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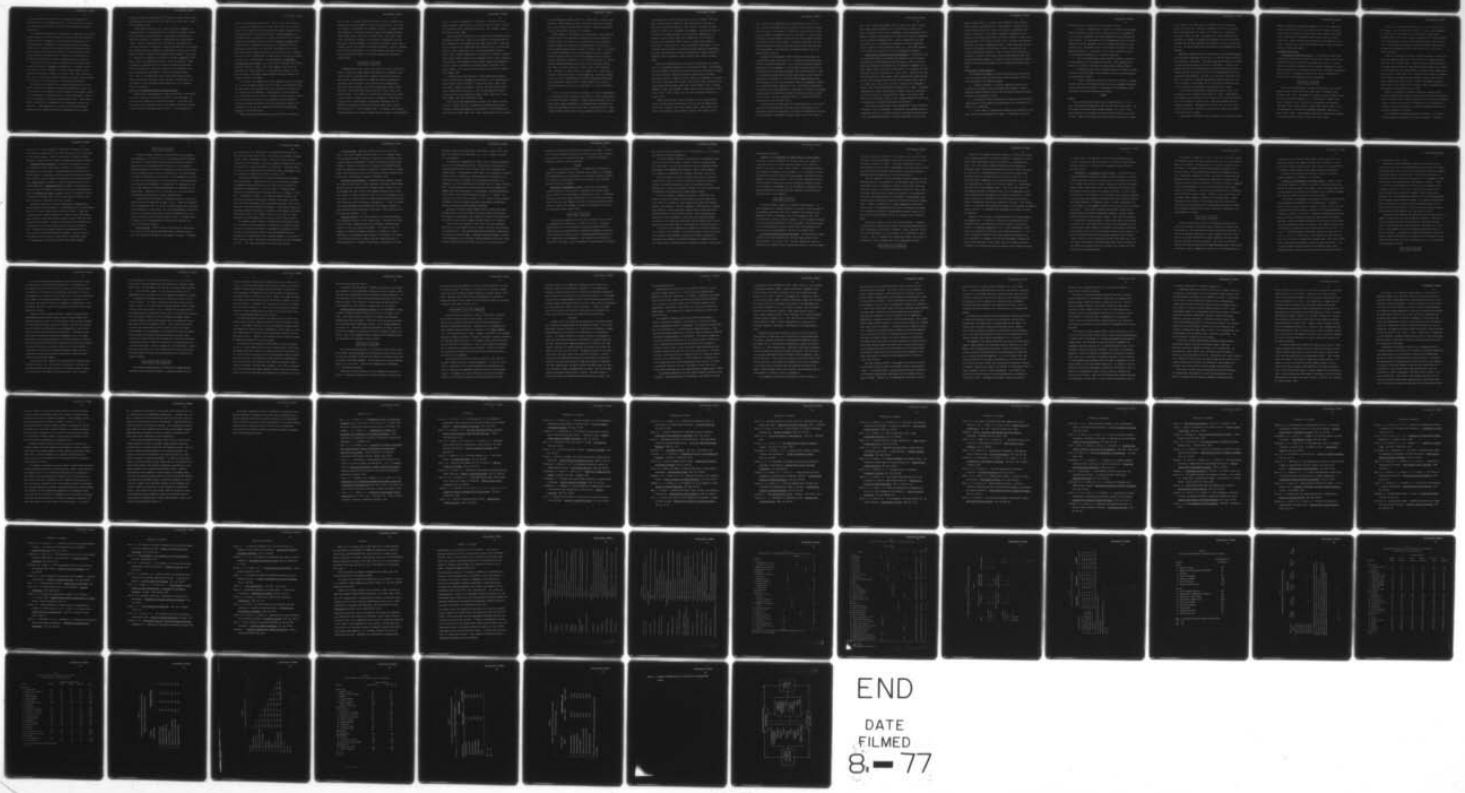

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# Psychological and Organizational Climate: Dimensions and Relationships

Allan P. Jones and Lawrence R. James

In collaboration with John R. Bruni, Chris W. Hornick, and S. B. Sells

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Abstract

In an exploratory investigation of conceptual bounds for organizational and psychological climate, theoretical assumptions underlying the two constructs were reviewed as were their relationships with various situational, positional, and individual variables. Empirical analyses indicated that (a) five of six psychological climate dimensions found for a sample of 4,315 U. S. Navy enlisted men were generalizable to comparison samples of firemen ($n$ = 398) and health care managers ($n$ = 504); (b) aggregation of psychological climate scores to represent organizational climate was most applicable to homogeneous subsystems (e.g., divisions); (c) subsystem climates were significantly differentiated by variables representing division context, structure, and personnel composition, while psychological climate appeared to be more related to individual resources and position variables; and (d) subsystem climate, structure, context, and personnel composition measures were significant predictors or division performance criteria. Results were interpreted relative to the theoretical properties of climate and prior research on structure and context.

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Psychological and Organizational Climate:

Dimensions and Relationships

A number of recent articles and reviews have attested to the current popularity of organizational climate and, more important, offered several suggestions for future theory and research (cf. Campbell, Dunnette, Lawler, & Weick, 1970; Hellreigel & Slocum, 1974; James & Jones, 1974; Payne & Pugh, 1976; Schneider, 1975a; Howe & Gavin, Note 1). The strongest recommendation was for a clear, explicit description of properties and conceptual bounds of organizational climate, indicating relevant variables and dimensions as well as relationships of climate with other situational and individual attributes. Also recommended were the comparison of multiple sources of measurement, an investigation of the accuracy of individual climate perceptions, the exploration of perceptual agreement as a potential situational attribute, and an examination of appropriate organizational levels (e.g., workgroup, subsystem, organization) for the aggregation of climate perceptions. Finally, it was suggested that climate research incorporate longitudinal as well as cross-sectional designs, that the focus of perceptual measurement be descriptive, and that climate investigations include task as well as person and social characteristics.

The present study addressed a subset of these recommendations, with initial emphasis on articulating conceptual bounds of climate. A major component of this articulation was the suggested differentiation between organizational climate as a situational attribute and psychological climate as an individual attribute (James & Jones, 1974)[1]. The articulation of conceptual bounds formed the basis for an empirical exploration of

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issues related to the construct validity of organizational and psychological climate, including: (a) the identification of dimensions underlying psychological climate, an assessment of dimension generalizability across organizations, and an evaluation of the degree to which aggregated individual perceptions meaningfully represented the climate for different organizational levels; (b) an examination of relationships of selected situational and individual attributes with organizational and psychological climate; and (c) an assessment of the relationship of organizational climate and other situation measures with subsystem criteria.

The review of conceptual bounds was based on a synthesis of earlier reviews and research, with specific studies used to illustrate more general points. Suggested definitions for organizational and psychological climate follow the review and set the stage for discussing the correlates of the two constructs and the role of organizational climate in prediction models. Finally, a specific statement of research strategy is provided.

Assumptions underlying climate.

In an earlier review, James and Jones (1974) suggested that two basic orientations underlay much of the current climate literature. One orientation, labelled organizational climate, emphasized climate as a set of situationally based attributes. The second orientation, psychological climate, approached climate as a set of individually based, psychological attributes reflecting the individual's internalized representation of the external environment. The following discussion, therefore, explored and compared theoretical assumptions regarding organizational and psychological climate in order to suggest tentative definitions for each construct. Theoretical statements defining climate primarily in perceptual

or psychological terms were used to explore psychological climate; treatments emphasizing its situational nature provided the basis for exploring organizational climate. Most authors specifically referred to organizational climate, however, and describing their work as "psychological climate" represents an interpretive liberty.

There appears to be considerable agreement that climate, whether organizational or psychological, represents an abstract, multidimensional description of the situation. In regard to psychological climate, a number of authors have treated climate as a perceptually based, psychologically processed description of the environment, where the individual filters and interprets situational stimuli. For example, Schneider (1975a) described climate as a set of macro perceptions based upon a process of concept formation and abstraction of micro perceptions of specific organizational conditions, events, and experiences. Ittelson, Proshansky, Rivlin, and Winkel (1974) suggested that the individual organizes perceptions of the environment into a more abstract "cognitive map" which serves to guide future predictions and behavior. This cognitive map refers to the individual's internalized representation of the situation and reflects an inherently inseparable combination of perceptual and cognitive processes. Campbell and Beaty (Note 2) echoed these ideas of perceptual filtering, summation, and cognitive structuring.

All the above treatments stressed the descriptive, cognitive nature of climate, distinguishing it from the affective, evaluative aspects that would render it tautological with job-related attitudes such as satisfaction. Recent research has supported this conceptual distinction between psychological climate and satisfaction (La Follette & Sims, 1975; Schneider

& Snyder, 1975), although dynamic interrelationships were generally assumed, and often found, in climate-satisfaction studies (Hellriegel & Slocum, 1974).

The idea of an abstracted, multidimensional description of the situation also appears for organizational climate. Hellreigel and Slocum (1974) referred to climate as a set of organizational or subsystem attributes that may be induced from the way an organization or its subsystems deal with its members. Ittelson et al. (1974) extended this idea, pointing out that environments possess a "demand character" that describes the immediate sensory stimuli of the situation and also encompasses a social and symbolic meaning. Similarly, Insel and Moos (1974) characterized organizational environments as having "personalities" that exert directional influences on behavior.

Insel and Moos reflected another common assumption when they suggested that a limited number of dimensions can characterize a large and varied group of social environments. They proposed three such dimensions -- relationship, personal development, and system maintenance. Similarly, Campbell et al. (1970) isolated four dimensions common to a number of empirical climate studies in organizations. These dimensions (individual autonomy; degree of structure imposed on the situation; reward orientation; and consideration, warmth, and support) were supported in subsequent factor analytic studies (Sims & La Follette, 1975; Waters, Roach & Batlis, 1974). It was noted, however, that a communality of items might have contributed to such results and that the number of dimensions was perhaps too few. In this respect, Payne and Pugh (1976) added a fifth dimension, orientation toward development and progressiveness, and several authors

have noted that specific dimensions might be needed to describe particular situations.

The major divergence from the idea of a common core of dimensions appeared to be Schneider (1975a), who postulated that the question of dimension salience was relevant only in the context of a particular criterion. He viewed organizations (subsystems, workgroups) as having many climates (e.g., climates for creativity, motivation, new employees, etc.) stating that the term organizational climate "should refer to an area of research" rather than a construct with a particular set of dimensions. This is obviously a serious divergence requiring empirical examination.

Another important assumption was that climate represents a set of intervening variables in an organizational model, although the interpretation and implications of intervening vary for organizational and psychological climate. For example, Payne and Mansfield (1973) described organizational climate as a conceptual linkage between organizational and individual levels of analysis. In this respect, organizational climate has often been viewed (albeit implicitly) as a summary description of <u>how</u> situational attributes <u>influence</u> individuals and groups, and not just a simple description of the organization's physical and/or social attributes. For example, relatively specific situational attributes such as poorly stated role prescriptions, unclear reward contingencies, and capricious, non-directive leadership might be transformed into <u>situational influences</u> referred to as an ambiguous and conflicting climate.

From this perspective, organizational climate intervenes between specific situational events and individual perceptions, attitudes, and

behavior (Payne & Pugh, 1976). The transformation of specific events into situational influences is evident in the names given to most climate scales and dimensions (e.g., autonomy, consideration, warmth). Other indications of an intervening situational influence are found in statements regarding the "directional influence" or "demand character" of the environment (Insel & Moos, 1974; Ittelson et al., 1974) and in the idea of "environmental press" (Payne & Mansfield, 1973; Payne & Pheysey, 1971; Pheysey, Payne, & Pugh, 1971).

For psychological climate, the intervening process is inherent in the concept of a cognitive map, whereby the individual transforms situational stimuli into perceived situational influences (e.g., ambiguity, conflict, warmth, press). These influences are employed to achieve a "fit" with the situation by "apprehending order" and "gauging appropriateness of behavior" (Ittleson et al., 1974; Schneider, 1975a). Thus, psychological climate acts as an internalized psychological representation of the situation and serves to guide future attitudes and behavior (Campbell et al., 1970; Ittleson et al., 1974; James & Jones, 1974).

Finally, there appears to be considerable agreement that both organizational and psychological climate are primarily based upon aspects of the environment that have a relatively direct and immediate impact on individuals. For example, characteristics which are more distal or remote in terms of conceptual proximity to individual experience require more complex, intervening linkages to be related to individual perceptions and behavior (Indik, 1968; Jessor & Jessor, 1973; James & Jones, 1976). In a similar vein, Lawler, Hall, and Oldham (1974) argued that perceptions of climate were more related to relatively immediate characteristics such as

organizational and subsystem processes than to structural characteristics. Finally, Payne and Pugh (1976) concluded that organizational climate encompassed proximal situational variables that were psychologically important to individuals.

In summary, certain assumptions and properties were identified as conceptual bounds for psychological and organizational climate. It appeared that psychological climate: (a) is primarily descriptive; (b) involves psychological processing, abstracting, and structuring of situational perceptions and cognitions into an internalized representation or cognitive map reflecting situational influences; (c) is multidimensional, with what appears to be a central core of dimensions describing perceived situational influences, although specific dimensions might be added to describe particular situations; (d) is based primarily on those situational characteristics which have relatively direct and immediate ties to individual experience and behavior; and (e) occupies an intervening role in a model of organizational functioning, where the point of intervention is within the individual.

Based on these assumptions, the following definition of psychological climate was proposed for the present study:

> Psychological climate refers to the individual's internalized representations of organizational conditions and reflects a cognitive transformation and structuring into perceived situational influences.

A related set of assumptions appeared to underlie organizational climate. It appeared that organizational climate: (a) describes situational characteristics in terms of influences on individuals and groups; (b) is multidimensional with what appears to be a central core of dimensions,

although specific dimensions might be added to describe particular situations or populations; (c) is based primarily on those aspects of the environment which have relatively direct and immediate ties to individual experience and behavior; and (d) occupies an intervening role in a model of organizational functioning, where the point of intervention is between the situation and the individual and reflects a transformation of situational characteristics into situational influences.

The above assumptions led to the following proposed definition for organizational climate:

> Organizational Climate refers to a set of situational influences which reflect relationships among organizational conditions and which characterize the ways in which the organization and its subunits affect their members.

The foregoing discussion has a number of important implications for the identification and measurement of variables and dimensions underlying organizational or psychological climate, and for relationships between the two constructs. For example, the assumption that climate primarily reflects the relatively proximal and immediate characteristics of the environment suggests that such characteristics provide a basis for inferring organizational and psychological climate. Previous reviews and research (Indik, 1968; Hellreigel & Slocum, 1974; James & Jones, 1974; Lawler et al., 1974; Payne & Pugh, 1976; Schneider, 1975a; Sells, 1963, 1968a) indicated that these characteristics include: (a) job or role characteristics such as job variety and challenge, job pressures, and role ambiguity; (b) leadership characteristics and behavior such as support, goal emphasis, and initiation of structure; (c) workgroup characteristics such as friend-

liness and cooperation; and (d) certain subsystem and organizational characteristics (e.g., management awareness of employee needs, fairness of the reward process) that have a relatively direct bearing on individual experiences.

