



**LEVEL II**

12



**RESEARCH  
REPORT  
SERIES**

AD A100414

**WORK CLIMATES: AN INTERACTIONIST  
PERSPECTIVE**

**Benjamin Schneider**

**DTIC  
ELECTE  
JUN 22 1981  
E**

**Research Report No. 81-2  
June 1981**

The writing of this paper was supported by the Organizational Effectiveness Research Programs, Psychological Sciences Division, Office of Naval Research under Contract No. N00014-79-C-0781, Contract Authority Identification Number NR 170-894, Benjamin Schneider, Principal Investigator.

Reproduction in whole or part is permitted for any purpose of the United States Government. Approved for public release; distribution unlimited.

DTIC FILE COPY

**INDUSTRIAL/  
ORGANIZATIONAL  
PSYCHOLOGY**

**DEPARTMENT OF PSYCHOLOGY  
MICHIGAN STATE UNIVERSITY  
EAST LANSING, MICHIGAN 48824**

81 6 19 031

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Research Report No. 81-2	2. GOVT ACCESSION NO. AD-A100 424	3. RECIPIENT'S CATALOG NUMBER 14, RPT-2
4. TITLE (and Subtitle) Work Climates: An Interactionist Perspective.	5. TYPE OF REPORT & PERIOD COVERED Interim Research	6. PERFORMING ORG. REPORT NUMBER
		7. AUTHOR(s) Benjamin/Schneider
9. PERFORMING ORGANIZATION NAME AND ADDRESS Michigan State University	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR 170-894	
11. CONTROLLING OFFICE NAME AND ADDRESS Organizational Effectiveness Research Programs Office of Naval Research (Code 452) Arlington, VA 22217	12. REPORT DATE June 1981	
	13. NUMBER OF PAGES 35	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) UNCLASSIFIED	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. STATEMENT (of this Report) (if different from Report)		
18. SUPPLEMENTARY NOTES This is a revised version of a talk presented at the Third Annual Symposium on Applied Behavioral Science, May 8-9, 1980, Virginia Polytechnic Institute and State University, Blacksburg, VA.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Organizational Climate; Work Climate; Interactional Psychology; Person-Situation Interaction; Organization Design.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The literature on work climates is reviewed and summarized and, then, an hypothesis about the etiology of climates is presented. The literature summary reveals that in the past fifteen years five kinds of conceptual progress and four kinds of methodological progress have been made. It is noted that collectively these advances define a "climate approach" to understanding organizational behavior. The hypothesis suggests that work climates emerge from the naturally occurring patterns		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 69 IS OBSOLETE  
S/N 0102-LF-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

of the goal-oriented interactions of people with each other and (changing) facets of their work environment. This hypothesis rests on two important interactionist assumptions: (1) people tend to be attracted to, selected by, and leave from organizations yielding settings characterized by particular kinds of people; and (2) separating the nature of person from the nature of setting (perceiver from perceived) is difficult. Thus, it is suggested, work climates are indeed perceptions of organizational processes but in different settings different climates will exist because different kinds of people will exist there.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Work Climates: An Interactionist Perspective

Benjamin Schneider<sup>1</sup>

<b>Accession For</b>		
NTIS GRA&I	<input checked="" type="checkbox"/>	
DTIC TAB	<input type="checkbox"/>	
Unannounced	<input type="checkbox"/>	
Justification		
By		
Distribution/		
Availability Codes		
Avail and/or		
Dist	Special	
<b>A</b>		

<sup>1</sup>I wish to thank Nick Feimer, Roy Lewicki, Tom Mitchell, Neal Schmitt and John Wanous for their valuable comments on earlier versions of this paper.

