the relationship between organizational structure variables and job attitudes and behaviors has been reviewed by Porter and Lawler (1965) and James and Jones (1977). Apparently, very little evidence exists which demonstrates a significant association between organization structure and behavior differences. On the other hand, significant relationships have been discovered between work attitudes (typically job satisfaction) and organizational structure characteristics such as hierarchical level, size, shape, and functional division (Ghiselli & Siegel, 1972; Herman & Hulin, 1972; James & Jones, 1976; Porter & Lawler, 1965).

Unfortunately, very little is known about the relationship between organization structure and job attitudes other than an empirical demonstration that it exists. Perhaps of more importance than this empirical relationship is the question of how organization structure variables are related to the affective responses of individuals in the organization. Porter and Lawler (1965) have suggested the possibility that the relationship

between organization structure variables and attitude or behavior variables could be influenced or moderated by some third set of variables, although they fail to speculate what this third set of variables may be. Based on the ideas developed in this paper, it is felt that climate perceptions represent this third set of variables and should intervene between organizational structure and individual attitudes.

Theoretically, the idea that climate will intervene between organization structure and job attitudes is a compelling one. As developed in this paper, climate is viewed as a macro perception of the objective work environment which serves as a frame of reference for guiding individual attitudes and behaviors. The particular theoretical framework to be adopted by this author is one developed by Newman (1975). Using a Lewinian-type paradigm, Newman (1975) proposed that climate perceptions are determined by an individual's work experiences encountered in a particular location in organizational space. He felt that one's location in the work environment would determine the environmental stimuli to which an individual was exposed and to which he or she must react. Thus, Newman (1975) reasoned that:

A frame of reference associated with a location in organizational space may be construed as a standard available to the employee as a result of his experiences in the particular organizational space.

That is, employees in different locations in organizational space tend to have different work experiences, and this leads to differences in the frames of reference they use to evaluate the work situation (p. 374).

To the extent that certain organizational structure variables dictate an individual's location in organizational space, they should theoretically be associated with climate perceptions and subsequent job attitudes.

Empirically, the research evidence available also indicates that climate may function as an intervening variable between organization structure and job attitudes. As noted earlier in this paper, significant relationships have been discovered between organization structure variables and climate perceptions. In addition, a strong association has been consistently demonstrated between climate perceptions and job satisfaction. To the extent that the relationships between climate and both organization structure and job satisfaction are stronger than the relationship between structure and satisfaction, climate should function empirically as an intervening variable.

Based upon the theoretical and empirical research presented in this paper, it is suggested that perceptions of climate can help explain how organization structure variables are related to job attitudes. Thus, the general purpose of the proposed study was to explore the effect of

climate as an intervening variable between objective organization structure variables and overall job satisfaction. If found to intervene significantly, the results of the study would provide support for the role of climate as an important construct for integrating organizational and psychological theory and research.

To examine the role of climate as an intervening variable in the organization structure-job satisfaction relationship, the present study proceeded in four major exploratory stages. The first stage involved examining the extent to which job satisfaction was related to various organizational structure characteristics. The previous research cited at the beginning of this section has indicated that differences in organization structure would be associated with differences in satisfaction.

The second stage of the study involved examining the relationship between structural characteristics and climate perceptions. Employee locations in organizational space were determined by partitioning individuals on the organizational structure variables and then relating these locations to climate perceptions via multiple discriminant analysis. It was hypothesized that different locations in organizational space would be associated with differences in climate perceptions.

A third stage of the analysis examined the extent to which differences in climate perceptions were associated with differences in job satisfaction. Based on Newman's (1975) premise that different locations in organizational space will result in different frames of reference which employees use to evaluate the work situation, it was hypothesized that differences in climate perceptions would be associated with differences in job satisfaction.

The final stage of the investigation examined all three sets of variables simultaneously. Thus, the extent to which climate perceptions could account for the empirical relationship between objective organizational structure variables and job satisfaction was determined. It was felt that this analysis would establish whether climate could function empirically as a useful concept for integrating organizational and psychological constructs.

If the above results proved to be encouraging, a second set of analyses was planned to examine and extend the role of collective climate as an intervening variable in the organization structure - job satisfaction relationship. This involved two major analysis stages.

In the first stage, aggregation groups were identified and climate perceptions were summed for each group. Next, several empirical criteria were applied to the aggregated climate scores to determine whether they

could be legitimately summated for further analysis. These criteria, as outlined in a previous section, consisted of differences in mean scores between groups, high intergroup agreement, and indices of mean score reliability. If consistency among these criteria indicated that climate scores could be legitimately aggregated for some groups, the role of these summated climate perceptions could be investigated as an intervening variable between objective organization structure and job satisfaction. This investigation would be similar to the four-stage analysis proposed above for examining psychological climate perceptions. If the results of this set of analyses proved to be favorable, the idea of collective climates could also be established as a useful concept for integrating organizational and group constructs.

Participants, Setting, and Data Collection Procedures

Participants represented nearly all of the work force in one regional office of a medium-sized insurance company. The final sample consisted of 912 employees, approximately 48% being non-supervisory employees, 36% technical, and 16% managerial personnel. These employees were located in fourteen different cities throughout three

Midwestern states. Data were collected in a questionnaire survey as part of an overall organization development program and the questionnaire was administered during work hours in groups of five or more employees to insure confidentiality. Although it was not possible to identify the individual employees, questionnaires were coded to represent the employee's primary work group.

Measures

Organizational Structure

Although several taxonomic dimensions of organizational structure have been proposed (Dunteman, 1966; Hall, Haas, & Johnson, 1967; James & Jones, 1976; Prien & Ronan, 1971; Porter & Lawler, 1965; Pugh, Hickson, Hinings, & Turner, 1968; Sells, 1963), none of these taxonomies appeared relevant for the purpose of the proposed study. What was needed was a set of structure variables which were objective enough to allow comparisons both within and outside of the organization and which also had fairly direct ties with individual experiences. Thus, the criteria for selecting organization structure variables were that they be objective, that they be relevant to the organization's operating procedures, and that they reflect locations in organizational space that

may have fairly direct ties with individual experiences within the organization.

Several organizational structure variables were chosen on the basis of these criteria. These included employee hierarchical level, physical location, size of primary work group, and employee subgroup based on homogeneous task specialization. Another variable, tenure, was also included in this category although its inclusion was clearly arbitrary since it is a variable which can be mutually controlled by both the employee and the organization (Herman & Hulin, 1972). The definition of structure variables was based on whether each variable could be controlled or could be changed by the organization and the extent to which the variable had meaning outside of the organization. Since tenure was dependent upon the organization for its meaning and was reflective of certain rewards under the control of the organization (eg. fringe benefits), it was included as an organization structure variable.

Climate

Climate perceptions were assessed via the Employee Attitude Survey (EAS). The EAS is a questionnaire which contains approximately 100 items describing various aspects of the work environment. The EAS was developed

prior to the present study and had already gone through several revision stages. The two important criteria which guided the development of the EAS were that it be fairly comprehensive of employee work experiences and that the items be as descriptive (as opposed to evaluative) as possible. The final EAS consisted of three different forms (non-supervisory, technician, and management) of which 64 common climate items were utilized in the present study. The common climate items used in the study are included as Appendix A.

Job Satisfaction

The primary purpose of the present study was to examine climate as an intervening variable between organization structure and overall employee satisfaction. Thus, the focus was on the overall level of satisfaction as an affective response to organizational variables. In light of previous research which demonstrated that different types of climate were associated with different components of satisfaction, no attempt was made to assess different components of satisfaction. Rather, the present study employed an overall, global measure of affect which included overall satisfaction with one's employment situation along with satisfaction - related behavioral intentions. This was named job satisfaction and was

measured using a composite of three overall items included in the EAS. These three items, which exhibited substantial internal consistency reliability (coefficient $\alpha=.88$), are included as Appendix B.

III. RESULTS

All statistical analyses presented in this section were performed using the Statistical Analysis System (SAS) software package (SAS Institute, Inc., 1982). Results are summarized in terms of the underlying dimensions of climate, the interrelationships among structure, climate, and satisfaction, and the aggregation of psychological climate scores to represent collective climates.

Dimensions of Work Climate

Principal Components Analysis

An initial set of analyses was directed towards the discovery and measurement of underlying dimensions of work climate. A principal components analysis of the work climate perceptions of all 912 employees was performed using the SAS FACTOR program. This resulted in thirteen components with eigenvalues greater than 1.0 which accounted for 39.8% of trace variance. These components were then rotated to approximate simple structure using the varimax criterion to aid in interpretation of these components. The rotated component pattern resulting from this analysis is presented in Table 1.