In inferring organizational or psychological climate from such variable domains, however, it must be remembered that the two constructs operate at different levels of explanation. Organizational climate operates at a situational level of explanation and presumedly represents a relatively standard set of influences for individuals within a particular setting. Organizational climate would thus appear to be inferable directly from salient situational characteristics or indirectly from consistencies in perceptions or behaviors of individuals experiencing those situations.

Psychological climate, however, operating at the individual level of explanation, contains no inherent requirement that it accurately reflect the situation or that individuals in a given situation agree in their perceptions (Hellreigel & Slocum, 1974; James & Jones, 1974; Schneider & Hall, 1972). Psychological climate would thus be inferable from individual level data such as observed behavior or self-reported perceptions.

The relationship between the two constructs depends upon the correspondence between the situational influences (organizational climate) and the individual's representation of those influences (psychological climate). Such correspondence is frequently assumed, as when psychological climate scores are aggregated to represent organizational climate. This practice, however, requires that the aggregated scores meaningfully describe the situation. A common approach to this question has assessed agreement among perceivers, assuming that perceptual agreement implies a common

situational influence and therefore a correspondence between organizational and psychological climate (Guion, 1973; Insel & Moos, 1974; James & Jones, 1974; Schneider, 1975a).

Various methods have been used to assess perceptual agreement, including differences in mean perceptions for different situations or treatments, interrater reliability within a single group, and correlations among the perceptions of individuals occupying different organizational levels. Indices of statistical power (eta-squared, omega-squared) or interrater reliability (intraclass correlation) provided by those approaches have generally been low to moderate, varying between .06 and .35 (cf. Bass, Valenti, Farrow, & Solomon, 1975; Schneider, 1975a; Campbell & Beaty, Note 2). Converted to estimates of reliability of the mean (aggregated) score (Ebel, 1951), values have varied between .70 and .91 (Schneider, 1975a). Unfortunately, aggregation across relatively heterogeneous individual perceptions might still yield high estimates of the reliability of the mean, questioning this procedure as a measure of perceptual agreement. Thus, it is evident that climate research must further explore criteria which permit the use of data at one level of explanation (e.g., individual) to infer information about another level (e.g., organizational or subsystem).

Correlates of Organizational and Psychological Climate

Organizational and psychological climate were defined as intervening, situational influences inferrable from aspects of the environment that were relatively immediate to individual experience. It was noted that such aspects were themselves related to more distal situational variables as well as various individual characteristics. Previous studies and

reviews (cf. Hellreigel & Slocum, 1974; James & Jones, 1976; Lawler et al., 1974; Payne & Mansfield, 1973; Payne & Pugh, 1976; Porter, Lawler, & Hackman, 1975) suggested the following variable domains as among the most important correlates of the proximal aspects: context variables (e.g., technology, goals) which describe the history and rationale of the organizational unit, and which influence structure; structure variables which describe the more enduring characteristics of an organization and its subsystems as reflected by the "anatomical" distribution of units and positions and their formal relationships with each other (e.g., configuration, size), and by "operational" attributes which reflect the structuring of events (e.g., centralization of decision making); and individual characteristics and resources (e.g., age, ability, education) which reflect individual variation. Payne & Pugh (1976) suggested that context and structure were "causal variables" for organizational climate, but also noted reciprocal relationships among available individual resources and context, structure, and climate.

In a similar vein, Herman & Hulin (1972) suggested that some variables (e.g., size, technology) primarily reflect control by the organization and are situational; other variables (e.g., age, education) are brought into the situation and are individual. Classification of certain variables (e.g., hierarchical level, tenure) was somewhat arbitrary, however, because they reflected mutual control by the organization and the individual. Variables involving such mutual influences are generally related to the individual's position in the organization and were labelled position variables in the present study.

Studies addressing relationships among the above four variable do-

mains (context, structure, individual resources, position variables) and organizational and psychological climate are reviewed below. The review was organized as indicated by the schematic in Figure 1. Consistent with ideas expressed in various open system, linkage, and integrating models (Indik, 1968; James & Jones, 1976; Lichtman & Hunt, 1971; Payne & Pugh, 1976), the schematic represents several levels of explanation, with the more remote variables tending to be related to performance through various linkages with the more proximal "intervening" variables. Moreover, multiple and reciprocal relationships, such as those between individual resources and the situational variables, were generally assumed and indicated by feedback loops.

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Beginning with context, studies have indicated that such variables as routine technology and goals emphasizing coordination, reliability, and control tend to be associated with relatively bureaucratic structures, namely taller configurations, more formalized roles and communication procedures, greater division of labor and more specialization, more centralized decision making, and greater standardization (Hage & Aiken, 1969; Hall, 1962; Katz & Kahn, 1966; Litwak, 1961; Payne & Pugh, 1976; Woodward, 1965). These structure variables were linked with such climate-related measures as reduced role conflict and ambiguity, lower task complexity, variety, and challenge, reduced group involvement, and less harmonious interpersonal relationships (Hickson, 1966; House & Rizzo, 1972a; Pheysey et al., 1971; Woodward, 1965). Furthermore, task specialization associated with routine technology (and the tendency toward simplified

jobs) has often been accompanied by constraints on individual freedom, reduced autonomy, low task variety, and low task identity (Blood, & Hulin, 1967; Forehand & Gilmer, 1964; Hackman & Lawler, 1971; Hackman & Oldham, 1975; Hulin & Blood, 1968).

Similar deleterious effects have accompanied increasing organizational, subsystem, or group size. Large size was linked to increased specialization, formalization, and standardization (Payne & Pugh, 1976). Large size was also linked to such climate variables as difficulties in interpersonal relations (Payne & Mansfield, 1973), low group cohesiveness (Porter & Lawler, 1965), subgoal internalization, bifurcation of interests, organizational conflict (Bass & Barrett, 1972; Forehand & Gilmer, 1964), communication difficulty, psychological distance between leaders and subordinates, decreased concern over employee involvement (Payne & Mansfield, 1973; Payne & Pheysey, 1971), and low employee identification with the organization (Ingham, 1970).

A parallel pattern was reported for centralized decision making. Greater centralization, presumably more prevalent in tall structures with narrow spans of control (Ghiselli & Siegel, 1972; House & Miner, 1969), was linked to emphasis on efficiency, closer, more authoritarian supervision, communication difficulties, lower job challenge, and reduced identification with the organization (Hage & Aiken, 1969; House & Miner, 1969; Ingham, 1970; Payne & Mansfield, 1973).

Many relationships among context, structure, and climate variables tend to be complex, however, as evidenced by technology and structure. Although technology has generally been considered a major determinant of structure (Katz & Kahn, 1966), Mohr (1971) concluded that the two concepts

were multidimensional and not related in a simple manner. Hickson, Pugh, and Pheysey (1969) reached a similar conclusion, noting that technology and structure tended to be more highly related in smaller organizations and when structure was centered on the workflow.

Another example of the complexity of relationship is size, which was linked not only to the potentially deleterious situational influences presented earlier, but also to such potentially positive influences as increased delegation of authority and opportunities to participate in decision making (Mahoney, Frost, Crandall, & Weitzel, 1972). In a related vein, reduced formalization and standardization were linked to greater individual autonomy and to increased role ambiguity and role conflict (Hickson, 1966; House, 1971; House & Rizzo, 1972a; Pheysey et al., 1971), although leadership behaviors may moderate such relationships (House, 1971; House & Mitchell, 1974; House & Rizzo, 1972a; Sims & Szilagyi, 1975). Finally, two recent field studies (Lawler et al., 1974; Payne & Mansfield, 1973) reported low, often nonsignificant, correlations among context, structure, and organizational climate (aggregated perceptions). These studies were, however, based on small samples and the level of perceptual agreement may have been questionable (cf. Payne & Mansfield, 1973).

Further indications of context, structure, and climate relationships were provided by studies focusing on differences in climate perceptions as a function of different situations. Herman, Dunham, and Hulin (1975) and Newman (1975) reported significant relationships between perceptions of climate and technology as reflected by type of subsystem function. Payne & Pheysey (1971) reported that climate perceptions varied by size, degree

of centralization, and level of bureaucracy, while Friedlander (1966) and James & Hornick (Note 3) found that larger organization, subsystem, or group size was negatively related to what are often considered desirable aspects of climate (e.g., friendliness and warmth). Other studies reported differences in climate perceptions across different organizations, subsystems, or groups (Gavin, 1975; Payne & Mansfield, 1973; Pritchard & Karasick, 1973; Schneider, 1975b; Schneider & Snyder, 1975; Campbell & Beaty, Note 2; Jones, Note 4). Finally experimental manipulations of such structural characteristics as centralized decision making and standardized procedures were reflected in individual perceptions of climate (Dieterly & Schneider, 1974; Frederiksen, Jenson, & Beaton, 1972; Litwin & Stringer, 1968).

Studies of organizational and psychological climate must also address the role of individual characteristics and position variables. Relationships with such variables are seen most clearly in studies of psychological climate, which have involved a variety of individual characteristics including personality attributes, cognitive styles, ability, and adaptability (Johnston, 1974; Kerr & Schreisham, 1974; Schuler, 1975; Vannoy, 1965), alienation from cutural norms (Blood & Hulin, 1967; Hulin & Blood, 1968), and need strength (Hackman & Lawler, 1971; Hackman & Oldham, 1975; Pritchard & Karasick, 1973; Steers, 1975), as well as age, race, sex, and intelligence (Hellreigel & Slocum, 1974).

Climate perceptions have also been shown to reflect organizational position variables such as hierarchical level and job type (Hellreigel & Slocum, 1974; Johnston, 1974; Jones, James, & Bruni, 1975; Payne & Mansfield, 1973; Schneider, 1972; Schneider & Snyder, 1975; Stone & Porter,

1975). Newman (1975) demonstrated that organizational position (functional division, department, workgroup, and hierarchical level) accounted for more variance in perceptions of climate than personal characteristics (age, sex, number of dependents, education, and tenure). Using a "frame of reference" approach (Smith, Kendall, & Hulin, 1969), Newman concluded that different positions were subject to different experiences, and that positional differences were more important than personal characteristics in the development of the individual's perceptual-cognitive map of the organizational situation.

Findings that psychological climate varied by position imply that organizational climate also varies (i.e., different positions experience different situational influences). Such an interpretation has important implications for the aggregation of psychological climate scores and for the related issues of perceptual agreement and "representativeness". That is, although many studies have shown that psychological climate varies by organization or subsystem, it is dubious whether aggregated individual scores represent all the various positions within a heterogeneous organization or subsystem (Payne & Mansfield, 1973). Furthermore, heterogeneity of position, by limiting communality of experience for different individuals, limits probable interperceiver agreement and provides a potential explanation for some of the low to moderate indices of interrater reliability and statistical power reported earlier.

Several authors also questioned the representativeness of many overall structure or context measures, pointing out that such measures may not meaningfully describe an organization consisting of heterogeneous subsystems with varying goals, technologies, subgroup sizes, and so forth (James &

Jones, 1976; Litwak, 1961; Mahoney & Frost, 1974; Scott, 1975). Because many climate related variables reflect job and other attributes that might be expected to vary if jobs, workgroups, and subsystems were heterogeneous, it appears that psychological climate scores should be aggregated only for relatively homogenous units. Thus, as suggested by Howe and Gavin (Note 1), it is perhaps more appropriate to speak of department climate, division climate, workgroup climate, etc., rather than organizational climate which connotes an overall organizational descriptor.

Organizational climate and subsystem performance. A motivating force for conducting research on organizational climate has been its assumed contribution to understanding subsystem performance, either as a direct predictor providing an intervening level of explanation (Campbell et al., 1970; James & Jones, 1976; Payne & Pugh, 1976), or as a moderator of other predictor-criterion relationships (cf. Guion, 1974). Several studies have reported significant relationships between organizational climate and subsystem and/or organizational performance (Hall & Lawler, 1969; Lawler et al., 1974; Insel & Moos, 1974; Pritchard & Karasick, 1973; Schneider & Snyder, 1975), although relationships tended not to be large. Furthermore, organizational climate has been shown to moderate effects of motivation and other variables on criteria (Dachler & Mobley, 1973; Graen, 1969; Herman, 1973; Schneider, 1975a), as where climate inhibited or facilitated the expression of individual differences and initiative.

Many studies, however, gave little consideration to such variables as technology or type of subsystem or organization, thus ignoring potential differences relevant to varying functions or subsystems and raising questions regarding generalizability of results (Hellreigel & Slocum, 1974;

Mahoney & Frost, 1974). In a similar vein, Schneider (1975a) reviewed studies showing that organizational climate/subsystem performance relationships often differed as a function of different hierarchical levels within an organization. For example, leadership consideration may be important for production line workers but not for managers or higher level employees (House, 1971; House & Mitchell, 1974). Moreover, even within a particular subsystem or organizational level, climate dimensions may have different relationships with different criteria, especially when the criteria are generally unrelated. Thus, as in the earlier discussion of correlates of climate, relationships between organizational climate and subsystem performance appear to be complex, further indicating the need to consider the nature and heterogeneity of the organizational units under study.

Strategy of the Present Research

The foregoing development of theoretical perspectives and relationships for organizational and psychological climate provided a basis for the following empirical research strategy:

1. Perceptual measures of relatively immediate situational influences were obtained for multiple organizational samples. Salient dimensions underlying these variables were ascertained within each sample as indices of psychological climate.

2. Psychological climate dimensions were compared across different organizations to assess dimension generalizability and the potential of a common core of dimensions.

3. For one sample of organizations, measures were developed for context, structure, and organizational climate. In addition, measures of

individual resources and position variables were obtained.

4. Measures of organizational climate were developed from aggregated (mean) psychological climate scores. Appropriate levels for aggregation (i.e., division, department, and overall organization) were determined by three criteria: (a) interpretability of the aggregated scores; (b) various indices of perceiver agreement; and (c) the representativeness of larger subsystem (i.e., department) measures of structure and context for their member subsystems (i.e., divisions). Such analyses provided an index of the heterogeneity/homogeneity of situational conditions.

5. The term organizational climate generally connotes a profile on climate dimensions for each organizational unit. Thus, organizational units were clustered on the basis of organizational climate profiles.

6. Relationships were explored between potential correlates (context, structure, position variables, and individual resources) and psychological and organizational climate.

7. Finally, subsystem performance criteria were related to subsystem context, structure, and climate measures, as well as aggregated individual resource and position variables to investigate the relationships between situational variables and subsystem performance.

## Method

### Sample

Data were obtained from three types of organizations--U. S. Navy ships, municipal fire departments, and a private health care program. The Navy sample consisted of male, enlisted personnel ( $n$ = 4,315 ) on 20 ships operating in the Atlantic and Pacific Oceans during the latter half of 1973. These ships included two aircraft carriers with crews of approxi-

mately 4,000 men, and four classes of destroyer with crews averaging between 225 and 375 men. Ships were organized into four or more departments, each responsible for a major set of duties (e.g., engineering, operations, supply, weapons). Departments were further subdivided into divisions; for example, the engineering department consisted of divisions concerned with the main propulsion unit, boilers, electrical systems, and so forth. The total possible subsystem sample was 105 departments and 281 divisions.