The concept of work or organizational climate (the terms will be used interchangeably) was introduced into the fields of Industrial/Organizational Psychology and Organizational Behavior in the late 1950's and early 1960's by a group of social/behavioral scientists concerned with management and organizational effectiveness (Argyris, 1957; Gellerman, 1959; McGregor, 1960). These people extended Lewin's work on the creation of social climates in boy's groups (e.g., Lewin, Lippitt & White, 1939) to the work setting. They reasoned that organizational practices and procedures, especially managerial style, can influence the perceptions employees have of the major orientations, including goals and values, of the organization. Thus, following the Gestalt psychology orientation of Lewin, they assumed that organizations communicate a particular atmosphere or climate to their employees through behaviors toward employees. Organizations, then, which emphasized productivity through incentive systems, assembly lines, and so on, might be said to have a "high pressure" climate; organizations which required the wearing of safety goggles and shoes, had training programs in safe behavior and the handling of emergencies, rewarded foremen based on their safety records, and so on, would be perceived as having a "climate for safe behavior." The idea was that through organization practices and procedures, the issues that were important to management would be communicated to employees.

In the 20 or so years since those earlier works, the concept of climate at work has received a considerable amount of attention. At least 12 reviews of the literature have been published, and some authors have written more than one review. The first comprehensive review was

published about 15 years ago by Forehand and Gilmer (1964). Five years later Campbell, Dunnette, Lawler and Weick (1970) and Taguiri and Litwin (1968) performed this service, and five years ago the field was literally inundated with reviews (Hellriegel & Slocum, 1974; James & Jones, 1974; Payne & Pugh, 1976; Schneider, 1975). Jones and James (1979) and Joyce and Slocum (1979) have done second reviews and, while some newcomers have contributed reviews (Naylor, Pritchard & Ilgen, 1980; Powell & Butterfield, 1978; Woodman & King, 1978), five years have elapsed since my earlier essay (Schneider, 1975).

These reviews have had different foci depending somewhat on the research literature available at the time but also on the predilections of the reviewer(s). For example, Payne and Pugh (1976) appear to have been influenced by more macro organizational structure concerns in their presentation while Litwin and Stringer (1968) emphasized the role of individual motivation, particularly the need for achievement. In the more recent reviews, Naylor et al. (1980) have taken a cognitive/information processing approach to the role of climate in understanding work behavior while Jones and James (1979) have approached the topic from a social learning perspective.

It was to be expected that reviewers would take different positions on what climate is because the concept was relatively new and researchers did not conceptualize the concept from a common paradigm. By and large this divergence of approaches has been healthy in that a certain amount of debate has been generated. It should become clear in the review that follows what some of the issues in these debates have been. The review emphasizes the kinds of conceptual and methodological progress that have

been made in the past 20 years, with the emphasis on progress rather than critique; for the latter see Woodman and King (1978).

One facet of the climate construct which has not received very much attention at all concerns the etiology of climate. The explanation or assumption shared by reviewers and researchers has been that the climate in a setting is a function of either the structural attributes of the setting (size, technology, hierarchy of authority, etc.) or the result of more immediate interpersonal and job design practices and procedures (leadership, participation in decision-making, job challenge/variety). There is a paradox, however, in these emphases on the external world as the source of climate. The paradox is that climate is a perception yet the nature of the people doing the perceiving has received little attention in climate research (for an exception, see Johnston, 1976). The second part of this paper is an attempt to fill this void by presenting a psychologically based framework for understanding how climates in work settings emerge.

#### Literature Review

Conceptual Progress. What conceptual progress has been made as a result of these reviews and research in the past fifteen years? First, and most importantly, the climate approach to understanding how work contexts affect behavior, grounded as it is in employee perceptions, offers a much-needed alternative to the domination of organizational psychology and organizational behavior by motivation. Everything in contemporary organizational behavior/psychology is explained in terms of one or more need theories or some variant of instrumentality theory (Campbell & Pritchard, 1976). Not recognized by the motivationists, whether of the

content (need) or process (instrumentality) persuasion, is that operationalization of their theoretical frameworks is dependent upon perception. This is particularly true for the various instrumentality theories which require as their basic data employee perceptions of the likelihood of attaining desired goals by working at particular levels of performance (frequently called instrumentality perceptions) and the probability that particular levels of effort will result in particular levels of performance (frequently called expectancy perceptions). My own belief, somewhat supported by the work of James, Hartman, Stebbins and Jones (1977), is that employee perceptions of instrumentalities in a work setting are potentially excellent sources of data in climate research.