Table 1
Principal Components Analysis of Work Climate Items (Study Sample)

Climate Item	Component Loadings												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	.17	.08	.01	-.01	.72	-.00	.04	.07	-.00	-.07	-.00	.08	-.11
2.	.15	.65	.11	.04	.11	.17	.13	.14	.01	-.06	.10	.01	-.24
3.	.22	.57	.09	.17	.10	.05	-.09	.01	.04	-.05	-.09	.22	-.13
4.	.66	.11	.08	.10	.06	.00	.31	.16	.07	-.08	-.07	.13	-.04
5.	.65	.11	.39	.02	.14	.07	.09	-.02	.02	.13	.03	-.04	.09
6.	.21	.16	.37	.60	.16	.14	.00	.16	.03	.02	.12	-.08	.13
7.	.74	.13	.04	.11	.05	.09	-.08	-.06	.00	.14	.05	-.07	.04
8.	.30	.77	.00	.05	.08	.00	.02	.08	.07	-.00	.02	-.01	.15
9.	.23	.75	.04	.05	.12	.02	-.08	.10	.03	.06	-.00	.02	.23
10.	.74	.23	.18	.08	.11	.07	-.08	-.01	.03	.02	.10	.09	.03
11.	.49	.05	.13	.16	.15	-.03	.23	.29	.02	.06	-.09	.07	.14
12.	.70	.12	.07	.07	.07	.09	-.08	.07	.10	-.03	.04	.15	.13
13.	.77	.15	.00	.14	.16	.06	-.06	.00	.05	-.00	.09	.04	-.05
14.	.11	.13	.31	.60	.15	.10	.03	.16	.12	.08	.04	-.11	.13
15.	.23	.71	.04	.22	.15	.02	.07	.09	-.05	.02	.06	-.01	.07
16.	.21	.31	.21	.27	.48	.07	-.00	.11	.04	.13	.08	-.09	.19
17.	.07	.13	.16	.16	.16	.08	-.01	.67	.06	-.07	-.01	.01	.00
18.	.10	.08	.02	.20	.63	-.01	.04	.07	.06	.05	.01	.06	.16
19.	.80	.11	.05	.10	.11	.08	-.02	.05	.11	-.05	.06	.11	.07
20.	.23	.08	.14	.14	.76	.05	.06	.03	.03	.12	.06	-.02	.02
21.	.18	.07	.68	.09	.14	-.01	-.03	.08	.09	.13	-.02	.14	.02
22.	.73	.15	.15	.08	.19	.07	.30	.06	-.02	.08	.08	.13	-.05
23.	.13	.08	.79	.14	.13	.05	.06	.04	.07	.03	.02	-.01	-.06
24.	.32	.20	.29	.62	.14	.12	-.01	.20	.06	.04	.14	-.08	.04
25.	.24	.16	.16	.15	.60	.12	.05	.32	.06	-.01	.07	-.03	-.01
26.	.77	.16	.14	.11	.19	.03	.26	.17	.01	-.02	.02	-.01	-.00
27.	.36	.11	.23	.19	.32	-.05	.09	.30	-.11	-.10	.03	.05	.10
28.	.76	.16	.21	.05	.11	.07	.19	.08	-.04	.07	.08	-.03	.11
29.	.30	.02	.61	.17	.08	.00	.11	.11	-.02	.02	.11	-.03	.14
30.	.07	.07	.74	.17	.03	.13	.08	.15	.07	-.02	.09	.02	-.03
31.	.22	.12	.14	.08	.27	.06	.12	.68	.17	.03	.08	.03	.00
32.	.15	.06	.81	.16	.06	.06	.04	.01	.06	.12	.12	-.03	-.01
33.	.32	.04	.09	.16	.09	-.02	.11	.07	.63	-.06	-.07	-.07	-.01
34.	.01	.11	.14	.21	.06	.17	.00	.12	.56	.01	.06	-.12	.10

Table 1 (Continued)

Climate Item	Component Loadings												
	1	2	3	4	5	6	7	8	9	10	11	12	13
35.	.54	.32	.12	.12	.04	.07	.05	.14	.06	-.12	.14	.16	-.32
36.	.69	.15	.00	.28	.12	.05	-.01	.02	.19	.03	.16	.01	-.16
37.	.48	.10	.04	.12	.04	.01	.28	.18	.43	-.08	-.08	.13	-.19
38.	.24	.03	.05	.59	.11	-.00	.06	-.02	.25	.12	.06	.12	-.13
39.	.18	.06	.02	.15	.13	.04	.01	.05	.09	.07	.21	-.01	-.12
40.	.73	.15	.09	.15	.04	.06	.07	.50	.16	.03	.21	.07	-.13
41.	.15	.00	.10	-.02	.04	.08	.14	.08	.45	.18	.21	.07	.09
42.	.15	.10	.19	.03	.62	.21	.05	.08	.24	-.09	.10	-.03	-.10
43.	.13	.06	.05	.08	.12	.76	-.01	.09	.17	-.02	.02	-.02	-.12
44.	.27	.39	.15	.14	.05	.15	.06	.06	.25	.15	.15	.16	-.25
45.	.54	.13	.27	.18	.16	.10	.38	.05	.12	.14	.12	-.10	-.14
46.	.04	.20	.19	.40	.15	.08	.30	-.08	.14	.11	.08	.12	-.15
47.	.11	.68	.12	.08	.07	.11	.23	-.08	.11	-.08	.11	.12	-.08
48.	.29	.07	.15	-.05	.15	.23	-.04	-.21	.23	.46	.28	-.05	-.04
49.	.42	.04	.06	-.08	.09	-.01	.58	.18	.09	-.01	-.02	.11	.11
50.	.08	.23	.05	-.07	.28	.24	.21	-.22	.20	-.48	.21	.07	.23
51.	.10	.12	.09	.07	.07	.84	.04	.01	.07	.01	.03	.02	.04
52.	.22	.11	.28	.35	.11	.06	.14	.05	.06	.06	-.01	.46	.14
53.	.57	.10	.14	.09	.07	.06	.55	.02	.13	.03	.06	-.06	-.04
54.	.02	.08	-.03	-.18	-.00	.07	-.07	-.00	.05	-.06	.06	.72	.11
55.	.52	.09	.08	.01	.08	.14	.41	-.00	.05	.04	.13	.18	.11
56.	.57	.07	.14	.14	.07	-.06	.46	.13	.09	.04	.01	.05	.05
57.	.33	.19	.17	.41	.15	.14	.05	.08	-.02	.08	.30	.01	.06
58.	-.03	-.07	.12	.12	-.03	.04	.12	.02	-.07	.81	.03	-.02	.05
59.	.15	.07	.12	.26	.09	.04	.04	.16	.16	.06	.08	.30	.52
60.	.19	.09	.10	.15	.03	.10	.04	.00	-.06	.06	.73	.09	.15
61.	.11	.08	.07	.14	.02	.74	.04	.05	-.09	.13	.11	.14	.08
62.	.30	.16	.21	.61	.15	.11	.11	.12	.06	.14	.13	.13	.06
63.	.16	.19	.14	.25	.10	.09	.15	-.03	.08	.54	.14	.00	.06
64.	.17	.17	-.01	.23	.01	.09	.22	.05	-.18	-.02	.03	.53	-.14

Note. Components were subjected to a varimax rotation.

Cross Validation and Retention of Climate Components

Cross Validation of Component Structure. It was decided to retain only those climate components which were generalizable and which could also be reliably measured. Since the component structure obtained from a given set of items is a function of the particular sample used to obtain that structure, there is the possibility that the component structure obtained in this study would not generalize to a new sample.

The extent to which the components obtained from this study's sample would relate to components derived from a different, independent sample was examined using a method proposed by Kaiser (1960) and developed by Veldman (1967). This method basically takes the component loading vectors of two samples with common variables, projects them into space, and then rotates these loadings so that the cosine between each variable's vector in one sample and the same variable's vector in a different sample is maximized (Gorsuch, 1974). Since both sets of components are projected into the same space, the cosines of the angles between sets of components can be determined. These cosines represent the correlations between the two sets of components determined from both samples.

The cross-validation sample consisted of 1,218 employees of the same organization located throughout

seven different states in the Northwestern and Midcentral areas of the United States. A principal components analysis of the same climate items for this cross-validation sample resulted in twelve components with eigenvalues > 1.0 (37.8% of trace). These 12 components were also subjected to a varimax rotation (component loadings are presented in Table 2). The cosines between the climate component loadings extracted from both samples are displayed in Table 3. Results indicated a high degree of component stability across these two samples for eleven components. Not only did the vast majority of the climate components generalize to the cross-validation sample, but the order in which the components fell out was also highly similar.

Component 9 was dropped from further consideration on the basis of this analysis since it did not generalize to the cross-validation sample. It was also decided to drop Component 13 since only one item in the present sample tended to load on that component. Individual scores on each component were computed using a direct solution (regression weighting) method (Gorsuch, 1974). These climate component scores were then transformed into T-scores with a mean of 50 and a standard deviation of 10. These component T-scores were then used in all of the remaining analyses.