Individual sampling on carriers was limited to non-aviation personnel and stratified by department and division ( $\underline{n}$ = 2400 per ship); destroyers were sampled on a 100% basis. Individual questionnaire data were collected in group sessions during the first weeks of deployment. Responses were obtained from 76% of the available men on destroyers and 45% of the men in sampled divisions on carriers (a return rate of approximately 90% of the distributed questionnaires). Both age ( $\underline{M}$ = 23.8 years ) and time in the Navy ( $\underline{M}$ = 4.8 years ) reflected substantial turnover at the end of the first enlistment. Levels ranged from E-1, the lowest enlisted pay rate, to E-9, the highest enlisted grade; mean education was 12 years.

A second sample involved male firemen below district chief in two departments in the southwest United States ( $\underline{n}$ = 398 ). Questionnaires were administered to groups of 8 to 16 persons; fire stations consisted of one to four companies of four men each. Data were obtained from 72% of eligible respondents. Age ranged from 21 to 66 years ( $\underline{M}$ = 36 ); mean tenure was 11.3 years. Forty-three percent of the sample had completed one or more years of college.

A third sample included 504 exempt employees of a private health care

program, ranging from top regional management to first-line supervisors. Fourteen functional areas (e.g., nursing, data processing, accounting), and 42 separate locations, (including seven large hospitals) were represented. Questionnaires were administered by mail, with a 74% usable return rate. Females, mainly nursing supervisors, represented 52% of the sample. Mean age was 42 years; approximately half the sample possessed a college or professional degree.

Instruments and Analyses

Psychological climate questionnaire. A psychological climate questionnaire was constructed to measure variables with relatively direct and immediate influences on individual experience (See Table 1). As noted earlier, variables were organized into four general categories: (a) job or role characteristics; (b) characteristics related to supervision immediately above the job; (c) workgroup characteristics; and (d) characteristics related to the total organization and its subsystems.

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Insert Table 1 about here

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Job or role related measures included role ambiguity, role conflict (House & Rizzo, 1972a, Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Lichtman & Hunt, 1971), and variables reflecting the job enrichment literature such as autonomy (Campbell, et al., 1970; Hackman & Lawler, 1971; Turner & Lawrence, 1965), task variety, task identity, job challenge (Forehand & Gilmer, 1964; Hackman & Lawler, 1971; Porter & Lawler, 1965), and opportunities for growth and advancement (Herzberg, 1966; House & Rizzo, 1972a, 1972b). Other measures reflected job pressure and standards of performance (House & Rizzo, 1972a; Sells, 1963, 1968a).

Leader related measures included support, interaction facilitation, goal emphasis, and work facilitation (Bowers & Seashore, 1966; Campbell et al., 1970; Halpin, 1966; House & Kerr, 1973; Likert, 1961; Litwin & Stringer, 1968, Taylor, 1971), as well as measures of the leader's ability to plan and coordinate activities and influence superiors (House & Kerr, 1973). Also included were measures reflecting confidence and trust relationships with subordinates (Flacks, 1969; Jones et al., 1975; Sells, 1968a; Wood, 1974).

Measures of workgroup environment included cooperation, friendliness, pride, and workgroup image (Blau, 1954; Farris, 1971; Hackman & Lawler, 1971; Hall, 1971; Steiner, 1972). Finally, variables related primarily to the larger subsystem and total organization included ambiguity and conflict at an organizational level (Rizzo, House, & Lirtzman, 1970), communication patterns (Sells, 1968b; Shaw, 1971), consistency and fairness of organizational policies and reward processes (Hackman & Lawler, 1971; Porter & Lawler, 1968; Vroom, 1964), as well as esprit (Friedlander & Margulis, 1969; Halpin & Croft, 1963; Litwin & Stringer, 1968), and professional and organizational identification (Farris, 1971).

While not including all potential situational influences, these variables represented the variety of measures which have been investigated, and were consistent with a broad band approach to the study of psychological climate. Moreover, neither the four categories nor the variables were considered as mutually exclusive or unrelated; considerable overlap and reciprocal influences were evident.

The psychological climate questionnaire consisted of 145 items describing individual perceptions of the work environment. Items were

grouped into 35 a priori composites reflecting the categories in Table 1. Each composite contained two to seven items consisting of a stem and three to five scaled responses. Composite scores were calculated by summing responses to items within the composite (standard deviations were similar).

Subsystem structure measures. Measures were constructed to assess the "anatomical" and the "operational" structure of the divisions and departments in the Navy sample. Anatomical measures reflected the more skeletal aspects of subsystem structure and were derived from ship records. These included: size--the number of men assigned to the division/department; specialization--the number of separate occupational titles in the division/department; configuration/shape--the number of actual ranks between the lowest and highest ranking enlisted men in the division/department; and configuration/ span of control--a ratio of the number of enlisted supervisory personnel (E-6 or above) to the number of men below that rank (a high score reflected a low span of control).

Operational aspects of structure--formalization, standardization, interdependence, and centralization -- were measured by the 21 questionnaire items (4- or 5-point Likert scales) presented in Table 2. Items were developed from the research literature (cf. James & Jones, 1976; Inkson, Pugh, & Hickson, 1970; Pugh, Hickson, Hinings, & Turner, 1968) and interviews with Navy personnel. Responses were obtained for 332 divisions or departments on the Navy ships during the first few weeks of deployment. Seventeen division heads completed one questionnaire for two divisions that had been administratively combined. Thus, one division was randomly deleted for each of these subjects, providing a sample of 91 departments and 224 divisions (82% of the possible sample).

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Insert Table 2 About Here

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A principal component analysis of items provided seven components with eigenvalues $\geq$ 1.0 (56% of trace). The resulting rotated components (see Table 2) evidenced simple structure; items developed to represent separate structural dimensions defined either one or two components (separate analyses for divisions and departments provided similar results). The seven components were (a) General Centralization of Decision Making, (b) General Standardization of Procedures, (c) Interdependence with other Work Units, (d) Formalization of the Role Structure, (e) Centralization of Work Allocation and Scheduling, (f) Formalization of Communication, and (g) a unique component reflecting Standardization of Procedures for Expending Funds. Component scores ( $\underline{M}$ = 50, $\underline{SD}$ = 10 ) were calculated for each department and division by a direct solution method.

Internal consistency estimates of component reliability (coefficient alpha) were based on items with loadings $\geq |\pm 40.|$. Except for Formalization of Communication ($\alpha$ = .27) and the one-item component for Standardization of Expenditures, alpha varied from .52 (Interdependence in Other Work Units) to .72 (General Centralization of Decision Making) and was considered acceptable given the limited number of items. The Formalization of Communication and Standardization of Expenditure components were deleted from remaining analyses.

Context measures. Context measures, also based upon questionnaire data from the 315 division and department heads, included technology, goals, and personnel, habitability, and equipment resources. Technology

was measured by a four item composite, representing areas suggested by Hage and Aiken (1969), Mohr (1971), Perrow (1967), Pugh, Hickson, Hinings, & Turner (1969), and Woodward (1965). A high score on the composite (range of 4 to 19) reflected a nonroutine, complex technology where success was difficult to evaluate and subject to uncertainty. Coefficient alpha was only .44, but significant intercorrelations among items suggested that they sampled one conceptual area (James & Ellison, 1973).

Nine major department/division goals were identified by interviews with Navy Personnel. Component analyses of items constructed to measure the emphasis placed on each goal (4-point Likert scales) provided two components with eigenvalues $\geq$ 1.0 (41% of trace). Following varimax rotation, the components and the defining items (e.g., loadings $\geq |\pm .40|$) were: (a) Emphasis on Morale, reflecting the emphasis on morale, developing new procedures and programs, promotion of personnel, and doing better than other departments (divisions) aboard ship ($\alpha$ = .62); and (b) Emphasis on Following Standardized Procedures, reflecting the emphasis on following standardized procedures, reliability of performance, and overall effectiveness ($\alpha$ = .51). Component scores ( $\underline{M}$ = 50, $\underline{SD}$ = 10 ) were computed for each department and division by a direct solution method.

The remaining context variables included single questionnaire items for a) condition of work equipment; b) availability of funds and supplies for work; c) availability of funds for habitability improvements; and d) a rating of personnel resources within the department/division (Considering the fact that men are fairly randomly assigned, it is possible to get all types of crews. How would you describe the men in your department/division? All items were measured by 5-point Likert scales.

Position Measures. Position measures were obtained on the Navy sample. Self report measures included tenure, level or paygrade, number of men supervised, number of advanced or technical training schools (A or B schools) completed, and number of other or functional training schools completed. Measures of job speciality (rating) were obtained from ship records and grouped into four types--unskilled, requiring little training; medium level mechanical; clerical and low level technical; and high level skilled (Orr, 1960; Seymour, Gunderson & Vallacher, 1973).

Individual resource measures. Individual resource measures included age, marital status, years of formal education, intelligence (Navy General Classification Test scores), number of grades failed in school, size of preenlistment home town (5-point scale ranging from small town to large city), number of rooms in childhood house (5-point scale ranging from 4 or fewer room to 11 or more), and three composites measuring Ego Needs (three items reflecting needs for recognition and approval $\alpha$ = .59), Self Esteem (four items reflecting self-confidence and self ratings of ability, $\alpha$ = .54) and preenlistment disciplinary record (three items reflecting school and discipline problems, $\alpha$ = .64).

Subsystem criteria. The primary measures of subsystem performance were developed by means of a multi-stage process. Interviews with naval officers and ship commanders generated the following eight dimensions relevant to effective division performance: (1) Quality of Work, (2) Adherence to Planned Maintenance Schedules, (3) Readiness to Fulfill Commitments, (4) Performance under Pressure, (5) Efficiency, (6) Cooperation with Other Divisions, (7) Safety, and (8) Leadership Ability of Enlisted Supervisors. Following identification and definition of these

dimensions, naval officers were again interviewed to suggest three statements describing levels of performance (i.e., poor, adequate, superior) for each dimension.

The resulting 24 statements were used to obtain ratings by department heads for their subordinate divisions. The statements were presented in a "mixed standard format" (Arvey & Hoyle, 1974), where statements were randomly mixed. The department head was asked to rate subordinate divisions on each of the 24 statements by indicating whether the division (a) performed better than the statement, (b) was accurately described by the statement, or (c) performed below the described level (cf. Blanz & Ghiselli, 1972). Division scores were calculated for each criterion dimension by summing across the ratings given to the statements describing performance levels, where a "better than" rating was scored as a 3, "equal to" received a 2, and "worse than" received a 1. (The Guttman scaling procedure recommended by Blanz & Ghiselli provided no improvement over the above approach, and was not used in subsequent analyses).

Additional criteria included ratings by division heads concerning problems caused by the use of drugs and alcohol (4-point scale varying from frequent to nonexistent), and frequency of requests to transfer from the division (3-point scale ranging from many requests to no requests).

Criteria data were collected at the end of each ship's deployment period (five to seven months after the context, structure, and individual questionnaire data). Data were obtained from 160 divisions, representing 19 ships and all division types. Although an attempt was made to collect criterion measures on all divisions, several department and division heads had been rotated from the ship near the end of the cruise and their re-

placements lacked sufficient experience to provide the ratings. Criteria were collected by members of the research team for eight ships; a mail-out procedure was used for the remaining ships. No differences among the ratings were found for the two procedures.

## Results

Results are presented as follows: (a) dimensions of psychological climate, (b) congruence of these dimensions across samples, (c) agreement and representativeness, (d) development of a typology of division climate, (e) correlates of psychological and division climate, and (f) validity analyses for division criteria.

Dimensions of psychological climate. The results of a principal component analysis of the 35 a priori composites used to infer psychological climate for the Navy sample are presented in Table 3. Reliability estimates (coefficient alpha) ranged from .44 to .81 (similar values were found for the two other samples), which were considered acceptable because alpha is a function of the number of items in the composite and tends to be conservative (Lord & Novick, 1968).

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Insert Table 3 About Here

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The principal component analysis of the 35 composite scores yielded six components with eigenvalues $\geq$ 1.0 (59% of the trace). Following varimax rotation, the first component reflected perceived conflict in organizational goals and objectives, combined with ambiguity of organizational structure and roles, a lack of interdepartmental cooperation, and poor communication from management. Also included were poor planning, inefficient job design, a lack of awareness of employee needs and problems,

and reduced fairness and objectivity of the reward process. This component was labelled "Conflict and Ambiguity".

The second component reflected a job perceived as challenging, important to the Navy, and involving a variety of duties, including dealing with other people. The job also tended to be seen as providing autonomy and feedback, but demanding high standards of quality and performance. This component was designated "Job Challenge, Importance, and Variety".

The third component, "Leader Facilitation and Support", reflected leader behavior such as the extent to which the leader was perceived as helping to accomplish work goals by means of scheduling activities, planning, etc., as well as the extent to which he was seen as facilitating interpersonal relationships and providing personal support.

The fourth component, "Workgroup Cooperation, Friendliness, and Warmth", generally described the relationships among group members and their pride in the workgroup. Only composites describing the workgroup loaded on this component. The fifth component, "Professional and Organizational Esprit", reflected perceived external image and desirable growth potential offered by the job and by the Navy. Also included were perceptions of an open atmosphere to express one's feelings and thoughts, confidence in the leader, and consistently applied organizational policies, combined with non-conflicting role expectations and reduced job pressure.

The sixth and final component had loadings for only three composites. This component, "Job Standards", reflected the degree to which the job was seen as having rigid standards of quality and accuracy, combined with inadequate time, manpower, training and resources to complete the task. Also reflected were a perceived lack of confidence and trust by supervisors

and management personnel.

Congruence of the psychological climate dimensions across samples. Psychological climate components from the Navy sample were compared to components derived from the two comparison samples (James, Stebbins, Hartman & Jones, Note 5; Jones & James, Note 6). Each comparison sample also yielded six components with eigenvalues $\geq$ 1.0. The percent of trace accounted for was 62.8% for the fire station sample, and 66.8% for health managers. As indicated by Table 4, five of the six components derived on the Navy sample--Leadership Facilitation and Support; Workgroup Cooperation, Friendliness, and Warmth; Conflict and Ambiguity; Professional and Organizational Esprit; and Job Challenge, Importance, and Variety--were similar across the three samples.[2]

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Insert Table 4 About Here

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The sixth component, tended to be somewhat sample-specific. For health managers, this component appeared to represent a finer breakdown of the Challenge, Importance, and Variety Component, with loadings by Job Importance (.70), Job Challenge (.58), and Job Standards (.40). Both latter variables, however, also had loadings $\geq |\pm .40|$ on components similar to the five mentioned previously for the Navy sample. The sixth component for the firemen appeared to reflect mutual trust, with loadings by Confidence and Trust in Subordinates (.68) and in the leader (.50).

Perceiver Agreement and Representativeness. Six psychological climate component scores were constructed for the Navy sample using a direct solution method, ( $M$ = 50, $SD$ = 10). Perceiver agreement on these six dimensions was assessed for three organizational levels in the Navy sample --

divisions, departments, and ships. The division sample consisted of 223 divisions on which psychological climate data were available for at least six subjects (subject n = 3,693). (Divisions represented the lowest organizational level that could be meaningfully identified; sailors rotated across duty shifts and watches which precluded identifying workgroups). Department and ship samples were 97 and 20, respectively.