A second advance (or maybe this is only a hope) has been the demise of the search for "objective" organizational structural explanations/causes for climate. It now seems to be agreed (for an exception, see Payne & Pugh, 1976) that the climates that characterize settings reside in the perceptions of organizational process (how the organization functions), not in "objective" data on organizational structure (size, levels in the hierarchy, etc.) (e.g., Lawler, Hall & Oldham, 1974; James, Hater, Gent & Bruni, 1978). Simply stated, attempts to find structure-climate, or structure-attitude relationships of any kind, have yielded unimpressive results (Porter & Lawler, 1965; Berger & Cummings, 1979). One of the central themes in the second part of this essay will be an explanation of why it is process, not structure, that is at the foundation of work climate.

A third advance has been clarification of the distinction between psychological climate and organizational climate. The distinction, first

proposed by James and Jones (1974) five years ago, has been expanded by them recently (James et al., 1978; Jones & James, 1979) and has gained general acceptance (see Payne, Fineman & Wall, 1976, for a similar proposal). Briefly, psychological climate is the meaning an individual attaches to a work context; organizational climate is the aggregated meaning, i.e., the typical, average, or usual way people in a setting describe it.

"Climate" in both distinctions refers either to an assessed molar perception or to an inference made by researchers based on assessments which are perceptions of specific organizational practices. To return to the safety example presented earlier, one researcher might directly ask about the extent to which safety is emphasized while another might ask employees about the extent to which each of the organizational practices (safety goggles, safety shoes, and so on) exist and then make an inference about the climate for safety.

Also in both distinctions, climate refers to a psychological variable which is an attribution about the setting; a way for people to make sense out of all of the stimuli around them (Naylor, et al., 1980; Weick, 1979). Climate is an attribute of the setting only in the sense that the people in a setting are an integral part of it and their perceptions of it may be important for their behavior in it. I would argue that when the people in a setting tend to agree about the attributes of it, then those attributes are as "real" and "objective" as any other. This issue will be important in the second part of the paper when the question of the separation/integration of person and setting is discussed.

In any case, organizational climate, as the aggregate of individual

perceptions, has been treated just like any other organizational attribute: such aggregate perceptions have been studied as dependent variables (Dieterly & Schneider, 1974), mediating variables (Schneider & Hall, 1972) and independent variables (Schneider, Parkington & Buxton, 1980). In the latter study, for example, the climate for service in branch banks was conceptualized as causing customer perceptions of those same branch banks. Data were collected from both employees and customers regarding branch practices and procedures emphasizing service. Across 23 branches correlations in the .50 - .70 range were found between customer and employee perceptions of these practices and procedures.

The fourth major advance follows from the idea that people attach meaning to, or make sense of, clusters of events, practices and procedures. What this implies is that work settings have numerous climates, as many climates as there are psychologically connected clusters of events, practices and procedures. The same work setting, then, can be characterized as having a warm and friendly climate (Schneider, 1973), a climate for service (Schneider, et al., 1980), a climate for safety (Zohar, 1980) and a climate for achievement (Litwin & Stringer, 1968).

An analogy to factor analysis may be helpful here. In the typical attitude survey, respondents indicate agreement/disagreement to many items. These item responses are then submitted to principal components analysis which identifies clusters of items, i.e., items which correlate well with each other but poorly with other items in other clusters. The labels attached to each factor are abstractions of the specific item content. By analogy, then, the different events, practices and procedures, and the label of the factor is equivalent to the kind of climate the cluster of events,

practices and procedures connotes. People in organizations obviously encounter thousands of events, practices and procedures and they obviously perceive them in many clusters of related sets. These sets each define a climate; organizations thus have many climates.