Table 2
Principal Components Analysis of Work Climate Items (Cross-Validation Sample)

Climate Item	Component Loadings											
	1	2	3	4	5	6	7	8	9	10	11	12
1.	.08	.09	.12	.05	.69	.10	.03	.04	.01	.04	.00	.00
2.	.17	.09	.61	.07	.08	.08	.07	.06	.09	.25	-.14	.00
3.	.24	.11	.58	.01	.11	.01	.00	-.03	.04	.15	.22	.06
4.	.61	.11	.12	.07	.16	.31	-.06	-.15	.11	-.04	.00	.22
5.	.55	.51	.16	.01	.04	.14	-.00	.12	.07	-.04	-.01	.05
6.	.26	.43	.12	.48	.26	-.06	.11	.07	.08	-.02	-.06	-.12
7.	.70	.11	.10	.13	.09	-.07	.02	.18	.01	-.10	-.02	-.08
8.	.22	.00	.79	.10	.07	.00	.01	.11	.02	-.09	-.05	.02
9.	.16	.03	.76	.06	.15	-.01	.03	.03	.07	-.13	-.03	.06
10.	.75	.11	.20	.10	.10	.00	.02	.13	-.01	.07	-.07	-.05
11.	.49	.10	.06	.08	.21	.24	.03	-.12	.12	-.12	.00	.13
12.	.72	.12	.08	.07	.07	.02	.05	-.09	.03	.10	.11	.09
13.	.77	.02	.18	.17	.06	.01	.03	.06	.01	.01	-.01	-.08
14.	.13	.38	.14	.52	.16	-.10	.16	.01	.14	-.06	.06	-.02
15.	.19	.04	.74	.11	.13	.06	.01	.04	.07	-.11	.03	-.01
16.	.19	.23	.30	.23	.47	.00	.14	-.00	.12	.05	.08	-.06
17.	.18	.12	.16	.02	.18	.02	.08	-.04	.69	.06	-.05	-.11
18.	.15	.06	.02	.11	.64	-.02	.08	.06	.13	-.21	-.02	.18
19.	.77	.09	.16	.10	.12	.07	.03	-.03	.08	.05	.09	.07
20.	.22	.19	.10	.16	.70	.07	.05	.08	.10	.11	.07	-.10
21.	.21	.58	.15	.01	.16	.01	.09	-.08	.09	.18	.09	.04
22.	.67	.23	.11	.02	.17	.28	-.03	-.02	.13	.06	-.02	-.05
23.	.10	.75	-.00	.17	.12	-.00	.01	.04	.05	-.04	.08	.04
24.	.28	.16	.17	.54	.23	-.04	.11	.07	.10	.00	.00	-.09
25.	.17	.39	.19	.09	.56	.09	.05	.09	.36	.18	-.07	-.12
26.	.72	.23	.14	.09	.20	.31	-.05	-.03	.17	-.02	-.04	-.23
27.	.18	.31	.20	.21	.19	.35	-.01	.01	.25	.24	-.02	-.04
28.	.70	.27	.13	.03	.09	.21	.03	.14	.12	.03	.02	-.03
29.	.24	.66	.05	.11	.07	.20	.03	.12	.13	-.01	-.01	.02
30.	.05	.74	-.00	.22	.09	.05	.04	.04	.08	-.03	.06	.05
31.	.21	.23	.12	.18	.24	.19	.03	.08	.65	.02	-.06	.03
32.	.15	.78	.03	.13	.02	.08	.05	.09	.01	.13	.12	.31
33.	.26	.01	.09	.30	.03	.28	.01	-.02	.24	-.06	.13	.01
34.	.03	.13	-.08	.33	.07	-.06	.17	.07	.34	.29	.01	-.00

Table 2 (Continued)

Climate Item	Component Loadings											
	1	2	3	4	5	6	7	8	9	10	11	12
35.	.54	.02	.28	.09	.02	.13	.01	.18	.13	.31	-.13	-.05
36.	.61	.04	.15	.34	.02	.01	.07	.22	.09	.15	-.01	-.05
37.	.42	-.04	.08	.33	.04	.42	-.02	-.01	.17	.04	.08	.23
38.	.14	.06	.05	.68	.09	.10	.07	.11	.08	-.06	-.03	.07
39.	.13	.03	.14	.17	.04	.01	.07	.68	.16	-.04	.01	-.02
40.	.69	.02	.18	.16	.00	.09	.04	.31	.04	.17	.02	.08
41.	.18	.11	-.02	.18	.06	.14	.19	.24	.57	-.03	.20	.25
42.	.20	.04	.11	.22	.49	.01	.14	.06	.08	.45	-.12	-.00
43.	.06	.05	.08	.09	.09	-.02	.80	.05	.11	.12	-.01	.01
44.	.19	.13	.39	.15	-.02	.09	.21	.18	.14	.26	.07	.11
45.	.47	.33	.09	.14	.09	.31	.05	.22	.15	.25	.01	.01
46.	.11	.08	.10	.45	.12	.32	.11	.22	-.04	.03	.08	-.02
47.	.11	.03	.61	.06	.01	.14	.12	.16	-.08	.31	-.07	.09
48.	.15	.05	.06	-.07	.16	.15	.27	.52	-.14	.17	.07	-.07
49.	.36	.06	.07	.12	.06	.69	.09	.05	.07	.02	.04	-.02
50.	.05	-.05	.03	.09	.25	.17	.22	.22	-.09	.26	-.59	.15
51.	-.00	.06	.06	.12	.09	.10	.86	.09	.05	.04	-.02	.05
52.	.18	.26	.13	.49	.08	.25	.07	.02	.01	.23	.06	.07
53.	.53	.15	.03	.10	.06	.54	.11	.12	.07	.06	-.04	.12
54.	.00	.02	.08	-.04	-.03	.01	.07	.04	-.04	-.00	-.09	.75
55.	.50	.02	.01	.11	.18	.34	.11	.30	-.03	.09	.11	.27
56.	.45	.19	.09	.16	.02	.57	-.00	.17	.07	.03	.01	-.02
57.	.26	.12	.21	.31	.20	.11	.19	.34	.06	.27	-.04	-.02
58.	-.01	.13	-.03	.12	.04	.11	.12	.10	-.06	.01	.81	-.06
59.	.05	.19	.10	.47	.04	.24	.06	.09	.09	.25	.12	.08
60.	.08	.13	.10	.20	.03	.04	.03	.71	.06	.01	-.00	.10
61.	-.02	.07	.06	.16	.04	.03	.79	.10	.05	-.06	.10	.06
62.	.29	.22	.13	.60	.10	.12	.13	.21	.05	.22	.04	.04
63.	.14	.13	.01	.15	.23	.12	.24	.25	.06	.24	.41	.13
64.	.12	.07	.14	.21	.03	.04	.03	-.01	.08	.45	-.03	.49

Note. Components were subjected to a varimax rotation.

Table 3
Cosines Between Components Extracted in the Study Sample
and in the Cross-Validation Sample

Components, Cross-Validation Sample (N=1,218)	Components, Study Sample (N=912)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	<u>.99</u>	-.03	-.03	.02	.01	.02	-.10	-.01	.03	-.02	-.05	-.01	-.07
2.	.04	<u>-.01</u>	<u>.97</u>	.05	-.02	-.01	-.02	.07	-.14	.03	.01	-.01	.16
3.	.03	<u>.99</u>	-.03	.04	-.02	-.03	-.04	.07	-.13	.00	-.03	.04	.02
4.	-.01	.00	-.03	<u>.94</u>	-.01	-.03	.05	-.03	.29	-.07	.04	.10	.14
5.	.00	.00	-.03	.02	<u>.98</u>	-.01	-.01	.01	-.09	.08	-.03	.00	.18
6.	.10	.04	.01	-.06	.00	-.04	<u>.98</u>	.06	.05	.04	-.09	-.03	.06
7.	-.01	.04	.00	.00	-.02	<u>.98</u>	.01	-.02	.09	.12	-.06	-.06	.12
8.	.06	.05	.00	-.05	.01	.01	.07	-.13	.07	.23	<u>.95</u>	-.07	.04
9.	-.01	-.01	.01	-.07	.04	.00	-.06	<u>.91</u>	.37	-.06	.11	-.09	-.08
10.	-.06	.05	.19	.04	.19	.12	.08	-.13	.19	-.04	.03	.30	<u>-.87</u>
11.	.00	-.02	-.02	.06	-.07	-.12	-.06	.07	.06	<u>.96</u>	-.21	.08	-.07
12.	.03	.00	.00	-.23	-.03	.00	-.02	.00	.24	-.04	.03	<u>.88</u>	.34

Note. Cosines between corresponding components are underlined.

Interpretation of Climate Components. On the basis of the above analyses, eleven orthogonal components of work climate were retained. These components are listed below along with a substantive interpretation of these dimensions based on climate items with the highest loadings on that component. The 11 empirically-derived climate components are:

Supervisory Style. The extent to which one's supervisor is seen as encouraging honest and open communications, is understanding of employee problems, and is fair and consistent in his/her treatment of employees.

Workgroup Morale. An atmosphere characterized by a spirit of friendliness, trust, and cooperation among workgroup members.

Pay Fairness. The extent to which one's salary is perceived as being fair with regard to both one's performance and to other jobs, within and outside of the company.

Employee Orientation. The degree to which company management is seen as being interested in, and responsive to, employee problems and welfare.

Job Context. The extent to which one's job produces a sense of accomplishment, uses and develops one's skills, and is important to the company.

Quality of Working Equipment. The degree to which company-supplied equipment is seen as of high quality, well maintained, and appropriate for one's job.

Supervisory Feedback. The degree to which one's supervisor is seen as providing job-related feedback in terms of one's work quality and promotion potential.

Training and Development Emphasis. The extent to which the training necessary for increased job responsibility and performance is seen as being provided by the company.

Job Standards. The degree to which one's job is perceived as having excessive standards in terms of quantity and quality.

Job Security. An environment marked by employee concerns regarding the loss of jobs.

Rules Orientation. Employee perceptions of the strictness of company policies and the degree to which these policies are enforced.

The Organization Structure-Job Satisfaction Relationship

The relationship between organization structure and job satisfaction was examined using a least-squares regression approach (SAS GLM procedure) with the structure variables dummy-coded to prevent artificial linearity.

Zero-order correlations between structure and satisfaction are presented in Table 4 while analysis of variance results for the structure-satisfaction relationship are summarized in Table 5.

An examination of Table 5 indicates a substantial relationship between the organizational structure variables and overall job satisfaction. Each of the five structure variables independently and significantly predicted job satisfaction beyond the .01 level. Taken together, the organization structure variables can account for over 28% of the variance in overall job satisfaction ($R\text{-Squared}=.281$).