Perceiver agreement for each psychological climate component at each organizational level was assessed by a one-way ANOVA, where each division (department, ship) was considered a separate classification factor and individual climate scores comprised dependent variables (cf. Ebel, 1951). Intraclass correlations were computed as estimates of the proportions of variance in individual perceptions attributable to organizational units and may also be interpreted as indices of interrater reliability (McNemar, 1969). Finally, reliabilities of the mean (aggregated) psychological climate scores per organizational level were ascertained by converting the intraclass correlations to Spearman-Brown estimates, using the harmonic mean per organizational level as the adjusting factor (Guilford, 1954).

As reported in Table 5, all F ratios were significant. Intraclass correlations were relatively low, however, and decreased monotonically as higher organizational levels were introduced. Median intraclass correlations were approximately .12 for divisions, .06 for departments, and .02 for ships. The S.B. estimates were substantially higher, with medians of approximately .68 for divisions and .71 for departments and ships.

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Insert Tables 5 and 6 About Here

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While the S.B. estimates indicated stability for the mean perceptions, these estimates appeared to be fallible indicators of homogeneity, particularily where large sample sizes were involved (e.g., departments and ships). This conclusion was supported partially by relationships of department context and structure measures with division context and structure (See Table 6). Representativeness was ascertained by duplicating department scores on the appropriate division data records (i.e., all divisions within a department received the same department score) and correlating the sets of scores on the division sample ( $n$ = 205 divisions with both division and department data ). Except for size and the two configuration variables, relationships were low or nonsignificant, indicating intradepartment heterogeneity for context and structure. In other words, the majority of department context and structure scores did not appear to meaningfully describe their respective divisions. These results tended to coincide with the information provided by the intraclass correlations (rather than the S. B. estimates) that departments (and ships) were quite heterogeneous.

Based on the above results, remaining analyses were conducted only at the division level. In addition to the lack of representativeness for department context and operational structure measures, the decision to construct only division climate scores (i.e., mean psychological climate scores per division) was predicated on the following rationale: (a) all climate dimensions included at least some variables describing the job, role, leadership, or workgroup, and thus more meaningfully reflected the division than department or ship levels; and (b) the median intraclass correlation for divisions was within the range of power estimates reported

in earlier studies. Of additional concern were relationships between division climate scores and other measures, an indirect but functionally important indicator of the usefulness of aggregated measures (Payne & Mansfield, 1973).

Development of a typology of division climate. The initial step in typology development assessed the extent to which differences in division climate scores were related to differences in 12 functional division types (i.e., formal division types on ships). Results of a multiple disciminant analysis (MDA), using division type as the classification factor and the six division climate scores as the dependent variables ( $n$ = 223 ), indicated that 84% of the variance in the discriminant space could be explained by the division types (based on significant discriminant functions and the multivariate analog of $\omega^2$ [Tatsuoka, 1970]). Further, an average of 72% of the variance in the dependent variables was accounted for by the discriminant space.[3] These results suggested that profiles of mean division climate scores could provide a meaningful typology of division climate. Several profiles were quite similar, however. Thus, with the assistance of a hierarchical clustering analysis (Ward & Hook, 1963) on the profiles for each of the 12 functional division types, a more parsimonious set of seven division climate clusters was developed (a hierarchical clustering on the profile scores for the 223 divisions provided similar results). An MDA with the seven clusters as partitioning variables and the division climate scores ( $n$ = 233) as dependent variables demonstrated that 78% of the variance represented in the discriminant space could be explained by the clusters (an average of 74% of the climate score variance was represented in the discriminant space).

The typology is summarized in Table 7. Entries in the table indicate the difference between the mean division climate score per cluster and the mean of all clusters. The names given to the clusters focused on these differences. For example, Cluster 1 was designated "Cooperative and Friendly" because of the comparatively higher mean on Workgroup Cooperation, Friendliness, and Warmth. Cluster 2 was labelled "Conflicting and Ambiguous" because of the comparatively higher mean on Conflict and Ambiguity and lower mean on Job Standards. The means for Cluster 3 suggested an uninvolving atmosphere, and one which had relatively high, rigidly adhered to job standards. This cluster was interpreted as an "Alienating and Constrictive" division climate. Cluster 4, with a lower mean on the workgroup climate component, connoted a "Cool and Unfriendly" climate. Comparatively lower means on Job Challenge, Importance, and Variety, Leadership Facilitation and Support, and Workgroup Cooperation, Friendliness, and Warmth suggested that Cluster 5 described a "Monotonous, Cold, and Unsupportive" climate.

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Insert Table 7 About Here

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Cluster 6 reflected jobs that were challenging, important, multifacted, and flexible, in conjunction with a cooperative, friendly, and warm workgroup. This indicated an enriched and warm work environment. A low mean on organizational esprit, however, suggested that this climate did not provide opportunities that compared favorably with other organizations, especially civilian occupations. This cluster was therefore labelled "Enriched and Warm Work Environment/Organizationally Uninvolving". In Contrast, Cluster 7 suggested a climate that was "Organizationally In-

volving" with high esprit and identification with the Navy and the ship, connoting a climate that compared favorably with alternatives. As discussed later, however, both clusters 6 and 7 appeared to be influenced by the nature of their personnel and may thus be somewhat idiosyncratic.

The above seven clusters were employed as measures of division climate throughout the remainder of the analyses.

Correlates of psychological and division climate. Because of space limitations, emphasis was placed on patterns of correlation with psychological and division climate (Navy sample). Interrelationships among nonclimate domains, both within and across domains, were presented in summary only (complete analyses are available from the authors).

With respect to intradomain relationships, correlations among division context variables were generally low or nonsignificant. Emphasis on Morale covaried with the rating of personnel ( $r$ [221] = .21, $p<.01$), and technology was inversely related to Emphasis on Following Standardized Procedures ( $r$ [221] = -.21, $p<.01$). Correlations among the division anatomical structure variables were generally significant but of moderate magnitude; correlations between anatomical and operational structure measures were generally low and not significant. The highest of these latter correlations was between size and centralization of work ( $r$ [221] = .22, $p<.01$). Correlations among the individual resource variables were less than $| \pm .30 |$ ( $n$ = 3,726), with a slight tendency for older sailors to have lower GCT scores, to have lived in smaller homes, and to have reported better preenlistment disciplinary records and higher self-esteem. Correlations among the position variables were somewhat higher; tenure, hierarchical level, number of men supervised, and training had intercor-

relations greater than | $\pm$ .40 |.

Correlations between individual resources and position variables tended to be low, except for relationships of age with tenure, men supervised, hierarchical level, and so forth, (reflecting patterns of promotion and turnover inherent in the military). The correlations between the context and structure scores also tended to be low. For example, General Centralization correlated negatively with Emphasis on Morale ( $r$ [221] = -.29, $p$<.01), and Formalization of Roles correlates negatively with technology ( $r$ [221] = -.25, $p$ <.01). Finally, correlations of divisional context and structure with individual resources and position variables ( $n$ = 3,726 individuals) tended to be low and often nonsignificant, although certain patterns did emerge. For example, divisions with higher technology scores tended to have more intelligent men in more highly trained job specialities. Further, divisions with many technical and few unskilled jobs tended to have lower spans of control.

Correlations with psychological climate (See Table 8) were based on a sample of 3,726 sailors for whom all data were available. Each man in a particular division received the same division context and structure scores. No differences were found between the total sample ( $n$ = 4,315 ) and the reduced sample for any of the climate, individual resource, or position variables. One structure variable (Centralization of Work) and several context variables were not included in the table because of space limitations and because they had no significant ( $p$ < .01 ) correlations with psychological climate.

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Insert Table 8 About Here

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Relationships between the psychological climate and division context and structure were low and generally nonsignificant. Relationships of psychological climate with the individual resource and position variables also tended to be low except for Job Challenge, Importance, and Variety. This component was positively related to age, time in the Navy, hierarchical level, number of men supervised, number of other training schools, and self esteem, but negatively related to assignment to unskilled jobs. Such correlations appeared to reflect an increased responsibility and challenge coming with promotion.

Analyses of division climate provided a somewhat different picture. Relationships between division climate and other variable domains were examined by means of an MDA. The seven division climate clusters provided the partitioning variables, and division context, structure, and selected position variables and individual resources (aggregated to the division level) served as dependent variables (see Table 9). Individual resource and position variables were selected for aggregation only if the aggregated (mean) scores appeared meaningful at the division level of analysis. Moreover, when variables represented substantial conceptual and statistical overlap in the sample (e.g., age and tenure), only one was included. It is important to note that such aggregated variables assumed the role of situational attributes, and reflected relationships between personnel compositions and division climate.

The MDA on the seven climate clusters produced four significant discriminant functions ( $\underline{p} < .05$, Bartlett's $\underline{V}$ statistic). The first discriminant function accounted for 56.09% of the between cluster variance, the second 21.61%, the third 11.47%, and the fourth 5.07%. The multi-

variate analog of $\omega^2$ for the four functions was .91 (i.e., 91% of the variability in the discriminant space was attributable to between cluster differences). Separate MDAs for each of the non-climate domains provided $\omega^2$s of .38 for division context, .67 for division structure, .62 for aggregated position variables, and .55 for aggregated individual resources.

Standardized discriminant weights and univariate F ratios are presented in Table 9. The cluster centroids in discriminate space are presented in Table 10. The first function discriminated most clearly between clusters 1 and 6 and clusters 4 and 5. Enriched and Warm Work Environment/Organizationally Uninvolving climates and, to a lesser extent, Cooperative and Friendly climates had a more intelligent and highly trained personnel composition than the Monotonous, Cold, and Unsupportive and to some extent, Cool and Unfriendly climates. These results reflected the division types comprising the climate clusters; clusters with large, negative means in the discriminant space included Electronics and Navigation divisions which require advanced and technical training, while clusters with large, positive means included Deck, Boilers, and Machinery divisions which did not require the same level of advanced training and personnel intelligence. Finally, although the cool and monotonous climates were more specialized (i.e., more jobs per division) than the enriching and warm climates, they were less specialized than the Cooperative and Friendly climates.

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Insert Tables 9 and 10 About Here

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The second discriminant function identified the Organizationally Involving climate cluster most clearly. A defining variable for this

function was tenure, reflecting the somewhat idiosyncratic nature of the cluster. The division type comprising this cluster (Supply) consisted of a number of foreign-born individuals who had enlisted in the Navy for a career assignment as stewards because it was preferable to organizations and careers available in their own country. However, the Supply division was the most structurally specialized of the divisions studied ( $\underline{M}$ = 6.79 jobs per division). Furthermore, the relatively flat profile of negative means for climate clusters 3, 4, and 6 on the second function accurately reflected a shorter average tenure and fewer jobs per division when compared to the Organizationally Involving cluster.

The third discriminant function, accounting for only 11.48% of the between cluster variance, differentiated most distinctly between clusters 4 and 5. For example, Monotonous, Cold, and Unsupportive climates (Deck) had comparatively flatter division configurations, larger spans of control, less formalization of roles, and better work equipment than the Cool and Unfriendly climates. Moreover, Deck divisions had the lowest mean tenure and advanced training of all divisions studied.

The fourth and final significant discriminant function, accounting for only 5% of the between cluster variance, indicated that a Conflicting and Ambiguous division climate (e.g., Missile and Nuclear divisions), and to a lesser extent an Enriched and Warm Work Environment/ Organizationally Uninvolving climate, had comparatively higher degrees of interdependence with other divisions, more nonroutine and complex technologies, higher ratings of personnel, and more formal education. Lower overall standardization of procedures and a higher emphasis on morale were also indicated; however, these latter variables had nonsignificant univariate $\underline{F}$ ratios and

thus were interpreted with caution.

In summary, with few exceptions variables reflecting division context and structure as well as individual resources and position tended to have relatively low correlations with the psychological climate dimensions. On the other hand, many of these variables differentiated among the division climate clusters. This contrast in results reflected both theoretical and statistical factors, which are discussed later in this report.

Validity analyses for division criteria. Division performance ratings evidenced a moderate positive leniency ( M = 6.34 to 7.41; SD = 1.10 to 1.60). Also indicated were few requests for transfer and infrequent problems with drugs and alcohol. Except for the safety rating, criterion intercorrelations were significant, positive, and of moderate magnitude (See Table 11). While not indicating large amounts of "halo", the correlations did suggest the possibility of a more parsimonous composite criterion. Thus, a unit-weighted criterion composite (not including safety) was constructed for subsequent validity analyses.

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Insert Table 11 About Here

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For cross-validation purposes, the 160 divisions with criterion data were randomly separated by ship into two subsamples (after stratification by ship type and number of divisions with data); all divisions from a ship were placed in the same subsample. This provided "true" cross-validation samples ( ns = 84 and 76 ) where the two subsamples were independent (i.e., from different ships).

Predictive, initial validities for each subsample are reported in Table 12. Predictors included all the division context, structure, and

aggregated position and individual resources variables employed in the MDA for division climate.[4] The predictive validities for the division climate clusters was based on an unit weighted regression procedure (Wainer, 1976; Wainer & Thissen, 1976), which consisted of computing the correlation between the criterion and a composite of unit weighted predictors (Guilford & Fruchter, 1973; James & Ellison, 1973).

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Insert Tables 12, 13, and 14 About Here

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Cross-validities are reported in Table 13, while Table 14 presents mean criterion scores for each climate cluster. For the non-climate domains, cross validities were based on unit weighted composites of selected (standardized) predictors. Predictors for each subsample were those variables which had significant validities in the other subsample (e.g., the cross-validity for context in Sample B was based on unit weighted composite of Emphasis on Morale, condition of equipment, rating of personnel, and funds and supplies for work). For climate clusters, the validities in Table 12 were also cross-validities. That is, unit weights were employed and all clusters were entered into each analysis. Finally, an "overall" cross-validity was based on those variables which entered the predictor set from each of the domains.

The cross-validities (also predictive validities) were, with one exception, significant and of a moderate magnitude. For the non-climate domains, contribution to the cross-validities were ascertained on the basis of variables with significant predictive validities for both subsamples. For example, the cross-validities for context were provided primarily by the rating of personnel and funds and supplies for work

variables, and all of the aggregated individual resource and position variables except tenure contributed to prediction. The relationship between the climate clusters and the criterion was assessed by viewing the mean criterion scores for each climate cluster (See Table 14). The Enriched and Warm Work Environment/Organizationally Uninvolving and Cooperative and Friendly climates received the highest criterion scores, while the Monotonous, Cold and Unsupportive climate received the lowest. Finally, the magnitudes of the overall cross validities indicated that the composite criterion could be predicted quite reasonably from situational data.