In a very interesting recent extension of this idea of climates, Joyce & Slocum (Note 1) showed that people can be clustered into sets based on their perceptions of the organization. These clusters seem to form on the basis of meaningful organizational roles; i.e., by job function, by unit, by manager/supervisor, etc.. This finding reveals that not only do organizations have multiple climates based on the kinds of issues relevant for particular criteria of interest (e.g., safety, service) but also as a function of the unit of analysis (role, job, level, etc.) of interest. Powell and Butterfield (1978), then, speak of subsystem climates and Schneider and Snyder (1975) show how level or position in an organization yields different perceptions. These findings do not mean one group is more biased or "subjective" than another; they merely suggest that people in different roles, jobs, etc. work under different sets of events, practices and procedures. After all, the typical manager does work under different conditions than the typical worker so it is not surprising to find such differences.

One possibility, of course, is that differences in perceptions are due to differences in people. This hypothesis would yield the conclusion that different kinds of people in the "same" situation would report different levels or kinds of practices and procedures; the concept of multiple climates in a setting would then be understood to result from the fact that different kinds of people are there. This hypothesis does

not seem to be supported by data and, as will be shown in some detail later, it fails to make sense from both a theoretical and a realistic stance.

The data which fails to support the individual differences in perceptions argument come from all of the laboratory studies which treat perceptions as dependent variables and all field studies which compare the perceptions of one differentiable group to another. For example, Litwin and Stringer (1968) manipulated the practices and procedures under which work groups had to function and showed that people working in achievement-oriented groups perceived them that way while people working in power-oriented groups perceived them to have a climate for power. If there were important individual differences then the between-group variance would have been overwhelmed by the within-group and no significant effect would have emerged. In the field, the Schneider et al. (1980) bank climate work described earlier would not have found such strong correlations between aggregated customer and employee perceptions if the variance within branches was larger than between. Numerous other studies could be cited to prove the same point.

It will be argued in detail later (see also Schneider, in press) that the reason for relatively good levels of agreement in perceptions within settings is because settings tend to be characterized by similar kinds of people. That is, as the result of people being differentially attracted to, selected by, and leaving from setting, the nature of the kinds of people in any one setting will become relatively homogeneous. The result of this homogeneity will be relatively similar strategies for organizing stimuli and sense-making (Weick, 1979). Common strategies for

organizing cues will yield agreement in perceptions.

A fifth advance has been a decreased concern for the word climate and an increased acceptance of a research approach to understanding organizations usually labelled (by me, anyway) a "climate approach." This approach is characterized by all of the preceding: An emphasis on perception as a behaviorally integrating activity; specification of organizational processes (i.e., what goes on in the organization with respect to events, practices, and procedures) rather than organizational structure as the underpinnings of climate; a distinction between psychological and organizational climate; general agreement that climate is defined best as molar abstractions of specific sets of events, practices and procedures; and, growing awareness that meaning is attached to clusters of events, practices and procedures suggesting that work settings have numerous climates, one for each cluster.

Methodological Progress. Schwab (1980) has noted that lack of conceptual clarity precedes poor measurement and inadequate operationalization; nowhere has this been more true than in research on work climates. Failure to do the hard conceptual work preceding measurement resulted in research being conducted using methodologies which were far removed from the construct. Thus, what is more obvious than manipulating work conditions to measure the effects of climate on behavior, as Lewin and his colleagues did (Lewin, et al., 1939)? They "created" three kinds of social climates (authoritarian, democratic, laissez-faire) by manipulating the leadership style of teachers and examined the differences the manipulations produced in the classroom behavior of school boys. In their research, climate was an inferred, unmeasured, construct. Frederiksen, Jensen and Beaton (1972),

in their investigation of the effects of supervisory style on In-basket performance, used a similar approach, experimentally manipulating leadership and never measuring climate. One tradition in climate research, then, is to not measure it, just to infer it. As noted earlier, the conceptual progress that has been made lodges the climate approach to research clearly in the domain of perception, requiring assessment of climate by perceptual measures. One kind of methodological progress in climate research is that researchers now try to measure it.