Table 4
Correlations Between Organization Structure
and Job Satisfaction

Structure Variable	
Hierarchical Level	.30
Physical Location	.27
Tenure	.23
Workgroup Size	.30
Task Specialization	.33

Note. Values represent least-squares estimates. Structure variables have been dummy-coded.

Table 5
Analysis of Variance Results for the Relationship Between
Organization Structure and Job Satisfaction

Source of Variation	DF	SS	F	p
Regression	43	2115.60	7.87	.0001
Hierarchical Level	4	217.97	8.72	.0001
Workgroup Size	3	281.85	15.03	.0001
Tenure	4	92.84	3.71	.0053
Physical Location	13	681.34	8.39	.0001
Task Specialization	19	258.73	2.18	.0026
Error	868	5424.97		
Total	911	7540.58		

The Organization Structure-Work Climate Relationship

The relationship between organization structure and climate was examined by a series of multiple linear discriminant analyses using the groups within each structure variable as partitioning variables (zero-order correlations between the organization structure variables and the climate components are presented in Table 6). The question of interest involved differentiating between groups in different locations in organizational space in terms of their climate perceptions. Since a significant relationship had already been demonstrated between structure and job satisfaction, it was felt that the relationship between structure and climate would be even more substantial. All discriminant analyses were performed using the SAS CANDISC program.

A discriminant analysis using hierarchical level as the partitioning variable resulted in two discriminant functions significant beyond the .001 level. The estimated multivariate omega-squared (Tatsuoka, 1970) was .39, indicating that 39% of the variance in the discriminant space was attributable to group differences between hierarchical levels.

Table 6
Correlations Between Organization Structure
and Climate Components

Climate Component	Structure Variable				Task Group
	Hierarchical Level	Physical Location	Tenure	Workgroup Size	
Supervisory Style	.11	.13	.04	.24	.28
Workgroup Morale	.32	.20	.06	.30	.38
Pay Fairness	.11	.22	.12	.18	.22
Employee Orientation	.24	.22	.17	.05	.21
Job Design	.20	.18	.18	.12	.27
Quality of Working Equipment	.15	.13	.08	.16	.37
Supervisory Feedback	.07	.15	.06	.11	.19
Training and Development Emphasis	.16	.13	.08	.09	.31
Job Standards	.38	.33	.11	.24	.46
Job Security	.09	.09	.08	.12	.25
Rules Orientation	.07	.22	.23	.08	.35

Note. Values represent least-squares estimates. Structure variables have been dummy-coded.

The first function was defined primarily by perceptions of job standards and workgroup morale (Table 7). Thus, groups scoring high on this function perceived their work climate to be marked by a presence of group spirit as well as rigid job standards and pressure. This function tended to differentiate the clerical/special services group from the other hierarchical level groups (Table 8). The second function was highly associated with perceptions of company responsiveness to employees and, to a lesser extent, a challenging job context (Table 7). Table 8 indicates that this function differentiated between nonsupervisory and supervisory (especially upper management) groups.

The discriminant analysis using physical location as partitioning variables resulted in four discriminant functions significant beyond the .01 level. The multivariate analog of omega-squared in this case was .33.

Table 9 reveals that the first discriminant function was highly associated with perceptions of job standards while the second function reflected perceptions of a climate marked with strict enforcement of company policies including salary administration. This second function differentiated Cities C and M from the others (Table 10). Function three was associated with perceptions of high workgroup morale and a company interest in employee needs

Table 7

Correlations Between Canonical Discriminant Functions
and Climate Components for Hierarchical Level Groups

Climate Component	Discriminant Function	
	1	2
Supervisory Style	.10	-.03
Workgroup Morale	.49	.06
Pay Fairness	.13	.12
Employee Orientation	.08	.74
Job Design	.20	.46
Quality of Working Equipment	.20	-.15
Supervisory Feedback	-.04	-.10
Training and Development Emphasis	.22	.05
Job Standards	-.59	.35
Job Security	.12	.03
Rules Orientation	-.04	-.10

Table 8

Group Means (Centroids) on the Discriminant Functions
for Hierarchical Level Groups

Hierarchical Level	Discriminant Function		N
	1	2	
Clerical/Special Services	-.69	-.01	438
Administrative/Technical	.68	-.28	327
Beginning Management	.54	.57	114
Middle Management	.57	.92	25
Upper Management	.87	1.43	8

Table 9
Correlations Between Discriminant Functions and Climate
Components for Physical Location Groups

Climate Component	Discriminant Function			
	1	2	3	4
Supervisory Style	-.05	-.07	.11	.51
Workgroup Morale	-.21	.19	.59	.47
Pay Fairness	.29	.50	-.09	-.29
Employee Orientation	.38	.33	.49	-.22
Job Design	.12	.09	-.52	.37
Quality of Working Equipment	-.13	.01	-.03	-.04
Supervisory Feedback	.00	-.12	.21	-.01
Training and Development Emphasis	-.16	-.05	.12	-.13
Job Standards	.76	-.48	.12	.22
Job Security	.00	.14	.07	.03
Rules Orientation	.16	.53	-.19	.41

Table 10

Group Means (Centroids) on the Discriminant Functions
for Physical Location Groups

Physical Location	Discriminant Function				N
	1	2	3	4	
City A	.08	-.18	.06	-.12	458
City B	.38	.20	.22	-.13	46
City C	-.14	1.15	.05	-.10	13
City D	-.09	.68	.51	-.38	8
City E	.29	.18	.03	.24	60
City F	.03	.95	-.13	-.09	11
City G	.95	.33	-.24	.26	7
City H	-.67	-.14	-.05	.19	165
City I	-.30	.69	-.22	.34	6
City J	-.19	.23	-1.34	-.92	12
City K	.29	.20	-.70	.17	23
City L	.68	.04	-.12	.38	69
City M	-.02	1.42	.33	-.18	8
City N	-.65	.94	.18	-.06	26

as well as routine, unchallenging jobs (Table 9). This function separated City J from the others. The last function was defined primarily by supervisory style and workgroup morale (Table 9). Thus, a high score indicated that employees perceived the climate as having a good deal of supervisory consideration and support as well as friendly and cooperative coworker relations (Table 10). Once again, City J was differentiated from the other physical locations on this function.

A discriminant analysis performed on the tenure groups resulted in two discriminant functions significant beyond the .05 level. The multivariate omega-squared value of .16 indicated that 16% of the variance in climate perceptions could be attributed to differences between tenure groups.

The first function was defined primarily by perceptions of rules orientation, job design, and employee orientation. Groups scoring high on this dimension described their work climate in terms of enriched jobs, high company orientation to employee needs, and lenient company policies and enforcement of these policies (Table 11). This function differentiated those with under five years of tenure from those with over five years (Table 12). The second function was associated with climate perceptions of employee orientation, job standards, pay

Table 11

Correlations Between Canonical Discriminant Functions
and Climate Components for Tenure Groups

Climate Component	Discriminant Function	
	1	2
Supervisory Style	-.09	.12
Workgroup Morale	.11	-.09
Pay Fairness	.23	.40
Employee Orientation	.39	.55
Job Design	.48	-.21
Quality of Working Equipment	.16	.09
Supervisory Feedback	.13	-.05
Training and Development Emphasis	-.08	-.27
Job Standards	-.13	.43
Job Security	.01	-.36
Rules Orientation	-.63	.26

Table 12

Group Means (Centroids) on the Discriminant
Functions for Tenure Groups

Employee Tenure	Discriminant Function		N
	1	2	
Under One Year	-.21	.38	62
One to Three Years	-.33	.08	328
Three to Five Years	-.16	-.27	189
Five to Ten Years	.33	-.10	167
Over Ten Years	.59	.11	166

fairness, and job security (Table 11). Groups high on this dimension perceived an interested and responsive organization, reasonable and fair job standards and salary policies, and an environment marked with uncertainty about job security. Table 12 shows that this function separated those with under one year of tenure from the other groups.

The discriminant analysis which partitioned employees based on workgroup size resulted in three discriminant functions significant beyond the .05 level. The estimated multivariate omega-squared value was .30.

The first discriminant function was defined primarily by workgroup morale (Table 13). Groups scoring high on this dimension described their work climate in terms of friendly, supportive, and cooperative coworker relations. An examination of group means on this dimension shows that, as workgroup size increases, workgroup morale decreases (Table 14). Function two was defined primarily by supervisory style while the third significant function was defined by training and development emphasis and job standards (Table 13).

A discriminant analysis performed on homogeneous task specialization groups resulted in six discriminant functions significant beyond the .05 level. The multivariate analog of omega-squared revealed that 69% of

Table 13

Correlations Between Canonical Discriminant Functions
and Climate Components for Workgroup Size

Climate Component	Discriminant Function		
	1	2	3
Supervisory Style	.29	.66	.36
Workgroup Morale	.52	-.38	-.38
Pay Fairness	.30	-.02	-.22
Employee Orientation	.07	-.04	-.22
Job Design	.21	.07	.21
Quality of Working Equipment	.26	.32	-.15
Supervisory Feedback	-.13	-.33	.28
Training and Development Emphasis	.09	-.11	.52
Job Standards	-.38	.39	-.45
Job Security	.21	.00	.01
Rules Orientation	-.11	-.17	.18

Table 14

Group Means (Centroids) on the Discriminant
Functions for Workgroup Size

Workgroup Size	Discriminant Function			N
	1	2	3	
1-2 Employees	.48	.26	-.51	57
3-8 Employees	.42	-.06	.05	529
9-13 Employees	-.64	.31	.07	207
14-24 Employees	-.98	-.40	-.10	119

the variance in climate perceptions could be attributed to this grouping based on task groups.