## Discussion

A primary aim of this study was the exploration of conceptual bounds and correlates of organizational and psychological climate. Much of this exploration, however, was based on U.S. Navy ships and personnel, a sample possessing several idiosyncracies with implications for interpreting results. For example, personnel selection, training, and assignment to ships and occupational specialties are performed at locations other than the ship. Many decisions regarding promotion, pay, benefits, and other rewards, especially for higher paygrades, also tended to be outside the immediate jurisdiction of the ship. Enlistment contracts are for designated terms, with high turnover after the first enlistment. Further, although the data demonstrated variance in many aspects of context and structure, the ships were relatively formal and mechanistic compared to many other organizations, and many decisions regarding context and structure were made by levels of command above the ships. Such factors might dampen relationships among structure, context, individual resources, position variables, and organizational and psychological climate, thus

reducing generalizability.

Generalizability for some results was enhanced, however, by use of multiple, divergent samples (i.e., military/civilian, managerial/non-managerial, large/small subsystems). For example, assumptions that psychological (and division) climate represented multidimensional descriptions of the situation, and that a common core of dimensions applied across organizations, appeared to be supported by the similarity of components among samples. Such similarity also argued for component stability and generalizability.

The components themselves appeared psychologically meaningful, lacking in statistical complexity and reflective of distinctions among various organizational levels of explanation. One component reflected task and role characteristics; a second reflected workgroup aspects; a third described leadership characteristics; and two components generally reflected subsystem and organizational level attributes. Such results, suggesting that work environment perceptions are not entirely global or diffuse but reflect organizational and conceptual distinctions, are bolstered by findings (Mowday, Porter, & Dubin, 1974) that workgroup perceptions (and attitudes) differed from those about the total organization. Conversely, components reflecting the total organization also had loadings by leader, and task or role characteristics. These findings were consistent with earlier suggestions that total organizational characteristics are linked to individual experience in terms of influences on task, role, and so forth, and as discussed later, have implications for organizational climate.

The components generally reflected climate dimensions reported in the literature. Workgroup Cooperation, Friendliness, and Warmth was similar

to dimensions labelled Team Spirit (Meyer, 1968), Distant vs. Close Working Relationships (Thornton, 1969), Intimacy (Friedlander & Margulis, 1969), Social Relations (Pritchard & Karasick, 1973), and Friendly-Unfriendly (Lawler, et al., 1974). Conflict and Ambiguity was reflected as conflict by Litwin and Stringer (1968), Schneider and Bartlett (1968), and Pritchard and Karasick (1973), while ambiguity was reflected (although negatively) by structure (Campbell et al., 1970; Litwin & Stringer, 1968; Pritchard & Karasick, 1973; Schneider & Bartlett, 1968), Organizational Clarity (Meyer, 1968), Normative Control (Payne & Pheysey, 1971), Effective Organizational Structure (Waters et al., 1974), and Efficiency and Clarity of Purpose (Thornton, 1969). Similar comparability was evident for Job Challenge, Importance, and Variety and Professional and Organizational Esprit.

Leadership Facilitation and Support, however, was not as directly generalizable, although most studies incorporated leadership dimensions. For example, Schneider and Bartlett (1968) mentioned Managerial Support, and Campbell et al. (1970) discussed Consideration, Warmth, and Support. Waters et al. (1974) mentioned Close, Impersonal Supervision and Employee Centered Orientation, whereas Friedlander and Margulis (1969) mentioned four separate leadership factors--Aloofness, Production Emphasis, Thrust, and Consideration. Closer inspection, however, revealed that most of the factors from these other studies were represented as a priori composites in the present study, indicating that the Leadership Facilitation and Support component might reflect a more abstract variable representing the relationships of a number of aspects of leadership.

It was suggested earlier that psychological climate represents an

individual processing of situational data and thus reflects both the situation and the individual. The present study, however, generally failed to identify specific context and structure correlates of psychological climate, although significant differences in psychological climate were found across divisions. A partial rationale for this lack of relationship might lie in the "level of explanation" argument (cf. Campbell et al., 1970; Indik, 1968; Payne & Pugh, 1976) which postulated that influences of context and/or structure upon climate perceptions were mediated by organizational, subsystem, or group "processes" such as leadership, communication, workgroup interaction, and reward mechanisms. Thus, psychological climate would be expected to reflect process variables to a greater extent than context or structure. Such processes were reflected in the a priori composites in the psychological climate questionnaire designed to measure the relatively direct and immediate aspects of the situation. Psychological climate, however, was seen as involving a psychological processing, abstracting, and structuring of perceptions of these aspects, and was thus further removed from direct ties to context and structure. Such reasoning would lead to the expectation that correlations between psychological climate and context and structure would generally not be large, particularly if process variables moderated the influences of context and structure.

The same reasoning, however, would suggest that position variables and individual resources would be more highly related to psychological climate. As discussed earlier, different positions would be expected to have different organizational experiences, and thus different psychological climate. Moreover, it was suggested that individual resources

influence entry into various positions (Herman et al., 1975; Newman, 1975). The data provided some support for these expectations, especially in regard to Job Challenge, Importance, and Variety which was positively related to correlates of hierarchical level (e.g., age, training, tenure, men supervised, and self-esteem) and reflected perhaps the responsibility and challenge inherent in more supervisory positions. Also reflected was the trend for men in more technical jobs to be promoted more rapidly.

The remaining correlations between psychological climate and position variables and individual resources were considerably lower and often nonsignificant, although certain discernable patterns did emerge. For example, more technically trained and intelligent sailors tended to perceive more cooperation, friendliness, and warmth in their workgroup, while at the same time perceiving the Navy as not providing careers that compared favorably with civilian organizations (i.e., low esprit).

The suggestion that position variables could account for more psychological climate variance than individual resources (Herman et al., 1975; Newman, 1975) was generally not supported. Position variables and individual resources yielded correlations with psychological climate that were of similar pattern and magnitude. It is likely however that these findings reflected certain sample characteristics, as well as the fact that position variables reflect both situational and individual variables. For example, promotion to a higher level requires a certain minimal time in present paygrade, and thus a certain minimum age. In a similar vein, selection for various types of training depended upon the attainment of certain test scores. Furthermore, the sample included only enlisted

personnel, thus limiting the variance of at least some variables, especially those related to position.

The level of explanation argument presented above also provides a possible explanation for the generally significant relationships found between division climate and division context and structure. That is, division climate reflected a situational attribute and thus would be expected to be more highly related not only to the mediating process variables on which it was primarily based, but also to division context and structure. On the other hand, the aggregation of psychological climate scores to represent division climate partialled out individual differences in perception, thus justification for aggregation was of major importance.

The decision to conduct organizational climate analyses only at the division level was based on several factors, including the inappropriateness of higher levels of explanation for interpreting aggregated psychological climate scores, the reductions in levels of perceptual agreement for departments and ships, and the lack of representativeness for many of the department context and structure variables. With respect to perceptual agreement, estimates of variance in perceptions attributable to organizational units (e.g., intraclass correlations) appeared to be more meaningful than Spearman-Brown estimates which were based on adjustments for the average number of raters per organizational unit. For example, the Spearman-Brown estimates for departments and ships were substantial in spite of findings of heterogeneous division context, structure, personnel compositions, and climates. Thus, while the Spearman-Brown formula indicates the reliability of a mean score, it can be quite misleading when used as

an estimate of perceptual or situational homogeneity.

An important index of the utility of the division climate scores was the pattern of relationships of the seven division climate clusters with both the potential correlates and the composite criterion. In comparison with all other climate clusters, Monotonous, Cold, and Unsupportive climates were associated with large spans of control and large division sizes (which for reasons of multicollinearity did not receive a large discriminant weight), low interdependence with other divisions, relatively routine and noncomplex technologies, and lower average intelligence, education, training, and tenure. Furthermore, division types in this cluster (Deck maintenance) had the lowest overall ratings on the criteria. Similarly, Cool and Unfriendly climates (e.g., Boiler divisions) were related to comparatively large spans of control, tall configurations, low interdependence, and low average tenure, education, and training. Criterion ratings also tended to be below average.

In contrast, Enriched and Warm Work Environment/Organizationally Uninvolving climates (Electronics divisions) tended to have comparatively nonroutine, complex technologies, flat configurations, low specialization, small division sizes, and high average intelligence, education, and training (but not tenure). Cooperative and Friendly climates (e.g., Navigation divisions) had the lowest average span of control of all climates studied and were further characterized by high averages on intelligence and training as well as above average criterion ratings.

Such results at least partially supported previous research/theory that comparatively large subunit sizes and tall configurations were related to uncooperative and unfriendly workgroup interrelationships

(Payne & Mansfield, 1973; Porter & Lawler, 1965), unsupportive leadership, communication difficulties (Payne & Mansfield, 1973; Payne & Pheysey, 1971), reduced group involvement, and less harmonious interpersonal relationships (Pheysey et al., 1971). Also supported were suggestions that the above forms of anatomical structure, when combined with routine technology and specialization (which correlated with size and tall configuration), were associated with low task complexity, variety, challenge, and importance (Hackman & Lawler, 1971; Hackman & Oldham, 1975; Woodward, 1965), monotony (Blood & Hulin, 1967; Hulin & Blood, 1968); and reduced autonomy (Forehand & Gilmer, 1964). Finally, climates related to higher levels of anatomical structure (i.e., large size, tall configuration, and high specialization), and, to a lesser extent, routine technology, tended to be associated with low subsystem criterion scores, whereas the opposite was true for climates reflecting low levels of anatomical structure and nonroutine technology.

Of further interest were findings that small spans of control, often linked to mechanistic structures, were associated with warm and enriched climates, whereas large spans of control, often linked to organic structures, were associated with cool and monotonous climates. Such findings reflect the nature of the divisions comprising the above climates. For example, divisions with warm and enriched climates tended to be more technically advanced, smaller, and comprised of individuals at advanced ranks. These results would appear to support suggestions that appropriate spans of control depend upon such things as technology, job, and personnel characteristics and that no one span of control is ideal for all situations (cf. House & Miner, 1969).

With respect to the remaining climate clusters, Conflicting and Ambiguous Climates (e.g., Missiles, Nuclear) were characterized by comparatively high interdependencies with other organizational units and by nonroutine, complex technologies. A partial explanation of these results is provided by Corwin (1969) who noted that increased interdependencies and interactions among organizational units also increased the probability for organizational conflict, and by House (1971) who hypothesized that nonroutine jobs tended to be inherently ambiguous. On the other hand, Conflicting and Ambiguous climates were not associated with such measures as low role formalization, decentralized decision making, and low standardization, as suggested by Hickson (1966), House (1971), House and Rizzo (1972a), and Pheysey et al. (1971). In fact, a high level of standardization was indicated, although standardization as well as the centralization measures failed to differentiate among all climate clusters and thus were not interpreted in this study.

Alienating and Constrictive climates (e.g., Communication and Intelligence divisions) were most closely related to a personnel composition with high average scores on intelligence and training, although small division size and low specialization were also indicated. In contrast, the Organizationally Involving climates (Supply divisions) were comprised of personnel who had high average tenure but below average training and intelligence. Large division sizes, high specialization, high role formalization, routine technologies, and below average criterion scores were also indicated. These results, when combined with those for the Enriched and Warm Work Environment/Organizationally Uninvolving climate cluster, provided the interesting indication that involving climates were

positively related to routine technologies and high levels of anatomical structure, whereas uninvolving climates were related to nonroutine technologies and low levels of anatomical structure. These findings, however, can only be interpreted in light of personnel compositions. That is, uninvolving climates failed to provide relatively intelligent and trained individuals with careers that compared favorably to civilian occupations, while the opposite appeared to be the case for involving climates (which, as noted earlier, included a number of foreign-born individuals for whom the Navy provided a comparatively advantageous career).

The above discussion further points out the need to consider relationships between personnel compositions and climate, as well as reciprocal relationships of personnel compositions with context and structure (Payne & Pugh, 1976). Personnel composition was strongly associated with the climate clusters, and as indicated above was essential to the meaningful interpretation of results.

In conclusion, the present study had a number of implications for future efforts involving psychological and organizational climate. Among these was the finding of a core set of underlying dimensions able to characterize individual perceptions (psychological climate) across diverse situations. Such results imply that a parsimonious set of dimensions may describe different situations, although the data also indicated the need for additional, more specific dimensions to describe certain idiosyncracies of each situation. Also important was the finding that aggregation of psychological climate scores and the use of profiles of aggregated scores to represent situational influences was appropriate only for relatively homogeneous subsystems, and that these tend to be at lower levels of the organization. In a related

vein, it appeared that the type of division was a more important facet of its climate than was the superordinate organization. In other words, climates in similar divisions from different ships were more alike than were climates in disparate divisions from the same ship. Similar results were found for context and operational structure. Such findings have numerous implications for future organizational research and development programs, suggesting that focus should be placed on relatively homogeneous units rather than larger subsystems and total organizations.

One of the most important findings of this study was that division climate appeared to provide a meaningful linkage between situational attributes such as context and structure and subsystem criteria. That is, division climate reflected differences in situational measures, and appeared to portray how such measures were operationalized into situational influences on subsystem performance. In regard to psychological climate, on the other hand, division context and structure appeared to be several steps removed from individual perceptions and mediated by intervening variables such as processes and division climate. Moreover, psychological climate appeared to reflect complex relationships among positional and individual characteristics as well as situational measures. The present study addressed a number of these relationships, but future research in needed to more adequately identify salient individual and position variables and their roles in the formation of psychological climate. Such studies will likely benefit from the inclusion of objectively measured process variables to explore relationships with both psychological and organizational climate (organizational is used in the generic sense described in Footnote 1).

The present study must be viewed as a preliminary, exploratory step, awaiting additional investigations with other types of organizations to establish generalizability and the further incorporation of longitudinal designs to provide a basis for causal interpretation. This study, however, suggested several apparently fruitful areas for future research and provided further indications regarding conceptual properties of organizational and psychological climate.

## Reference Notes

1. Howe, J. G., & Gavin, J. F. Organizational climate: A review and delineation (Tech. Rep. 74-02). Fort Collins, CO.: Colorado State University, Industrial Psychological Association of Colorado, 1974.

2. Campbell, J. P., & Beaty, E. E. Organizational climate: It's measurement and relationship to work group performance. Paper presented at the Meeting of the American Psychological Association, Washington, D. C., September 1971.

3. James, L. R., & Hornick, C. W. An analysis of criteria, situational data, organizational climate, and individual characteristics: Results of a pilot study. Paper presented at the American Psychological Association, Montreal, Canada, August 1973.

4. Jones, A. P. Functioning of organizational units related to differences in perceived climate and habitability. In E. K. Gunderson (Chair.), Organizational analyses: Models, methods, and criteria. Symposium presented at the Meeting of the American Psychological Association, Montreal, 1973.

5. James, L. R., Stebbins, M. W., Hartman, E. A., & Jones, A. P. An examination of the relationships between psychological climate and a VIE model for work motivation (Tech. Rep. 74-29). Fort Worth, TX.: Texas Christian University, Institute of Behavioral Research, 1974.

6. Jones, A. P., & James, L. R. Dimensions of psychological climate among firemen (Tech. Rep. 75-9). Fort Worth, TX.: Texas Christian University, Institute of Behavioral Research, 1975.

## References

Arvey, R. D., & Hoyle, J. C. A Guttman approach to the development of behaviorally based rating scales for systems analysts and programmer/analysts. Journal of Applied Psychology, 1974, 59, 61-68.