However, perceptual measures introduce another problem, which is at least as conceptual as it is methodological: if climate is perception, and job attitude research is a central issue in I/O Psychology and Organizational Behavior, isn't the climate approach just another way of assessing attitudes? The answer is yes and no. If attitudes are thought of as purely evaluative in nature, climate research is not attitude research because the climate approach is to obtain descriptions of events, practices and procedures, not evaluations of them. However, when attitudes are conceptualized as having both a belief component and an affect component (Fishbein, 1967), then climate research falls in the broad domain of attitude research. As Schneider (1975; Schneider & Snyder, 1975) and others (e.g., Joyce & Slocum, 1979; LaFollette & Sims, 1975; Newman, 1975; 1977) have argued and shown, when conceptualized and operationalized as separable facets, climate (belief) and job satisfaction (affect) measures do not correlate particularly well. Thus, when care is not taken to insure that survey respondents keep the belief and affect components independent, satisfaction and climate measures will yield convergent validity (Guion, 1973; Johanneson, 1973).

On this latter point, it is convenient to remember the concept of response set when designing climate measures. Survey or interview respondents need to be very carefully and precisely instructed to approach climate items by describing what they believe actually happens in the work setting rather than how they feel about it. Indeed if respondents will also be provided an opportunity to give their feelings, prior to completing the climate items they should be told that they will have a chance to indicate how they feel about things at a later point in the survey. This approach was used by Schneider and Snyder (1975) in their research on the relationship between climate and job satisfaction. They reported data on 522 life insurance agents and agency managers who had responded to the Agency Climate Questionnaire (ACQ; Schneider & Bartlett, 1968; 1970) and the Job Descriptive Index (JDI; Smith, Kendall & Hulin, 1969). The ACQ is a six-dimension, factor-analytically derived, measure of the personnel practices of life insurance agencies. It assesses such issues as supervision, autonomy, agency conflict, new employee socialization practices, and so on. The JDI is a five-dimension measure of job satisfaction which evolved from a long series of careful development/validation studies. It measures satisfaction with the work itself, supervision, coworkers, pay, and promotion opportunities. The average inter-correlation of the (1) 6 ACQ scales was .33, (2) 5 JDI scales was .27 but (3) the ACQ/JDI interscale average correlation was only .19. Thus, a second kind of methodological progress has been made which concerns the distinction between evaluative and descriptive "attitude" surveys, the former characterizing job satisfaction and the latter climate research.

Two other methodological issues, however, continue to be bothersome. One problem concerns the multidimensional nature of most attempts to assess climate. The second, the aggregation problem, appears to be even more intractable.

The multidimensional issue in measurement, refers to the conceptual issue of climates vs. climate in work organizations. The climate construct is so intuitively appealing to uninitiated researchers that they want a measure of "it." As noted above, climate is not an "it." Unfortunately, omnibus (or non-specific) measures are used in climate research. These omnibus measures are useless for anything but the most gross description of the range of variation in organizations. They cannot be expected to make fine distinctions between units or to correlate with any specific organizational criterion of interest across units. The reason why they will not have much utility is analogous to the reason the MMPI fails to predict individual differences in performance at work: Personality measures not tailored to specific behavioral criteria usually are not valid for those criteria (Guion & Gottier, 1965). Thus, by analogy, the nonutility of omnibus climate measures is equivalent to the failure of personality testing in industry: lack of criterion relevance yields lack of criterion predictability.

There are many examples of omnibus climate measures since these are the type most often used. The Schneider and Bartlett (1968; 1970) ACQ referred to earlier, and the Litwin and Stringer (1968) measures both were developed and used as general purpose, non problem-specific, measures; the results for prediction using either measure are poor. Similarly, the procedure employed by the Survey Research Center at the University of Michigan

(e.g., Quinn, 1977) for assessing work roles in context is a general diagnostic with little evidence supporting its use in the prediction of any particular criterion of interest. In brief, the more comprehensive the measure attempts to be in assessing "the" organization, the less useful it will be in aiding understanding of a specific issue or criterion.