The first discriminant function was defined primarily by perceptions of job standards and workgroup morale (Table 15). Groups scoring high on this dimension perceived friendly and cooperative coworker relations along with a high quantity of work and unreasonable job standards. Table 16 shows that this function tended to differentiate non-services Claims employees from other groups.

The second function was defined mostly by perceptions of quality of working equipment and rules orientation (Table 15). Groups high on this dimension thus perceived high quality and well-maintained work equipment as well as a lenient orientation towards company rules and the enforcement of these rules. The third function was associated with rules orientation, quality of equipment, job security, and supervisory style (Table 15). Groups scoring high on this dimension perceived a climate marked by an adherence to strict company policies, high quality of working equipment, a high degree of job security, and a supervisory style which emphasizes employee consideration, recognition, and fair treatment. This function tended to differentiate Group Personnel-B from the other task specialization groups (Table 16).

Table 15
Correlations Between Canonical Discriminant Functions and Climate
Components for Task Specialization Groups

Climate Component	Discriminant Function					
	1	2	3	4	5	6
Supervisory Style	.07	.25	.42	-.01	.40	.49
Workgroup Morale	.43	.34	-.22	.21	-.19	.32
Pay Fairness	.01	.16	-.18	.36	-.32	-.34
Employee Orientation	-.01	.11	-.08	.16	.56	-.42
Job Design	.09	.29	.08	.51	.21	-.05
Quality of Working Equipment	.10	.47	.46	-.48	-.26	-.27
Supervisory Feedback	-.01	.14	.00	.14	-.35	.41
Training and Development Emphasis	.30	-.22	-.22	-.40	.29	-.01
Job Standards	-.69	.17	-.04	.02	.09	.25
Job Security	.05	.16	-.43	-.10	.22	.32
Rules Orientation	.16	-.41	.48	.34	.09	.05

Table 16
Group Means (Centroids) on the Discriminant Functions
for Task Specialization Groups

Task Specialization	Discriminant Function						N
	1	2	3	4	5	6	
Regional Management	.06	1.29	.09	.82	.61	-.08	18
Personnel-A	-1.27	1.34	-.25	-.06	-.57	.22	9
Personnel-B	-.16	-.73	1.26	.14	.45	.29	9
Legal-A	.32	.65	.00	.96	.00	.74	11
Legal-Clerical	-.60	.42	-.39	-.34	-.06	.39	19
Claims-A	.91	-.11	-.04	.02	.05	-.09	209
Claims-B	1.08	-.11	.25	.07	-.07	.62	28
Claims-C	.20	-.15	.56	.25	-.48	-.10	67
Claims-D	1.45	.12	.71	-.25	.24	.19	12
Claims-Services	-.97	-.03	.08	.55	.30	-.12	63
Underwriting-A	.14	.70	-.53	-.34	.06	-.02	102
Underwriting-Services	-1.01	-.87	.33	-1.02	.27	.06	18
Underwriting-Clerical	-.87	.67	-.26	-.13	-.07	-.03	28
Services-A	-.16	.76	-.25	.07	-.02	-.12	45
Services-B	-.63	-.31	.36	-.19	.19	.07	122
Services-C	-.20	-1.75	-.88	.18	.01	-.01	54
Services-D	-.78	.27	-.21	.16	-.44	.58	25
Services-E	-.03	-.22	.45	-.53	-.66	-.16	23
Services-F	-.87	.08	-.05	.30	-.62	-.35	28
Services-G	-.16	.51	.63	-.29	.29	-.34	22

The fourth discriminant function was defined mainly by perceptions of job design and quality of equipment (Table 15). A high score on this dimension indicated a climate perceived as having challenging and important jobs but with inappropriate or low quality equipment.

The fifth discriminant function was associated with perceptions of employee orientation and supervisory style (Table 15). A high score for groups on this dimension indicated perceptions of climate marked by organizational interest and responsiveness to employee needs along with a supervisory style which provides consideration, support, and fair treatment of employees (Table 16).

The final discriminant function was defined primarily by supervisory style, job-related feedback, and employee orientation (Table 15). Groups scoring high on this dimension perceived an open and considerate supervisory style, high job-related supervisory feedback, and low company orientation to employee needs and problems (Table 16).

In summary, the results of this series of discriminant analyses indicated that different locations in organizational space, as defined by one's location within the structure variables, were significantly associated with different perceptions of work climate. The extent to which partitioning groups based on

organizational structure variables could account for differences in work climate perceptions is summarized in Table 17. The R-Squared value represents the squared canonical correlation between the structural variables and the first discriminant function. It can be seen that structure is significantly and strongly associated with work climate perceptions. Moreover, a comparison of these values with those presented in Table 5 reveal that structure is associated more highly with work climate than with job satisfaction (R-Squared=.42 vs. R-Squared=.28). In addition, it appears that some structural variables have a higher relationship with climate than others. This is indicated by the omega-squared values which ranged from .16 to .69 with a median value of .33. It appears that groupings based on homogeneous task specialization have the strongest association with climate perceptions while those based on tenure have the least.

The Work Climate-Job Satisfaction Relationship

The relationship between work climate and overall job satisfaction was examined via multiple regression (SAS STEPWISE procedure) with job satisfaction as the dependent variable and component scores on the eleven climate components as independent variables. The results of the

Table 17
Summary of the Relationships Between Organization
Structure and Work Climate

Structure Variable	Number of Groups	Number of Significant Functions	Omega- Squared	R- Squared
Hierarchical Level	5	2	.39	.31
Physical Location	14	4	.33	.14
Employee Tenure	5	2	.16	.12
Workgroup Size	4	3	.30	.25
Task Specialization	20	6	.69	.33

stepwise regression procedure are presented in Table 18 while the overall results of the final climate-satisfaction model are summarized in Table 19 in an analysis of variance format.

An examination of Table 19 indicates a highly significant relationship between work climate and overall satisfaction. Each of the eleven climate components independently and significantly contributed to the prediction of job satisfaction beyond the .05 level, most being statistically significant beyond the .001 level. Collectively, the work climate components can account for approximately 62% of the variance in overall job satisfaction (Multiple $R=.78$).

Relationships Among Organization Structure, Work Climate and Job Satisfaction

The major premise developed earlier in this paper was that climate should function empirically as an intervening variable between organization structure and job satisfaction. Since the prior analyses have already demonstrated significant relationships between structure and satisfaction, structure and climate, and climate and satisfaction, attention now is directed towards the test

Table 18
Stepwise Regression Results for the Relationship
Between Work Climate and Job Satisfaction

Climate Component	Satisfaction Correlation	Model R-Squared	R-Squared Increment	Partial F	p
Employee Orientation	.40	.159	.159	71.70	.0001
Pay Fairness	.39	.312	.153	201.99	.0001
Job Design	.32	.412	.100	154.21	.0001
Supervisory Style	.27	.486	.074	130.98	.0001
Job Security	.21	.530	.044	84.40	.0001
Workgroup Morale	.19	.564	.034	72.05	.0001
Quality of Equipment	.18	.596	.032	71.90	.0001
Training Emphasis	.10	.607	.011	24.54	.0001
Job Standards	.07	.612	.005	11.38	.0008
Rules Orientation	-.04	.614	.002	4.55	.0333
Supervisory Feedback	.04	.616	.002	4.00	.0457

Table 19
Analysis of Variance Results for the Relationship
Between Work Climate and Job Satisfaction

Source of Variation	DF	SS	F	p
Regression	11	4642.57	131.07	.0001
Supervisory Style	1	559.85	173.87	.0001
Workgroup Morale	1	261.52	81.22	.0001
Pay Fairness	1	1153.37	358.19	.0001
Employee Orientation	1	1196.93	371.72	.0001
Job Design	1	753.50	234.01	.0001
Quality of Working Equipment	1	242.02	75.16	.0001
Supervisory Feedback	1	12.89	4.00	.0457
Training and Development Emphasis	1	80.52	25.01	.0001
Job Standards	1	36.92	11.47	.0007
Job Security	1	330.38	102.60	.0001
Rules Orientation	1	14.69	4.56	.0330
Error	900	2898.00		
Total	911	7540.58		

of climate as an intervening variable. This was accomplished in two stages.

In the first stage, intercorrelations among all three variables were determined. This was performed by computing canonical correlations between all sets of variables using the SAS CANCORR procedure. Structure variables were dummy coded in order to prevent artificial linearity. Results of this analysis are presented in Figure 1. The R-Squared values represented squared canonical correlations between the first pair of canonical variates. These values indicate that structure is more highly associated with climate ($R\text{-Squared}=.42$) than satisfaction ($R\text{-Squared}=.28$), and that climate is more highly associated with satisfaction ($R\text{-Squared}=.62$) than structure ($R\text{-Squared}=.42$).

Shrunken R-Squared values (Cohen & Cohen, 1975) were also computed to assess the amount of shrinkage which might occur in these values if a different sample were used. Due to this study's large sample size, relatively little shrinkage occurred in the structure - climate relationship (Shrunken $R\text{-Squared}=.39$), the structure-satisfaction relationship (Shrunken $R\text{-Squared}=.24$), or the climate - satisfaction relationship (Shrunken $R\text{-Squared}=.62$).