Bass, B. M., & Barrett, G. V. Man, work, and organizations: An introduction to industrial and organizational psychology. Boston: Allyn and Bacon, 1972.

Bass, B. M., Valenzi, E. R., Farrow, D. L. & Solomon, R. J. Management styles associated with organizational, task, personal, and interpersonal contingencies. Journal of Applied Psychology, 1975, 60, 720-729.

Blanz, F., & Ghiselli, E. E. The mixed standard scale: A new rating system. Personnel Psychology, 1972, 25, 185-199.

Blau, P. M. *Cooperation and competition in a bureaucracy.* American Journal of Sociology, 1954, 59, 530-535.

Blood, M. R., & Hulin, C. L. Alienation, environmental characteristics and worker responses. Journal of Applied Psychology, 1967, 51, 284-290.

Bowers, D. G., & Seashore, S. E. Predicting organizational effectiveness with a four factor theory of leadership. Administrative Science Quarterly, 1966, 11, 238-263.

Campbell, J. P., Dunnette, M. D., Lawler, E. E., III., & Weick, K. E., Jr. Managerial behavior, performance, and effectiveness. New York: McGraw-Hill, 1970.

Corwin, R. G. Patterns of organizational conflict. Administrative Science Quarterly, 1969, 14, 507-519.

References (continued)

Dachler, H. P., & Mobley, W. J. Construct validation of an instrumentality-expectancy-task goal model of work motivation. Journal of Applied Psychology Monograph, 1973, 58, 397-418.

Dieterly, D. L., & Schneider, B. The effects of organizational environment on perceived power and climate: A laboratory study. Organizational Behavior and Human Performance, 1974, 11, 316-337.

Ebel, R. L. Estimation of the reliability of ratings. Psychometrika, 1951, 16, 407-424.

Farris, G. F. A predictive study of turnover. Personnel Psychology, 1971, 24, 311-328.

Flacks, R. Protest or conform: Some social psychological perspectives on legitimacy. Journal of Applied Behavioral Science, 1969, 5, 127-149.

Forehand, G., & Gilmer, B. V. H. Environmental variation in studies of organizational behavior. Psychological Bulletin, 1964, 62, 361-382.

Frederiksen, N., Jensen, O., & Beaton, A. E. Prediction of organizational behavior. Elmsford, New York: Pergamon, 1972.

Friedlander, F. Performance and interactional dimensions of organizational work groups. Journal of Applied Psychology, 1966, 50, 257-265.

Friedlander, R., & Margulis, N. Multiple impacts of organizational climate and individual value systems upon job satisfaction. Personnel Psychology, 1969, 22, 171-183.

Gavin, J. Organizational climate as a function of personal and organizational variables. Journal of Applied Psychology, 1975, 60, 135-139.

References (continued)

Ghiselli, E. E., & Siegel, J. P. Leadership and managerial success in tall versus flat organizational structures. Personnel Psychology, 1972, 25, 617-624.

Gocka, E. F. Stepwise regression for mixed mode predictor variables. Educational and Psychological Measurement, 1973, 33, 319-325.

Graen, G. Instrumentality theory of work motivation: Some experimental results and suggested modifications. Journal of Applied Psychology Monograph, 1969, 53, 1-25.

Guilford, J. P. Psychometric methods. New York: McGraw-Hill, 1954.

Guilford, J. P., & Fruchter, B. Fundamental statistics in psychology and education. New York: McGraw-Hill, 1973.

Guion, R. M. A note on organizational climate. Organizational Behavior and Human Performance, 1973, 9, 120-125.

Guion, R. M. Open a new window: Validities and values in psychological measurement. American Psychologist, 1974, 29, 287-296.

Hackman, J. R., & Lawler, E. E., III. Employee reactions to job characteristics. Journal of Applied Psychology Monograph, 1971, 55, 259-286.

Hackman, J. R., & Oldham, G. R. Development of the job diagnostic survey. Journal of Applied Psychology, 1975, 60, 159-170.

Hage, J., & Aiken, M. Routine technology, social structure, and organizational goals. Administrative Science Quarterly, 1969, 14, 366-376.

Hall, D. A theoretical model of career subidentity development in organizational settings. Organizational Behavior and Human Performance, 1971, 6, 50-76.

References (continued)

Hall, R. H. Intraorganizational structure variation: Applications of the bureaucratic model. Administrative Science Quarterly, 1962, 7, 295-308.

Hall, D., & Lawler, E. E., III. Unused potential in research development organizations. Research Management, 1969, 12, 339-354.

Halpin, A. W. Theory and research in administration. New York: MacMillan, 1966.

Halpin, A. W., & Croft, D. B. The organizational climate of schools. Chicago: University of Chicago, 1963.

Hellriegel, D., & Slocum, J. W., Jr. Organizational climate: Measures, research, and contingencies. Academy of Management Journal, 1974, 17, 255-280.

Herman, J. B. Are situational contingencies limiting job attitude-job performance relationships? Organizational Behavior and Human Performance, 1973, 10, 208-224.

Herman, J. B., Dunham, R. B., & Hulin, C. L. Organizational structure, demographic characteristics, and employee responses. Organizational Behavior and Human Performance, 1975, 13, 206-232.

Herman, J. B., & Hulin, C. L. Studying organizational attitudes from individual and organizational frames of reference. Organizational Behavior and Human Performance, 1972, 8, 84-108.

Herzberg, F. Work and the nature of man. Cleveland: World Press, 1966.

Hickson, D. J. A convergence in organization theory. Administrative Science Quarterly, 1966, 11, 229-237.

References (continued)

Hickson, D. J., Pugh, D. S., & Pheysey, D. C. Operations technology and organizational structure: An empirical reappraisal. Administrative Science Quarterly, 1969, 14, 378-397.

Horn, J. L., & Knapp, J. R. Thirty wrongs do not make a right. Psychological Bulletin, 1974, 81, 502-504.

House, R. J. A path-goal theory of leader effectiveness. Administrative Science Quarterly, 1971, 16, 321-338.

House, R. J., & Kerr, S. Organizational independence, leader behavior, and managerial practices: A replicated study. Journal of Applied Psychology, 1973, 58, 173-180.

House, R. J., & Miner, J. B. Merging management and behavior theory: The interaction between span of control and group size. Administrative Science Quarterly, 1969, 14, 451-464.

House, R. J., & Mitchell, T. R. Path-goal theory of leadership. Contemporary Business, 1974, 16, 321-338.

House, R. J., & Rizzo, J. R. Role conflict and ambiguity as critical variables in a model of organizational behavior. Organizational Behavior and Human Performance, 1972, 7, 467-505. (a)

House, R. J., & Rizzo, J. R. Toward the measurement of organizational practices: Scale development and validation. Journal of Applied Psychology, 1972, 56, 388-396. (b)

Hulin, C. L., & Blood, M. R. Job enlargement, individual differences, and worker responses. Psychological Bulletin, 1968, 69, 41-55.

References (continued)

Indik, B. P. The scope of the problem and some suggestions toward a solution. In B. P. Indik & F. W. Berrien (Eds.), People, groups and organizations. New York: Teachers College Press, 1968.

Ingham, G. Size of industrial organizational and worker behavior. Cambridge: Cambridge University Press, 1970.

Inkson, J. H. K., Pugh, D. S., & Hickson, D. J. Organization context and structure: An abbreviated replication. Administrative Science Quarterly, 1970, 5, 318-329.

Insel, P. M., & Moos, R. H. Psychological environments: Expanding the scope of human ecology. American Psychologist, 1974, 29, 179-188.

Ittelson, W. H., Proshansky, H. M., Rivlin, L. G., & Winkel, G. H. An introduction to environmental psychology. New York: Holt, Rinehart & Winston, 1974.

James, L. R., & Ellison, R. L. Criterion composites for scientific creativity. Personnel Psychology, 1973, 26, 147-161.

James, L. R., & Jones, A. P. Organizational climate: A review of theory and research. Psychological Bulletin, 1974, 81, 1096-1112.

James, L. R., & Jones, A. P. Organizational structure: A review of structural dimensions and their conceptual relationships with individual attitudes and behavior. Organizational Behavior and Human Performance, 1976, 16, 74-113.

Jessor, R., & Jessor, S. The perceived environment in behavioral science. American Behavioral Scientist, 1973, 16, 801-828.

References (continued)

Johnston, J. R., Jr. Some personality correlates of the relationships between individuals and organizations. Journal of Applied Psychology, 1974, 59, 623-632.

Jones, A. P., James, L. R., & Bruni, J. R. Perceived leadership behavior and employee confidence in the leader as moderated by job involvement. Journal of Applied Psychology, 1975, 60, 146-149.

Kahn, R., Wolfe, D., Quinn, R., Snoek, J., & Rosenthal, R. Organizational stress: Studies in role conflict and ambiguity. New York: Wiley, 1964.

Katz, D., & Kahn, R. L. The social psychology of organizations. New York: Wiley, 1966.

Katzenmeyer, W. G., & Stenner, A. J. Strategic use of random subsample replication and a coefficient of factor replicability. Educational and Psychological Measurement, 1975, 35, 19-29.

Kerr, S., & Schriesheim, C. Consideration, initiating structure, and organizational criteria - an update of Korman's 1966 review. Personnel Psychology, 1974, 27, 555-568.

LaFollette, W. R., & Sims, H. P., Jr. Is satisfaction redundant with organizational climate? Organizational Behavior and Human Performance, 1975, 13, 257-278.

Lawler, E. E., III., Hall, D. T., & Oldham, G. R. Organizational climate: Relationship to organizational structure, process, and performance. Organizational Behavior and Human Performance, 1974, 11, 139-155.

Lichtman, C. M., & Hunt, R. G. Personality and organization theory: A review of some conceptual literature. Psychological Bulletin, 1971, 76, 271-294.

References (continued)

Likert, R. New patterns of management. New York: McGraw-Hill, 1961.

Litwak, E. Models of bureaucracy which permit conflict. American Journal of Sociology, 1961, 67, 177-184.

Litwin, G., & Stringer, R. Motivation and organizational climate. Boston: Harvard University Press, 1968.

Lord, F. M., & Novick, M. R. Statistical theories of mental test scores. Reading, Mass.: Addison-Wesley, 1968.

Mahoney, T. A., & Frost, P. J. The role of technology in models of organizational effectiveness. Organizational Behavior and Human Performance, 1974, 11, 122-138.

Mahoney, T. A., Frost, P., Crandall, N. F., & Weitzel, W. The conditioning influence of organization size upon managerial practice. Organizational Behavior and Human Performance, 1972, 8, 230-241.

McNemar, Q. Psychological statistics. New York: John Wiley & Sons, 1969.

Meyer, H. H. Achievement motivation and industrial climate. In R. Taguiri & G. Litwin (Eds.), Organizaional climate: Explorations of a concept. Boston: Harvard University Press, 1968.

Mohr, L. B. Organizational technology and organizational structure. Administrative Science Quarterly, 1971, 16, 444-459.

Mowday, R. T., Porter, L. W., & Dubin, R. Unit performance, situational factors, and employee attitudes in spatially separated work units. Organizational Behavior and Human Performance, 1974, 12, 231-248.

Mulaik, S. A. The foundations of factor analysis. New York: McGraw-Hill, 1972.

References (continued)

Newman, J. E. Understanding the organizational structure - job attitude relationship through perceptions of the work environment. Organizational Behavior and Human Performance, 1975, 14, 371-397.

Nicewander, W. A., & Wood, D. A. Comments on "A general canonical correlation index". Psychological Bulletin, 1974, 81, 92-94.

Nicewander, W. A., & Wood, D. A. On the mathentical bases of the general cononical correlation index: Rejoinder to Miller. Psychological Bulletin, 1975, 82, 210-212.

Orr, D. B. A new method for clustering jobs. Journal of Applied Psychology, 1960, 44, 44-49.

Payne, R. L., & Mansfield, R. Relationships of perceptions of organizational climate to organizational structure, context, and hierarchical position. Administrative Science Quarterly, 1973, 18, 515-526.

Payne, R. L., & Pheysey, D. C. G. G. Stern's organizational climate index: A reconceptualization and application to business organizations. Organizational Behavior and Human Performance, 1971, 6, 77-98.

Payne, R. L., & Pugh, D. S. Organizational structure and climate. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

Perrow, C. A framework for the comparative analysis of organizations. American Sociological Review, 1967, 32, 194-209.

Pheysey, D. C., Payne, R. L., & Pugh, D. S. Influence of structure at organizational and group levels. Administrative Science Quarterly, 1971, 16, 61-73.

References (continued)

Porter, L. W., & Lawler, E. E., III. Properties of organization structure in relation to job attitudes and job behavior. Psychological Bulletin, 1965, 64, 23-51.

Porter, L. W., & Lawler, E. E., III. Managerial attitudes and performance. Homewood, IL: Richard D. Irwin, 1968.

Porter, L. W., Lawler, E. E., III., & Hackman, J. R. Behavior in organizations. New York: McGraw-Hill, 1975.

Pritchard, R. D., & Karasick, B. W. The effect of organizational climate on managerial job performance and job satisfaction. Organizational Behavior and Human Performance, 1973, 9, 126-146.

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. Dimensions of organizational structure. Administrative Science Quarterly, 1968, 13, 65-105.

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. The context of organizational structure. Administrative Science Quarterly, 1969, 14, 94-114.

Rizzo, J. R., House, R. J., & Lirtzman, S. I. Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 1970, 15, 150-163.

Schneider, B. Organizational climate: An essay. Personnel Psychology, 1975, 28, 447-479. (a)

Schneider, B. Organizational climate: Individual preferences and organizational realities revisited. Journal of Applied Psychology, 1975, 60, 459-465. (b)

References (continued)

Schneider, B., & Bartlett, C. J. Individual differences and organizational climate I: The research plan and questionnaire development. Personnel Psychology, 1968, 21, 323-333.

Schneider, B., & Hall, D. T. Toward specifying the concept of work climate: A study of Roman Catholic diocesan priests. Journal of Applied Psychology, 1972, 56, 447-455.

Schneider, B., & Snyder, R. Some relationships between job satisfaction and organizational climate. Journal of Applied Psychology, 1975, 60, 318-328.

Schuler, R. S. Role perceptions, satisfaction, and performance: A partial reconciliation. Journal of Applied Psychology, 1975, 60, 683-687.

Scott, W. R. Organizational structure. Annual Review of Sociology, 1975.

Sells, S. B. An interactionist looks at the environment. American Psychologist, 1963, 18, 696-702.

Sells, S. B. The nature of organizational climate. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968. (a)

Sells, S. B. General theoretical problems related to organizational taxonomy: A model solution. In B. P. Indik & F. K. Berrien (Eds.), People, groups, and organizations. New York: Teachers College Press, 1968. (b)

Seymour, G., Gunderson, E. K. E., & Vallacher, R. Clustering 34 occupational groups by personality dimensions. Educational and Psychological Measurement, 1973, 33, 267-284.

References (continued)

Shaw, M. E. Some effects of unequal distributions upon group performance in various communication nets. Journal of Abnormal and Social Psychology, 1954, 49, 547-553.

Shaw, M. E. Group dynamics: The psychology of small group behavior. New York: McGraw-Hill, 1971.