Researchers need to be very clear about the kind or kinds of climate they wish to assess if they hope to relate their climate assessments to some organizational behavior of interest. A good example of this approach was published recently by Zohar (1980). Zohar was specific about the kind of climate he wished to assess: the climate for safety. Following James and Jones (1974) and Schneider (1975) Zohar attempted to define the various ways by which organizations provide safety cues to employees. As he noted (p. 97): "It was assumed that such organizational features characterize individual plants and the global perception of these by production workers, hence, form the safety climate of that factory."

After a careful review of the literature, Zohar found seven sets of organizational events, practices and procedures which seemed to differentiate high from low accident factories. He then wrote seven questions descriptive of each of the seven dimensions and interviewed 20 workers from each of 20 factories in three industries (metal, chemical and food) regarding their perceptions of those issues. Four experienced safety directors from a national institute rated the relative safety procedures for the factories and these ratings served as the dependent variable. Rank difference correlations in the three industries between the interview responses aggregated for each factory and the government safety directors' ratings were .90 (metal), .80 (chemical) and .50 (food). Some omnibus

measure would have revealed few, if any, such appreciable relationships. Indeed, following a methodology similar to Zohar's, Schneider et al. (1980) have recently shown a correlation of .7 between employee perceptions and customer perceptions of service-oriented events, practices and procedures (N = 23 bank branches).

This problem of establishing procedures for the development of measures which correlate with criteria of interest has not been addressed by many researchers. However, the procedures outlined by Jones and James (1979) and Schneider (1975) and subsequently applied by Zohar (1980) and Schneider et al. (1980) suggest the potential utility of these kinds of measures for the prediction and understanding of various forms of organizational behavior and various criteria of organizational effectiveness.

The aggregation problem seems more resistant to solution. This problem, the psychological vs. organizational climate issue discussed earlier, is presented by Joyce and Slocum (1979, p. 32) this way: "How can we meaningfully aggregate individuals' descriptions of their work environment so as to represent larger social units?" The answer to the question is that unless the aggregated data make conceptual sense, no manner of statistical or mathematical manipulation will serve to improve them. As Roberts, Hulin and Rousseau (1978, p. 103) noted, if one is going to aggregate data prior to data analysis, it is imperative that the interpretation of the meaning of the aggregated data be clear early in the conceptualization/data-gathering/analysis effort. They go on to note that problems of interpretation and, thus, aggregation problems "will not disappear simply because we are unwilling to face them" (p. 109).

Thus the intractability of the problem: The solution rests on clearly thinking about what aggregated (or disaggregated) data represent. A solution to the problem is the following: In climate research, aggregatable survey items (or interview responses) are those which refer to events, practices and procedures existing in the unit (department, position level, organization) that will be the unit of analysis. Operationally this means that a survey which will be used to compare organizations should contain items descriptive of organizational level variables (e.g., ways in which the organization communicates its management philosophy) rather than job variables (e.g., the reward attributes of tasks).

For example, Schneider and Dachler (Note 2) report the development of a measure designed to assess three levels of variables of potential interest to organizational researchers, job, job context and organization. Job issues were concerned with descriptions of each person's everyday work, i.e., the work itself, and the items describing the work itself, were patterned after the items and dimensions isolated by Hackman and Lawler (1971). Because in most organizations there are many kinds of jobs, it probably does not make sense to aggregate across jobs to obtain an organization score for job type. If one desires a job-relevant variable useful for organizational level analyses, technology (e.g., batch vs. unit processing a la Woodward, 1965) might be a more useful construct.

Contextual issues also are aggregatable across units/functions/positions with considerable risk because of consistent findings revealing differences between subsystems (Powell & Butterfield, 1978). It comes as no surprise that people who work for different supervisors or with different coworkers will report how those supervisors and coworkers behave and that

these reports will reveal differences across subsystems. The problem is that for organizational level analyses, what can be done?