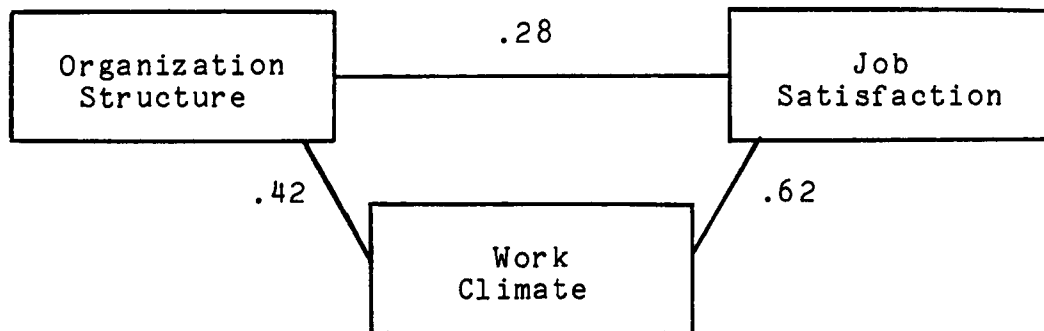


Figure 1

Canonical R-Squared Values Between Structure,
Climate, and Satisfaction

The second stage of the analysis looked at the relationship between structure and satisfaction when the influence of the climate components was removed using partial correlation techniques. As shown in Figure 2, this analysis resulted in a substantial decrease in the original relationship. It can be seen that the squared canonical correlation between structure and satisfaction was reduced from .28 to .12 (Shrunken R-Squared=.07) by statistically holding climate constant.

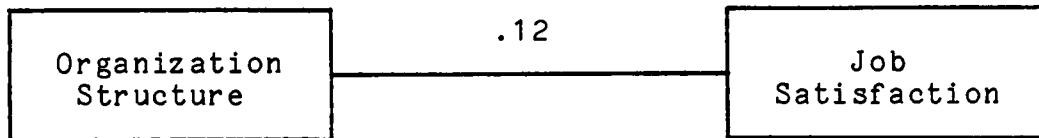


Figure 2

Canonical R-Squared Value Between Structure and Satisfaction with the Effects of Climate Removed

Aggregation of Psychological Climate Scores

As developed earlier in this paper, the aggregation of psychological climate scores to represent collective climate requires that several empirical criteria be met. These criteria include the demonstration of significant differences between aggregation groups, climate mean score reliability, and perceptual agreement within aggregation groups. These analyses were conducted separately for each climate component for all 912 individuals according to their location within each of the organizational structure variables. Results from this set of analyses are presented in Tables 20 through 24.

Between group differences in mean climate perceptions were tested via one-way ANOVAs for each climate component

Table 20
Aggregation Statistics for Hierarchical Level Groups

Climate Component	F	Intraclass Correlation	Spearman- Brown	Omega- Squared
Supervisory Style	2.89*	.013	.651	.008
Workgroup Morale	25.02**	.143	.960	.095
Pay Fairness	2.65*	.011	.619	.007
Employee Orientation	14.37**	.085	.929	.055
Job Design	9.28*	.054	.891	.035
Quality of Working Equipment	5.35*	.029	.811	.019
Supervisory Feedback	1.08	--	--	--
Training and Development Emphasis	6.03*	.034	.832	.022
Job Standards	38.54**	.206	.974	.141
Job Security	1.82	--	--	--
Rules Orientation	1.17	--	--	--

Note. Agreement statistics were only computed following a significant F.

*p<.05

**p<.01

Table 21
Aggregation Statistics for Physical Location Groups

Climate Component	F	Intraclass Correlation	Spearman- Brown	Omega- Squared
Supervisory Style	1.20	--	--	--
Workgroup Morale	2.76**	.033	.628	.024
Pay Fairness	3.45**	.046	.702	.034
Employee Orientation	3.64**	.049	.717	.036
Job Design	2.23**	.023	.541	.017
Quality of Working Equipment	1.23	--	--	--
Supervisory Feedback	1.49	--	--	--
Training and Development Emphasis	1.13	--	--	--
Job Standards	8.23**	.124	.874	.093
Job Security	0.55	--	--	--
Rules Orientation	3.46**	.046	.703	.034

Note. Agreement statistics were only computed following a significant F.

*p<.05

**p<.01

Table 22
Aggregation Statistics for Tenure Groups

Climate Component	F	Intraclass Correlation	Spearman- Brown	Omega- Squared
Supervisory Style	.45	--	--	--
Workgroup Morale	.91	--	--	--
Pay Fairness	3.12*	.012	.677	.009
Employee Orientation	7.11**	.034	.858	.026
Job Design	7.37**	.035	.863	.027
Quality of Working Equipment	1.35	--	--	--
Supervisory Feedback	.84	--	--	--
Training and Development Emphasis	1.33	--	--	--
Job Standards	2.59*	.009	.611	.007
Job Security	1.29	--	--	--
Rules Orientation	12.40**	.061	.919	.048

Note. Agreement statistics were only computed following a significant F.

*p<.05

**p<.01

Table 23
Aggregation Statistics for Workgroup Size

Climate Component	F	Intraclass Correlation	Spearman- Brown	Omega- Squared
Supervisory Style	16.20**	.077	.938	.048
Workgroup Morale	30.74**	.141	.967	.089
Pay Fairness	9.74**	.046	.896	.028
Employee Orientation	.82	--	--	--
Job Design	4.78**	.020	.789	.012
Quality of Working Equipment	8.46**	.039	.881	.024
Supervisory Feedback	3.73*	.015	.730	.009
Training and Development Emphasis	2.64*	.009	.618	.005
Job Standards	18.54**	.088	.945	.055
Job Security	4.53**	.019	.777	.011
Rules Orientation	1.87	--	--	--

Note. Agreement statistics were only computed following a significant F.

*p<.05

**p<.01

Table 24
Aggregation Statistics for Task Specialization Groups

Climate Component	F	Intraclass Correlation	Spearman- Brown	Omega- Squared
Supervisory Style	4.01**	.063	.742	.059
Workgroup Morale	8.07**	.136	.871	.128
Pay Fairness	2.34**	.029	.561	.027
Employee Orientation	2.19**	.026	.531	.024
Job Design	3.79**	.058	.727	.055
Quality of Working Equipment	7.68**	.129	.865	.122
Supervisory Feedback	1.66*	.015	.388	.014
Training and Development Emphasis	4.91**	.080	.789	.075
Job Standards	12.34**	.201	.916	.191
Job Security	3.10**	.045	.668	.042
Rules Orientation	6.71**	.113	.845	.106

*p<.05

**p<.01

using aggregation groups within each structural variable as cells. The resulting F ratios were generally statistically significant. Between group differences were found for eight out of eleven climate components for hierarchical level groups, six climate components for physical location groups, five climate components for tenure groups, and nine climate components for aggregation groups based on workgroup size. The aggregate groups based on homogeneous task specialization resulted in significant mean differences between groups for all eleven climate components.

The remaining agreement statistics (intraclass correlation reliabilities, Spearman-Brown reliabilities, and omega-squared estimates) were computed only after finding significant ANOVA results. If ANOVA results were not significant, the agreement statistics were considered not significantly different from zero.

Estimates of statistical power and within-group agreement were assessed by computing intraclass correlation reliabilities and estimates of omega-squared for each climate component. Intraclass correlation reliabilities were computed using a procedure described by Ebel (1951) using the harmonic mean of each structural variable as an adjusting component (Snedecor, 1946). These values were generally low. Median intraclass

reliabilities were .034 for hierarchical level, .033 for physical location, .002 for tenure, .020 for workgroup size and .063 for task specialization groups.

Omega-squared estimates were computed using Hay's (1963) procedure. Again, these estimates were low; median omega-squareds were .019 for hierarchical level, .017 for physical location, .002 for tenure, .012 for workgroup size, and .059 for task specialization group.

The reliability of each climate mean score was assessed by the Spearman-Brown conversion of the intraclass correlation using the harmonic group mean as an adjusting component (Guilford, 1954). These estimates were substantially higher than the previous intraclass reliability estimates of individual scores. Median Spearman-Brown reliabilities were .811 for hierarchical level groups, .541 for physical location, .254 for tenure, .789 for workgroup size, and .742 for groups based on task specialization.

Results of the above analyses called into question the appropriateness of aggregating individual psychological climate scores to represent collective climates in organizations. On the one hand, results from the one-way ANOVAs indicated differences between climate mean scores for the aggregation groups while results from the Spearman-Brown analysis demonstrated the acceptable

reliability of these mean scores. On the other hand, results from the intraclass correlation reliabilities and the subsequent estimates of omega-squared indicated relatively low perceptual agreement within these aggregation groups.

In light of these above results, it was decided to run an additional check to determine whether an appropriate level of agreement would be demonstrated at the most intuitively homogeneous level of aggregation - the primary work group. This was defined as groupings of either nonsupervisory, technical, or managerial employees reporting directly to a single supervisor. Similar aggregation statistics as presented above were then conducted on climate perceptions of individuals aggregated according to their primary work group. Only work groups composed of three or more employees were included in this analysis, reducing the total sample size to 854 employees within 151 different primary work groups. Results are presented in Table 25.