Sims, H. P., & LaFollette, W. An assessment of the Litwin and Stringer organization climate questionnaire. Personnel Psychology, 1975, 28, 19-38.

Sims, H. P., & Szilagyi, A. D. Leader structure and subordinate satisfaction for two hospital administrative levels: A path analysis approach. Journal of Applied Psychology, 1975, 60, 194-197.

Smith, P. C., Kendall, L. W., & Hulin, C. L. The measurement of satisfaction in work and retirement: A strategy for the study of attitudes. Chicago: Rand McNally, 1969.

Steers, R. M. Task-goal attributes, n Achievement, and supervisory performance. Organizational Behavior and Human Performance, 1975, 13, 392-403.

Steiner, I. D. Group process and productivity. New York: Academic Press, 1972.

Stone, E. F., & Porter, L. W. Job characteristics and job attitudes: A multivariate study. Journal of Applied Psychology, 1975, 60, 57-64.

Tatsuoka, M. M. Discriminant analysis: The study of group differences. Champaign, IL.: Institute for Personality and Ability Testing, 1970.

References (continued)

Taylor, J. C. An empirical examination of a four-factor theory of leadership using smallest space analysis. Organizational Behavior and Human Performance, 1971, 6, 249-266.

Thornton, G. C., III. The dimensions of organizational climate of office situations. Experimental Publication System, 1969, 2, (manuscript No. 057A).

Turner, A. N., & Lawrence, P. R. Industrial jobs and the workers. Boston: Harvard University, 1965.

Vannoy, J. S. Generality of cognitive complexity-simplicity as a personality construct. Journal of Personality and Social Psychology, 1965, 2, 385-396.

Vroom, V. H. Work and motivation. New York: Wiley, 1964.

Wainer, H. Estimating coefficients in linear models: It don't make no nevermind. Psychological Bulletin, 1976, 83, 213-217.

Wainer, H., & Thissen, D. Three steps toward robust regression. Psychometrika, 1976, 41, 9-34.

Ward, J. H., & Hook, M. E. Application of an hierarchical grouping procedure to a problem of grouping profiles. Educational and Psychological Measurement, 1963, 23, 69-81.

Waters, L. K., Roach, D., & Batlis, N. Organizational climate dimensions and job-related attitudes. Personnel Psychology, 1974, 27, 465-476.

Wood, D. Effect of worker orientation differences on job attitude correlates. Journal of Applied Psychology, 1974, 59, 54-60.

Woodward, J. Industrial organization: Theory and practice. London: Oxford University Press, 1965.

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[1]The term "organizational" in organizational climate has often been used in a generic sense to refer to multiple organizational levels (e.g., overall organizations, subsystems, and workgroups), and thus generally connotes situational measurement at all organizational levels.

[2]Sampling distributions are not available for coefficients of congruence, thus significance tests would not be conducted. Mulaik (1972), however, pointed out that it is a common practice to accept two factors as equivalent if the index of factor similarity is .90 or greater. On the other hand, this practice, or subjective criterion, is generally employed only after a least squares approximation (i.e., Procrustes rotation) of one factor pattern from the other. Otherwise, the coefficients of congruence may



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Footnotes (continued)

underestimate the actual degree of factor similarity. Due to recent questions regarding Procrustes rotations (Horn & Knapp, 1974; Katzenmeyer & Stenner, 1975), such a procedure was not employed in the present study. Rather, the component structures provided by the varimax rotations were compared. Although a point-estimate for equivalence could not be provided, .90 appeared somewhat conservative.

[3]The multivariate analog of $\omega^2$ provides an estimate of the proportion of variance in the discriminant space attributable to group differences. It is usually not, however, an index of redundancy or the proportion of variance in the dependent variables attributable to group differences. Procedures for assessing redundancy are unclear at the present time (cf. Nicewander & Wood, 1974, 1975). Thus, the proportion, .72, reflects the average amount of variance of the dependent variables accounted for by the discriminant space, based on the sum of the squared correlations between the dependent variables and the significant discriminant functions divided by the number of variables (cf. Nicewander & Wood, 1975).

[4]The context scores, the operational structure scores, and the two global ratings, requests for transfer and use of drugs and alcohol, were all provided by the division head, and thus experimental dependence may have contributed to the predictive validities. However, the magnitude of the predictive validities for the context-global rating criteria (same rater) were approximately equal to the median predictive validities for the context-performance rating criteria (different raters). A similar result was also found for operational structure. Thus, spurious relationships based on experimental dependence were not indicated.

Table 1

Climate Related Variables Arranged by Four Categories

| | |
|---|---|
| **Job and Role Characteristics** | |
| Role Ambiguity - | The extent to which a task is unclear in its demands, criteria, or relationships with other tasks. |
| Role Conflict - | The presence of pressures for conflicting or mutually exclusive behaviors. |
| Job Autonomy - | The ability of a person in a given job to determine the nature of the tasks or problems facing him and to arrive at a course of action. |
| Job Variety - | Degree to which the job calls for the individual to engage in a wide range of behaviors or to use a variety of equipment in his work. |
| Job Importance - | The extent to which the person feels his job makes a meaningful contribution and is important to the organization. |
| Job Feedback - | The extent to which an individual is aware of how well he is performing on his job. |
| Job Challenge - | The extent to which a job gives the individual a chance to use his skills and abilities. |
| Job Pressure - | The extent to which there is inadequate time, manpower, training or resources to complete assigned tasks. |
| Efficiency of Job Design - | The extent to which job behaviors and job design lead to organizationally valued goals. |
| Job Standards - | The extent to which the job demands rigid adherence to exacting standards of quality and accuracy. |
| Opportunities to Deal with Others - | The extent to which the task requires or provides opportunities to interact with other persons. |
| **Characteristics of Leadership** | |
| Leader Support - | The extent to which the leader is aware of and responsive to the needs of his subordinates. Behavior which enhances someone else's feelings of personal worth and importance. |
| Goal Emphasis - | Behavior which stimulates personal involvement in meeting group goals. Leader emphasizes high standards of performance and sets an example by working hard himself. |
| Work Facilitation - | Behavior which helps achieve goal attainment. Includes such activities as scheduling, coordinating, planning, and providing resources. |
| Interaction Facilitation - | Behavior which encourages the development of close, mutually satisfying relationships within the group. |
| Planning and Coordination - | Supervisor's ability to plan and coordinate the group's activities so that maximum performance is possible. |
| Upward Interaction - | Degree to which a supervisor is successful in his interactions with higher levels of command. |

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Table 1 (Cont'd)

| | |
|---|---|
| Confidence and Trust-UP - | Group member's feelings of trust and confidence in their supervisors. |
| Confidence and Trust-DOWN - | The degree to which supervisors trust the performance and judgments of subordinates. |
| | **Workgroup Characteristics** |
| Workgroup Cooperation - | An atmosphere in which there is cooperative effort among individuals to carry out difficult tasks. |
| Reputation for Effectiveness - | The extent to which the group is seen as able to produce work of higher quality and quantity than other groups in the organization. |
| Workgroup Esprit de Corps - | The extent to which members take pride in their group. |
| Workgroup, Friendliness and Warmth - | The extent to which there is communication and trust among members of a workgroup, the atmosphere is characterized by friendly relations. |
| | **Subsystem and Organizational Characteristics** |
| Openness of Expression - | Degree to which individuals feel the atmosphere is conducive to the expression of individual opinions, ideas, and suggestions. |
| Organizational Communication-DOWN - | Degree to which information is communicated to subordinates concerning impending changes in procedures, policies, and so forth. |
| Interdepartmental Cooperation - | The extent to which there are friendly, cooperative interactions between departments. |
| Conflict of Organizational Goals and Objectives - | The degree to which goals and policies of one subsystem are in conflict with those of other groups in the same organization. |
| Ambiguity of Organizational Structure - | The extent to which organizational channels of authority are obscure or undefined. |
| Consistent Applications of Organizational Policies - | The degree to which organizational policies are consistently and fairly applied. |
| Organizational Esprit de Corps - | The degree to which an individual believes his organization performs an important function and offers him unique opportunities for growth and reward. |
| Planning Effectiveness - | Degree to which the organization is able to plan so that work groups have the required supplies and there is little wasted effort. |
| Fairness and Objectivity of the Reward Process - | Degree to which an organization rewards individuals for performance rather than seniority or other non-performance reasons. |
| Opportunities for Growth and Advancement - | Degree to which an individual feels that the organization provides a vehicle for development and advancement of desired personal skills, goals and rewards. |
| Awareness of Employees' Needs and Problems - | Extent to which an organization attempts to assess and respond to its employees' needs and problems. |
| Professional Esprit de Corps - | Degree to which an individual believes his profession has a good image to outsiders and provide opportunities for growth and advancement. |

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Table 2

Principal Components for Items Reflecting Four Proposed Dimensions of Operational Structure

| Variables | Components 1 | 2 | 3 | 4 | 5 | 6 | 7 | $h^2$ |
|---|---|---|---|---|---|---|---|---|
| Formalization | | | | | | | | |
| 1. Job responsibilities are defined | | | | .85 | | | | .75 |
| 2. Activities specified in writing | | | | .84 | | | | .73 |
| 3. Emphasis on written communication | | | | | | .79 | | .72 |
| 4. Must follow chain of command | | | | | | .59 | | .58 |
| Standardization | | | | | | | | |
| 5. Procedures for and frequency of inspections | | .48 | | | | | | .42 |
| 6. Reporting performance | | .57 | | | | | | .37 |
| 7. Procedures for discipline | | .48 | | | | | | .42 |
| 8. Initiating of meetings and formal activities | | .74 | | | | | | .57 |
| 9. Expenditure of funds | | | | | | | .87 | .79 |
| 10. Training personnel | | .59 | | | | | | .46 |
| Interdependence | | | | | | | | |
| 11. Depend on other units for resources | | | .70 | | | | | .51 |
| 12. Consider other units' needs in preparing work schedules | | | .70 | | | | | .52 |
| 13. Joint decision making bearing on own act | | | .70 | | | | | .56 |
| Centralization of Decision Making | | | | | | | | |
| 14. Determine own budget[a] | .52 | | | | | | | .40 |
| 15. Allocate work | | | | | .82 | | | .74 |
| 16. Determine work schedule | | | | | .80 | | | .74 |
| 17. Adopt new program or policy | .67 | | | | | | | .47 |
| 18. Set standards of performance | .70 | | | | | | | .53 |
| 19. Set overall goals | .77 | | | | | | | .61 |
| 20. Autonomy in making decisions | .66 | | | | | | | .52 |
| 21. Determine methods for goals and activities | .48 | | | | | | | .34 |

Note. Proportion of trace accounted for = .56; only loadings $\geq |\pm .40|$ are reported; $n = 315$.

[a]High scores reflect high centralization.

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Table 3

Principal Components of Psychological Climate for U. S. Navy Enlisted Personnel

| Composite | Component Loadings[a] 1 | 2 | 3 | 4 | 5 | 6 | $h^2$ | Alpha | No. of Items |
|---|---|---|---|---|---|---|---|---|---|
| **Job or Role** | | | | | | | | | |
| 1. Role Ambiguity | .48 | -.44 | | | | | .62 | .62 | 6 |
| 2. Role Conflict | | | | | -.49 | | .59 | .58 | 6 |
| 3. Job Autonomy | | .52 | | | | | .66 | .68 | 4 |
| 4. Job Variety | | .67 | | | | | .59 | .68 | 4 |
| 5. Job Importance | | .68 | | | | | .61 | .65 | 4 |
| 6. Job Feedback | | .46 | .51 | | | | .55 | .52 | 3 |
| 7. Job Challenge | | .75 | | | | | .69 | .77 | 4 |
| 8. Job Pressure | | | | | -.53 | .40 | .59 | .54 | 6 |
| 9. Efficiency of Job Design | -.46 | | | | | | .47 | .46 | 5 |
| 10. Job Standards | | .42 | | | | .54 | .60 | .52 | 5 |
| 11. Opportunity for Dealing with Others | | .54 | | | | | .33 | .47 | 2 |
| **Leadership** | | | | | | | | | |
| 12. Support | | | .72 | | | | .78 | .81 | 5 |
| 13. Goal Emphasis | | | .72 | | | | .69 | .62 | 4 |
| 14. Work Facilitation | | | .80 | | | | .79 | .73 | 5 |
| 15. Interaction Facilitation | | | .77 | | | | .73 | .70 | 4 |
| 16. Planning and Coordination | | | .61 | | | | .65 | .56 | 3 |
| 17. Upward Interaction | | | .50 | | .48 | | .50 | .47 | 2 |
| 18. Confidence and Trust - UP | | | | | .61 | | .49 | .50 | 2 |
| 19. Confidence and Trust - DOWN | | | | | | -.40 | .54 | .52 | 5 |
| **Workgroup** | | | | | | | | | |
| 20. Cooperation | | | | .75 | | | .74 | .73 | 4 |
| 21. Friendliness and Warmth | | | | .72 | | | .65 | .63 | 3 |
| 22. Reputation for Effectiveness | | | | .59 | | | .58 | .54 | 3 |
| 23. Workgroup Esprit de Corps | | | | .64 | | | .63 | .69 | 4 |
| **Subsystem and Organization** | | | | | | | | | |
| 24. Openness of Expression | | | | | .64 | | .64 | .69 | 5 |
| 25. Organizational Communication - DOWN | -.55 | | | | | | .62 | .60 | 4 |
| 26. Interdepartmental Cooperation | -.57 | | | | | | .37 | .56 | 3 |
| 27. Conflict of Org. Goals and Objectives | .66 | | | | | | .57 | .55 | 5 |
| 28. Ambiguity of Org. Structure | .66 | | | | | | .58 | .44 | 3 |
| 29. Consistent Applications of Org. Policies | -.47 | | | | .45 | | .46 | .47 | 4 |
| 30. Organizational Esprit de Corps | | | | | .66 | | .61 | .61 | 6 |
| 31. Professional Esprit de Corps | | | | | .79 | | .67 | .67 | 5 |
| 32. Planning and Effectiveness | -.53 | | | | | | .56 | .54 | 5 |
| 33. Fairness and Obj. of the Reward Process | -.51 | | | | | | .40 | .53 | 2 |
| 34. Opportunities for Growth and Advancement | | | | | .57 | | .62 | .63 | 7 |
| 35. Awareness of Employee Needs and Problems | -.41 | | | | .52 | | .54 | .56 | 3 |

Note: n=4,315

[a]Only loadings $\geq |\pm .40|$ are presented

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Table 4

Coefficients of Congruence for Psychological Climate Components Across Three Samples

| Sample | Components | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Leadership Facilitation and Support | | | Workgroup Cooperation, Friendliness & Warmth | | | Conflict and Ambiguity | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| 1. Navy Enlisted[a] | — | | | -- | | | -- | | |
| 2. Health Mgt.[b] | .97 | — | | .91 | -- | | .75 | — | |
| 3. Firemen[c] | .96 | .96 | — | .87 | .90 | -- | .93 | .74 | — |
| | Professional and Organizational Esprit de Corps | | | Job Challenge, Importance, and Variety | | | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | | | |
| 1. Navy Enlisted | — | | | -- | | | | | |
| 2. Health Mgt. | .83 | -- | | .77 | — | | | | |
| 3. Firemen | .90 | .77 | — | .89 | .89 | -- | | | |