One-way ANOVAs demonstrated significant mean differences for all climate components. All but one of these (Job Security) was significant beyond the .0001 level. Spearman-Brown reliabilities were lower than for previous aggregate groups; the median Spearman-Brown reliability being .481. Perceptual agreement within

Table 25
Aggregation Statistics for Primary Work Groups

Climate Component	F	Intraclass Correlation	Spearman- Brown	Omega- Squared
Supervisory Style	3.55**	.251	.653	.308
Workgroup Morale	4.41**	.309	.716	.373
Pay Fairness	2.16**	.132	.460	.168
Employee Orientation	1.97**	.113	.417	.144
Job Design	1.74**	.089	.354	.115
Quality of Working Equipment	2.25**	.141	.481	.180
Supervisory Feedback	1.69**	.083	.339	.108
Training and Development Emphasis	2.08**	.124	.442	.158
Job Standards	3.98**	.281	.687	.342
Job Security	1.27*	.035	.168	.045
Rules Orientation	2.36**	.151	.501	.192

*p<.05

**p<.0001

primary work groups was higher than for previous aggregate groups; the median intraclass reliability was .132 while the median omega-squared value was .168.

The above analyses indicated that, with the exception of Spearman-Brown reliabilities, aggregation criteria were best fulfilled by using primary work groups as the basis for aggregation. However, the generally low indices of perceptual agreement, even at this level, did not seem adequate enough to provide a justification for aggregating psychological climate scores to represent collective climates. Therefore, it was decided not to further examine the empirical relationship of collective climate as an intervening variable between organizational structure and group satisfaction.

IV. DISCUSSION

Measurement of Work Climate

Since the generalizability of the present study's findings are bound by the measurements used, attention was initially directed towards the adequacy of the instrument used to measure work climate. Although not a standardized, widely-distributed instrument, it is believed that the work climate instrument used in this study is psychometrically and conceptually sound enough to extend the findings beyond this particular sample.

Cross validation of the instrument's component structure demonstrated that the 11 empirically-derived climate components generalized with a high degree of association across widely diverse jobs, positions, and geographical areas. Further, these components were easily interpretable, psychologically meaningful, internally consistent, and reflective of climate dimensions reported in the literature. In addition, analyses presented in this study demonstrated statistically significant relationships of the instrument with the external criteria of organization structure and job satisfaction.

Thus, it is felt that the climate instrument used in this study was a conceptually and psychometrically sound

measure of work climate. It is hoped that the generalizability and utility of the instrument will be extended by further investigations employing different employees and organizations.

Relationships Among Organization Structure, Work Climate, and Job Satisfaction

The major thrust of this study was to examine the interrelationships among organization structure, work climate, and job satisfaction. Results have indicated substantial relationships among all of these variables.

The Organization Structure-Job Satisfaction Relationship

The initial analysis conducted in this study examined the relationship between organization structure and job satisfaction. Each of the five structure variables independently and significantly predicted job satisfaction beyond the .01 level. Taken together, the organization structure variables accounted for over 28% of the variance in job satisfaction (Canonical $R=.53$).

This analysis demonstrated the substantial relationship between organization structure and job satisfaction. The magnitude of this relationship is higher than that previously reported in the literature

(Herman & Hulin, 1972, Jones & James, 1977; Porter & Lawler, 1965). It is felt that this is due to the choice of structure variables used in this study. Whereas previous studies have typically concentrated on more traditional structure measures (eg. span-of-control, centralization, technology, organization size), the structure measures used in this study were chosen on the basis of relatively close ties with individual experiences (eg. hierarchical position, task specialization, work group size).

The Organization Structure-Work Climate Relationship

The second set of analyses dealt with the hypothesis that one's location within the organizational structure would be associated with different perceptions of work climate. A series of multiple discriminant analyses substantiated this claim. Different structures were significantly and strongly associated with different work climates. Moreover, climate was more strongly related to structure than was job satisfaction. These findings are consistent with previous research cited in the literature review section of this paper.

These analyses also revealed that some structural variables were more strongly associated with climate than others. The strongest relationship was exhibited by the

influence of homogeneous task specialization while the weakest link was shown by company tenure. These findings indicate that, when operationalized in this fashion, there is no one "organizational" climate. Rather, many climates seem to exist in organizations. Also, these climate perceptions are more strongly associated with some organization structure variables than others.

The Work Climate-Job Satisfaction Relationship

A third hypothesis indicated that work climate would be associated with overall job satisfaction. Results confirmed this premise, each of the climate components independently and significantly contributing to job satisfaction prediction beyond the .05 level. This finding again reflects previous research cited in this paper and indicates the strong relationship between work climate and job satisfaction.

Climate as an Intervening Variable

The major premise developed in this paper was that climate should function, theoretically and empirically, as an intervening variable between organization structure and job satisfaction. Although a direct test of the theoretical framework underlying this premise was not

possible, empirical tests showed some support for the hypothesis

Canonical R-Squared values indicated that structure was more highly associated with climate than satisfaction, and that climate was more highly associated with satisfaction than structure. When the influence of climate was statistically removed from the structure-satisfaction relationship, a decrease in prediction of 16% resulted (Canonical R-Squared reduced from .28 to .12).

Although this reflects a substantial reduction, it must be noted that the final R-Squared value of .12 is still highly significant, undoubtedly aided by this study's large sample size. Using Cohen and Cohen's (1975) guidelines, the effect size was reduced from a "large" to a "medium" effect. Two possible explanations for this finding can be offered.

First, it is possible that organization structure may partly contribute to job satisfaction independent of work climate perceptions. However appealing, this explanation is rejected based on a complete lack of theoretical underpinnings. A second, more plausible explanation is that the instrument used in this study is not comprehensive enough to cover the complete domain of structure-influenced work climate aspects which contribute

to job satisfaction. If one embodies the idea, as developed in this paper, that climate is a broad all-emcompassing set of perceptions, then it hardly seems reasonable that 60 questionnaire items can completely cover this domain. This has implications for future climate theory and research, as covered in a later section of this paper.

Aggregation of Climate Scores

A second major premise of this study dealt with the aggregation of psychological climate scores to represent collective climates. It was suggested that past theory and research would allow aggregation provided that several empirical criteria were met. Mixed findings from this investigation argued against the aggregation of climate scores beyond the individual level.

On the one hand, results from one-way ANOVAs indicated differences between climate mean scores for the aggregation groups while results from the Spearman-Brown analysis demonstrated the acceptable reliability of these mean scores. On the other hand, results from the intraclass correlation reliabilities and subsequent estimates of omega squared indicated relatively low perceptual agreement within these aggregation groups.

These findings called into question all of the past research on climate. It seems that estimates of variance accounted for, such as intraclass correlations and omega squared, are more accurate reflections of agreement and homogeneity than mean score differences and reliabilities. This is due to the fact that the latter group of statistics are too easily influenced by sample size. When reflecting on past studies of climate, it becomes apparent that those studies which concluded that organizational or collective climates exist employed the latter group of mean score statistics while those studies that concluded that collective climates did not exist employed the former amount of variance statistics. It is not surprising that these mean score statistics are recently coming under attack as inappropriate indices of homogeneity and perceptual agreement, particularly when large samples are used (Bartko, 1976; James, 1982; Jones, Johnson, Butler, & Main, 1983).

Implications

Implications for Theory

Results provided in this study have implications regarding the theoretical conceptions of climate as an

intervening variable, the components of climate, and the role of collective climates.

The hypothesis of climate as an intervening variable between organization structure and job satisfaction received initial support in this study. A substantial decrease in prediction occurred when climate was removed from the structure-satisfaction relationship. Although a direct test of the theoretical frame-of-reference underpinning was not possible, results are consistent with the explanation that one's location in organizational space is associated with differences in climate perceptions. These climate differences are subsequently associated with differences in overall job satisfaction.

Preliminary evidence thus exists to speculate that organization structure has its impact on job satisfaction via perceptions of climate. Therefore, climate can be viewed as a valuable construct for bridging organizational and psychological research. This conclusion needs to be extended and strengthened by future research addressing different organizational structure and job attitude variables than those used in this study.

Eleven empirically-derived dimensions of climate were utilized in this study. These 11 components were psychometrically sound, reflective of those reported in the literature, and highly associated with both

organization structure and job satisfaction. Results from this study, however, showed that there was also room for improvement in the conceptualization and measurement of climate. It appears that the climate instrument used in this study tapped many, but not all, of the climate dimensions which mediate organization structure and job satisfaction. Future theory and research should be directed towards delineating, measuring, and assessing the utility of additional dimensions of work climate.

Perhaps the most complex issue to come out of this study concerns the role of collective climates in organizations. If one considers reliable mean score differences as evidence of different collective climates, then this study supports the concept. If one considers climate as agreement of perceptions among group members, as this author believes, then this study refutes the concept of collective climates.

Obviously, more attention needs to be directed towards this issue. Whereas such ideas as "organizational" or "management" climate may be elusive concepts considering our current methodology, ideas such as "small work group" climate may be tractable and useful. This is because employees in small groups tend to agree more on their perceptions of climate than those in larger groups.

However, even at such intuitively homogeneous employee groupings as primary work group, there seems to be considerable disagreement on climate perceptions. It is felt that this issue can be best addressed by future theory directed towards determining the manner in which climate perceptions are formed. Schneider and Reichers (1983) have made significant inroads concerning the formation of climate perceptions. Their seminal thinkpiece develops the idea that climates emerge out of the interactions that work group members have with each other. The logical extension of this idea is that collective climates can be defined sociometrically. In any event, this premise needs to be empirically assessed and compared with other theoretical propositions for the basis of collective climates.

Implications for Practice

In addition to suggestions for further theoretical development, results of the present study also indicate several improvements for current organizational practices. These include implications for management of the work environment, organizational interventions, and employee communications.

Results indicated a strong relationship between perceptions of the work climate and overall job

satisfaction. As such, management can use climate surveys to manage the work environment to affect employee outcomes. For example, a climate instrument such as the one used in this study can be administered to employees to gauge work environment perceptions throughout the organization. This will establish an information base which can then be used to alter aspects of the work environment which are related to job satisfaction. Although not specifically addressed in this study, past research has demonstrated that other outcomes such as job performance, achievement, innovation, turnover, etc. will be related in some degree to work climate perceptions. By gathering data on these other criteria of interest and assessing their relationship to climate, management can alter the work environment to affect the desired outcomes.

Results have also indicated that differences in employee satisfaction are associated with different organizational structures. This implies that structural interventions may have a dramatic impact on employee attitudes. There is currently a distinction in the organization change and development literature between "structural" and "processual" interventions (Friedlander & Brown, 1974). While most organization development theorists and practitioners have leaned toward processual changes to alter employee attitudes (Leavitt, 1965),

results from this study have indicated that these attitude changes may be induced by changing organization structure. Further, it is felt that structural changes will produce more dramatic and long-lasting effects in employee attitudes, a current shortcoming of most processual interventions (Eoyang, 1980).

Finally, it is suggested that this study has implications for improving employee communications. It will be recalled that there is considerable disagreement among employees concerning their perceptions of work climate. It is not known whether this is due to differences in the actual work climate or due to misperceptions of the same work climate. Since, in this study, many employees were situated under similar organizational structures, it seems plausible that disagreement may be due in some part to misperceptions of the work environment.

To improve communications among employees and managers, a climate instrument could be administered to employees in relatively homogeneous groups and their work climate perceptions analyzed. Small group meetings can then be held to discuss those dimensions of the work climate that show the most disagreement among employees. Once disagreements have been addressed and ironed out, employees and management can then determine which climate

aspects most affect valued outcomes, such as satisfaction, and then devise plans to improve the climate through structural interventions. If this can be carried out on an organization-wide basis, it can be expected that considerable improvement in employee and organizational functioning will result.

In many ways, the present study can be considered as a preliminary investigation into this interesting and complex field. Future research must be conducted to expand and refine the ideas and findings presented in this paper. More longitudinal and experimental studies need to be conducted to determine the causality of effects. Further validation and expansion of the climate instrument used in this study should also be addressed. Also, additional criteria and structure variables must be examined in different organizations to determine the generalizability and utility of the climate construct. Finally, more theoretical and methodological work is needed to develop the role of collective climates and the appropriate manner of aggregating climate scores to represent this concept.

This effort should be aptly rewarded, however. The climate construct is seen as an extremely valuable concept for integrating organizational and psychological theory

and research and ,as such, has tremendous potential for improving both employee and organizational functioning.

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APPENDIXES

APPENDIX A

The Employee Attitude Survey

Instructions to Employees

This questionnaire is part of a continuing program at Company XYZ to determine how employees feel about their work environment. The purpose of the survey program is to use the information to make your work situation as satisfying and productive as possible.

The completed questionnaires are processed by Home Office Personnel after which the questionnaires are destroyed. Automated equipment summarizes the information so that individuals cannot be identified. To insure confidentiality please do not write your name anywhere on the questionnaire or on the answer sheet.

After the questionnaires have been processed, the summarized results will be presented to you.

If this program is to be helpful, it is important that you answer each question/statement as thoughtfully and honestly as possible. Most of the questions/statements can be answered by filling in one of the answer spaces. If you do not find the exact answer that fits your case, select the one that comes nearest to it.

Don't spend a lot of time thinking over any one question. Your first impression will most likely represent the way you really feel. Remember, this is not a test. There are no "right" and "wrong" answers. Please give us your honest opinion.

1. To what extent do you use your skills on your job?
2. To what extent do the various members of your work group cooperate with each other?
3. To what extent does everyone in your work group do their share of work?
4. To what extent does your supervisor give you directions on how to improve your performance?
5. To what extent does your supervisor administer your salary fairly?
6. To what extent is the company interested in your welfare?
7. To what extent has your supervisor been understanding of any personal problems you may have had?
8. To what extent is a spirit of friendliness exchanged among the members of your work group?
9. To what extent do you like your fellow workers?
10. To what extent is your supervisor consistent in his treatment of you?
11. To what extent do these performance appraisals help you to improve yourself?
12. To what extent does your supervisor know his/her job?
13. To what extent are you able to speak frankly with your supervisor?
14. To what extent will Company XYZ management consider and use the results of this survey?
15. To what extent is there an exchange of trust among the members of your work group?
16. To what extent do people respect your job?
17. To what extent have company sponsored training courses been helpful to you on the job?
18. To what extent is your work important to the company?

19. To what extent has your supervisor been helpful in solving problems that arise in your work?
20. To what extent do you feel a sense of accomplishment or achievement from your work?
21. Considering the work you do, to what extent is your job grade fair compared to job grades of other jobs within the company?
22. To what extent does your supervisor give you recognition for the good work you do?
23. To what extent is your pay fair compared to jobs in other non-insurance industries?
24. To what extent is management sincerely interested in employee problems?
25. To what extent does your job develop valuable career skills?
26. To what extent does your supervisor take an active interest in your progress?
27. To what extent have you had opportunity for advancement?
28. To what extent is your supervisor fair in evaluating your work?
29. To what extent are salary increase amounts related to your performance?
30. To what extent is the Company XYZ salary administration program competitive with other insurance companies?
31. To what extent does Company XYZ's training prepare you to assume additional responsibilities?
32. I am paid a fair salary for the work that I do.
33. I learn about most of the changes going on within the company through unit meetings.
34. The employee publication provides me with interesting information.
35. My supervisor does not show favoritism to some employees.

36. I feel free to discuss personal or work-related problems with my supervisors or another member of management.
37. My supervisor tells us about the goals of our unit in unit meetings.
38. If I cannot resolve a work-related problem with my supervisor I feel I can go to the Personnel Division.
39. I am not worried about the possibilities of losing my job.
40. My supervisor is honest with me.
41. Company XYZ provides me the training necessary to perform my job.
42. I am usually not bored with my work.
43. Company equipment is usually kept in good working order.
44. There are seldom disagreements among the members of my work group.
45. I get credit for the good work I do.
46. If I have a grievance, I know what procedure to follow.
47. There are no troublemakers within my work group.
48. My supervisor usually doesn't pressure me to get my work done.
49. My supervisor has indicated to me what I must do in order to be eligible for promotion.
50. There is enough work for me to do.
51. The quality of company supplied equipment is good.
52. The most qualified are usually selected for promotion at Company XYZ.
53. My supervisor tells me the quality of work I do.
54. The dress code at Company XYZ is strict enough.

55. I know what my supervisor expects of me.
56. My supervisor lets me know of his/her future plans for me.
57. I would not leave Company XYZ if I could get a job like the one I have for the same money at another company.
58. Too much work is usually not a problem with my job.
59. I feel the job posting program is effective in giving everyone an opportunity for career advancement.
60. I don't have to worry about losing my job if my performance is satisfactory.
61. The type of equipment I use is satisfactory for the kind of work I do.
62. Management would deal promptly and fairly with my complaint if I had one.
63. Standards for the quality and quantity of work performed in my area are reasonable.
64. Supervisors in this company do not allow too many infringements of company rules to go by unnoticed.

Note. The response scale for items 1 through 31 is:

- (1) Very Little Extent
- (2) Little Extent
- (3) Some Extent
- (4) Great Extent
- (5) Very Great Extent

The response scale for items 32 through 64 is:

- (1) Strongly Disagree
- (2) Disagree
- (3) Not Sure
- (4) Agree
- (5) Strongly Agree

APPENDIX B

Items Comprising The Job Satisfaction Scale

1. If I had the choice to make again, I would still come to work for Company XYZ.
2. I would recommend Company XYZ to my friends as a place of employment.
3. Now, considering everything, how would you describe your overall feeling about your employment situation at Company XYZ?

Note. The response scale for items 1 and 2 is:

- (1) Strongly Disagree
- (2) Disagree
- (3) Not Sure
- (4) Agree
- (5) Strongly Agree

The response scale for item 3 is:

- (1) Very Dissatisfied
- (2) Dissatisfied
- (3) Neither Dissatisfied Nor Satisfied
- (4) Satisfied
- (5) Very Satisfied

VITA

William A. Johnson was born in LaCrosse, Wisconsin on May 17, 1955. He attended parochial schools in that city and graduated from Aquinas High School in May, 1973. He received his undergraduate education at the University of Wisconsin-LaCrosse and graduated with a Bachelor of Science degree in Psychology in May, 1979. While at the University of Wisconsin-LaCrosse, he was affiliated with the Concentration in Applied Psychology program.

He began his graduate education at the University of Tennessee, Knoxville in September, 1979. While at the University of Tennessee, he conducted human resource research projects for several organizations including the American Family Insurance Group, the Tennessee Valley Authority, the City of Oak Ridge, and the Tennessee Executive Development Program. He also taught undergraduate courses in introductory management. He received the Doctor of Philosophy degree in 1984 with a major in Industrial and Organizational Psychology.

The author is an affiliate of the American Psychological Association, and is also a member of the Academy of Management, the American Society for Training and Development, the Metropolitan New York Association for Applied Psychology, and the Beta Gamma Sigma National

Business Honor Society. He is currently on the staff of the IBM Corporation in Armonk, New York, where he serves as a Personnel Research Associate.