[a] $\underline{n}$ = 4,315

[b] $\underline{n}$ = 504

[c] $\underline{n}$ = 398

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Table 5

Analysis of Perceptual Agreement for Organizational Climate

| Organizational Climate | Division (n=223) | | | | | Department (n=97) | | | | | Ship (n=20) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | SD | F | $r_{IC}$[a] | S.B.[b] | M | SD | F | $r_{IC}$ | S.B. | M | SD | F | $r_{IC}$ | S.B. |
| I. Conflict and Ambiguity | 49.77 | 3.71 | 2.22** | .07 | .55 | 49.61 | 3.01 | 3.03** | .05 | .67 | 49.84 | 1.74 | 5.53** | .02 | .79 |
| II. Job Challenge, Imp., and Variety | 50.13 | 3.99 | 2.66** | .09 | .62 | 50.27 | 3.24 | 3.29** | .06 | .71 | 50.16 | 1.10 | 2.34** | .01 | .65 |
| III. Leader. Facilitation and Support | 50.12 | 4.05 | 2.87** | .10 | .65 | 50.16 | 2.92 | 2.64** | .04 | .61 | 49.96 | 1.40 | 3.99** | .02 | .79 |
| IV. Workgroup Coop., Friend., & Warmth | 50.12 | 5.17 | 5.46** | .22 | .82 | 49.91 | 3.38 | 4.04** | .07 | .74 | 49.89 | 1.40 | 3.63** | .01 | .65 |
| V. Professional and Org. Esprit | 49.73 | 4.35 | 3.87** | .13 | .71 | 50.03 | 3.69 | 5.20** | .10 | .81 | 49.76 | 2.28 | 10.70** | .05 | .91 |
| VI. Job Standards | 50.02 | 4.48 | 3.62** | .14 | .73 | 50.38 | 3.12 | 3.30** | .06 | .71 | 49.99 | 1.68 | 5.66** | .02 | .79 |

Note: All analyses were conducted on a sample of 3,693 subjects

[a]Intraclass correlations

[b]Spearman-Brown estimates of the reliability of the mean

*$p < .05$

**$p < .01$

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Table 6

Correlations Between Department and Division Context and Structure

| Variables | Department/Division Correlations |
|---|---|
| **Context** | |
| 1. Emphasis on Morale | .15* |
| 2. Emphasis on Following Standardized Procedures | .06 |
| 3. Technology | .13 |
| 4. Funds for Habitability | .03 |
| 5. Condition of Equipment | .23** |
| 6. Rating of Personnel | .23** |
| 7. Funds and Supplies for Work | .23** |
| **Structure** | |
| 8. Size of Department (Division) | .62** |
| 9. Specialization - Jobs/Department (Division) | .11 |
| 10. Configuration - Span of Control | .64** |
| 11. Configuration - Number of Levels | .64** |
| 12. General Centralization | .21** |
| 13. General Standardization | -.01 |
| 14. *Interdependence* | .14* |
| 15. Formalization of Roles | .16* |
| 16. Centralization of Work | .07 |

Note. $n$ = 205 divisions with both department and division data.

*$p < .05$

**$p < .01$

Table 7

Deviations of Division Climate Cluster Means From the Mean of All Clusters

| Division Climate Cluster[a] | Division Climate: Conflict and Ambiguity | Job Chall., Imp., & Variety | Lead. Fac. & Support | Wkgp. Coop. Friend. & Wm. | Prof. & Org. Esprit | Job Standards |
|---|---|---|---|---|---|---|
| Cluster 1 (n=53) | | | | + | | |
| Cluster 2 (n=37) | + | | | | | - |
| Cluster 3 (n=40) | | | | | - | + |
| Cluster 4 (n=34) | | | | - | | |
| Cluster 5 (n=20) | | - - | - | - - | | |
| Cluster 6 (n=15) | | + + | | + | - | - |
| Cluster 7 (n=24) | | | | | + | |

Note. ++ = the division cluster mean for the respective climate dimension was one standard deviation or more above the mean for all divisions; + = the cluster mean was one-half of a standard deviation above the overall mean; - = one-half standard deviation below the overall mean; and - - = one standard deviation or more below the overall mean.

[a]The division types included in each climate cluster were as follows: Cluster 1 -- Navigation, Antisubmarine Warfare, and Guns; Cluster 2 — Missiles, Fire Control, Nuclear, and Auxilary; Cluster 3 — Communications and Intelligence; Cluster 4 — Boilers and Machinery; Cluster 5 — Deck (Maintenance); Cluster 6 — Electronics; and Cluster 7 — Supply.

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Table 8

Correlations between Psychological Climate and Individual Resources, Position Variables, and Selected Division Context and Structure Measures

| Variables | Psychological Climate: Conflict & Ambiguity | Job Chall., Imp., & Var. | Lead. Fac. & Support | Wkgp Coop. Friend. & Wm. | Prof. & Org. Esprit | Job Standards |
|---|---|---|---|---|---|---|
| **Division Context** | | | | | | |
| 1. Standardization of Goals | -.06 | -.02 | .01 | .04 | .02 | .07 |
| 2. Technology | .03 | .07 | -.03 | .10* | -.07 | -.09* |
| **Division Structure** | | | | | | |
| 3. Size of Division | .03 | -.07 | -.02 | -.10* | .02 | .00 |
| 4. Specialization - Job/Div. | .02 | .03 | .00 | -.02 | .06 | -.05 |
| 5. Configuration - Span | -.02 | .14* | .05 | .13* | .02 | .04 |
| 6. Configuration - Levels | .02 | .02 | -.01 | -.13* | .02 | .07 |
| 7. General Centralization | .06 | .03 | -.05 | -.05 | -.06 | .02 |
| 8. General Standardization | .03 | .01 | .02 | -.04 | -.02 | -.02 |
| 9. Interdependence | -.01 | .08 | -.04 | .07 | -.03 | -.06 |
| 10. Formalization of Roles | -.02 | .02 | .02 | .07 | .01 | .08 |
| **Position Variables** | | | | | | |
| 11. Time in Navy | -.08 | .44* | .06 | .08 | .17* | -.03 |
| 12. Hierarchical Level | -.06 | .50* | .06 | .15* | .05 | .08 |
| 13. Men Supervised | -.03 | .30* | .07 | -.02 | .08 | .00 |
| 14. No. Advanced Trg. Sch. | -.02 | .21* | .02 | .15* | -.04 | -.04 |
| 15. No. Other Trg. Sch. & Cour. | -.02 | .33* | .04 | .13* | .00 | -.04 |
| 16. Unskilled Jobs | .05 | -.31* | -.03 | -.14* | .12* | .01 |
| 17. Mechanical Jobs | .05 | .15* | -.02 | -.09* | -.02 | -.03 |
| 18. Low Level Technical Jobs | -.05 | .08 | .06 | .00 | .05 | .06 |
| 19. High Level Technical Jobs | .06 | .07 | .00 | .23* | -.13* | -.03 |
| **Individual Resources** | | | | | | |
| 20. Age | -.08 | .42* | .07 | .08 | .18* | -.04 |
| 21. Education | -.01 | .00 | .02 | .10* | -.11* | -.06 |
| 22. Intellectual Aptitude | -.05 | .00 | -.01 | .12* | -.19* | -.03 |
| 23. Ego Needs | .00 | .14* | .05 | .02 | .17* | .17* |
| 24. Esteem | -.06 | .25* | .04 | .19* | -.01 | .04 |
| 25. House Size | .03 | -.09* | -.04 | .03 | -.15* | .00 |
| 26. Discipline | .10* | -.11* | -.03 | -.12* | .00 | .02 |

Note. $n = 3,726$

*$p < .01$

Table 9

Standardized Discriminant Function Weights and Univariate F ratios for Potential Correlates of a Division Climate Typology

| Variables | Standardized Discriminant Weights | | | | F ratio |
|---|---|---|---|---|---|
| | Function 1 | Function 2 | Function 3 | Function 4 | |
| Division Context | | | | | |
| 1. Emphasis on Morale | .05 | .12 | -.09 | -.33 | 1.18 |
| 2. Emphasis on Standard Procedures | -.03 | .01 | .15 | .14 | 1.63 |
| 3. Technology | -.09 | -.11 | .07 | -.36 | 8.32* |
| 4. Funds for Habitability | -.10 | .09 | -.11 | -.00 | .37 |
| 5. Condition of Equipment | -.03 | .11 | -.44 | .15 | 6.30* |
| 6. Rating of Personnel | .02 | -.05 | .00 | -.32 | 4.40* |
| 7. Funds and Supplies for Work | -.06 | .13 | -.11 | .16 | 4.16* |
| Division Structure | | | | | |
| 8. Size of Division | .00 | .02 | -.10 | -.07 | 5.27* |
| 9. Specialization - Jobs/Division | -.31 | .67 | -.02 | .17 | 15.26* |
| 10. Configuration - Span of Control | -.01 | -.19 | .31 | .02 | 8.42* |
| 11. Configuration - No. of Levels | .12 | -.27 | .53 | .06 | 6.79* |
| 12. General Centralization | .07 | .02 | .13 | -.02 | 1.68 |
| 13. General Standardization | -.01 | .03 | .12 | -.46 | 1.49 |
| 14. Interdependence | -.11 | .23 | .16 | -.51 | 6.15* |
| 15. Formalization of Roles | -.05 | -.05 | .44 | .00 | 4.20* |
| 16. Centralization of Work | .04 | -.07 | .05 | .04 | 1.25 |
| Position Variables | | | | | |
| 17. Time in Navy | -.07 | .44 | .25 | .14 | 12.85* |
| 18. No. of Advance Trg. Schools | -.30 | -.04 | .26 | .19 | 32.44* |
| 19. No. of Other Trg. Schools & Courses | -.21 | -.05 | -.14 | -.12 | 18.82* |
| Individual Resources | | | | | |
| 20. Years of Formal Education | -.14 | -.05 | -.10 | -.37 | 14.05* |
| 21. Intellectual Aptitude | -.42 | -.27 | -.02 | .20 | 42.38* |

Note. n = 223 divisions and seven division climate clusters.

*p < .001

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Table 10

Group Centroids in Discriminant Space for Seven Division Climate Clusters on Four Discriminant Functions

| Division Climate Cluster | Discriminant Functions 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Cooperative and Friendly | -.61 | .28 | -.42 | .33 |
| 2. Conflicting and Ambiguous | -.37 | .14 | .37 | -.73 |
| 3. Alienating and Constrictive | -.26 | -.56 | .00 | .35 |
| 4. Cool and Unfriendly | .78 | -.83 | .75 | .15 |
| 5. Monotonous, Cold, and Unsupportive | 1.93 | -.01 | -1.16 | -.33 |
| 6. Enriched & Wm. Wk. Env./Org. UnInv. | -1.35 | -.50 | -.50 | -.50 |
| 7. Organizationally Involving | .47 | 1.59 | .57 | .19 |

Table 11

Correlations Among Division Criteria

| Criteria | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Quality of Work | --- | | | | | | | | | |
| 2. Planned Main. Sch. | .55** | --- | | | | | | | | |
| 3. Readiness to Fulfill Comm. | .59** | .41** | --- | | | | | | | |
| 4. Perf. under Pressure | .48** | .48** | .42** | --- | | | | | | |
| 5. Efficiency | .69** | .57** | .56** | .49** | --- | | | | | |
| 6. Cooperation | .51** | .29** | .49** | .40** | .51** | --- | | | | |
| 7. Safety | .31** | .14 | .36** | .03 | .24** | .09 | --- | | | |
| 8. Leadership | .54** | .42** | .36** | .46** | .51** | .46** | .12 | --- | | |
| 9. Requests for Transfer | .27** | .21** | .20** | .08 | .24** | .14 | .23** | .25** | --- | |
| 10. Use of Drugs & Alcohol | .42** | .34** | .27** | .13 | .32** | .24** | .23** | .26** | .54** | --- |

Note: $n$ = 160

* $p$ <.05

** $p$ <.01

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Table 12

Predictive Validities for a Composite Division Criterion for Two Subsamples

| Predictors | Predictive Validities Sample A (n = 76) | Sample B (n = 84) |
|---|---|---|
| **Division Context** | | |
| 1. Emphasis on Morale | .23* | .02 |
| 2. Emphasis on Standard Procedures | .07 | .01 |
| 3. Technology | .10 | .05 |
| 4. Funds for Habitability | -.02 | -.13 |
| 5. Condition of Equipment | .37** | .16 |
| 6. Rating of Personnel | .36** | .52** |
| 7. Funds and Supplies for Work | .23* | .36** |
| **Division Structure** | | |
| 8. Size of Division | -.23* | -.22* |
| 9. Specialization - Jobs/Division | -.10 | -.23* |
| 10. Configuration - Span of Control | .21 | .11 |
| 11. Configuration - No. of Levels | -.06 | -.11 |
| 12. General Centralization | .05 | -.06 |
| 13. General Standardization | .10 | -.09 |
| 14. Interdependance | .12 | .07 |
| 15. Formalization of Roles | .12 | .03 |
| 16. Centralization of Work | -.08 | -.03 |
| **Division Climate** | | |
| 17. Climate Clusters | .41** | .39** |
| **Position Variables** | | |
| 18. Time in Navy | .33** | .10 |
| 19. No. of Advance Trg. Schools | .46** | .52** |
| 20. No. of Other Trg. Schools & Courses | .54** | .25* |
| **Individual Resources** | | |
| 21. Years of Formal Education | .32** | .35** |
| 22. Intellectual Aptitude | .37** | .33** |

*$p < .05$

**$p < .01$

Table 13

Cross-Validities for a Composite Division Criterion Based on Multiple Correlations using Unit Weights

| | Cross-Validities | |
|---|---|---|
| Predictor Domain | Sample A (n=76) | Sample B (n=84) |
| Division Context | .41** | .43** |
| Division Structure | .21 | .22* |
| Climate Clusters | .41** | .39** |
| Position Variables | .55** | .37** |
| Individual Resources | .39** | .39** |
| Overall | .60** | .55** |

*p < .05

**p < .01

Table 14

Criterion Composite Means for Division Climate Clusters

for Two Cross-Validation Samples

| Division Climate Cluster | Criterion Composite Means | |
|---|---|---|
| | Sample A (n=76) | Sample B (n=84) |
| 1. Cooperative and Friendly | 450.14[a] | 452.46 |
| 2. Conflicting and Ambiguous | 451.98 | 448.82 |
| 3. Alienating and Constrictive | 448.84 | 452.63 |
| 4. Cool and Unfriendly | 448.15 | 450.73 |
| 5. Monotonous, Cold, and Unsupportive | 439.44 | 444.26 |
| 6. Enriched & Wm. Wk. Env./Org. UnInv. | 453.21 | 455.15 |
| 7. Organizationally Involving | 451.00 | 448.80 |

[a]The mean of each of the nine standardized criteria was set equal to 50 in the total sample.

Figure 1. Schematic representation for correlates of organizational climate.

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