Perhaps the answer is to be abstract and inclusive rather than specific to the percept requested. For example, Schneider and Dachler (Note 2) wrote items designed to assess management philosophy rather than specific supervisory practices. For example, "This organization encourages supervisors to consider employee ideas in making decisions" or "The organization encourages supervisors to communicate the organization's goals to employees." In addition, they tapped into practices and procedures which are typically controlled outside any particular unit, for example, rewards practices ("This organization improves the fringe benefit plans it provides its employees") and personnel practices ("This organization seeks the best possible people for the job it has open").

This solution only sounds like a methodological one. In reality, however, as Roberts et al., (1978) noted, while aggregation issues exist in any organizational level study using individuals, whether the issue is also a problem depends largely on clarity in thinking before collecting the data. The "before" refers to the care taken in designing survey items relevant to the unit of analysis to be employed after the data are aggregated. Without getting too deeply into the topic, the issues raised above are also relevant to the disaggregation issue, i.e., employing non-individual data to make inferences about individuals (see Sutton & Rousseau, 1979).

Summary. There appears to be some agreement on a "climate approach" to understanding organizational phenomena. This approach rests on employee perceptions which are relatively descriptive of organizational (or subsystem) events, practices and procedures and which, in the aggregate, are useful in characterizing organizations (or subsystems). Typically this approach

makes the assumption that understanding any one important outcome (e.g., service, safety) requires description of sets or clusters of events, practices and procedures. However, hard conceptual work is required prior to data collection so that (a) the clusters of events, practices and procedures assessed sample the relevant domain of issues, (b) the survey (or interview) is relatively descriptive in focus and refers to the unit (individual, subsystem, organization) of interest for analytic purposes (see Sirotnik, 1980, for a detailed discussion of the unit of analysis issue).

#### How Climates Emerge

For the remainder of this paper I want to present a view of organizational design and functioning which describes how the events, practices and procedures which constitute climates come to be. Thus, if one makes the common assumption that the larger environment causes technology and technology causes structure which determines organizational effectiveness (e.g., Steers, 1977, Chapter 4) then structure becomes the major source of climate. However, an alternative is to put the locus of organizational functioning in the people who make up the organization. In this second view, the climates observed in organizations would be viewed as emerging from people interacting with each other rather than being determined by already-existing, static organizational attributes like size, number of hierarchies, technology, and so on. Indeed one might hypothesize that work climates emerge from the naturally occurring patterns of the goal-oriented interactions of people with each other and (changing) facets of their work environment. A detailed exploration of this hypothesis serves to highlight the emergent nature of work climates.

Work Climates Emerge. Most of the organizational climate literature explicitly or implicitly makes the assumption that climates are created.

This assumption in climate research probably comes from the early Lewin experiments in creating social climates, but the concept of unidirectional cause and effect permeates essentially all literatures in the social and behavioral sciences. McGuire (1973, p. 450), in his very thoughtful critique of social psychology put the issue this way:

Socially relevant hypotheses, no less than theoretically relevant hypotheses, tend to be based on a simple linear process model, a sequential chain of cause and effect which is inadequate to simulate the true complexities of the individual's cognitive system or of the social system which we are typically trying to describe. Such simple a-affects-b hypotheses fail to catch the complexities of parallel processing, bidirectional causality, and reverberating feedback that characterize both cognitive and social organizations. The simple sequential model had its uses, but these have been largely exploited in past progress, and we must now deal with the complexities of systems...

Weick (1979) recently made a similar point when he presented the idea that organizing is a process which is the result of double-interacts rather than interacts; i.e.,  $A \rightarrow B \rightarrow A$  rather than  $A \rightarrow B$ .

It is from this parallel processing, bidirectional causality, and reverberating feedback that climates emerge; the climates are a function of both social and cognitive (perceptual) organization. It is these non-linear complexities in social organization to which I refer when I speak of naturally occurring patterns of interaction.

Naturally Occurring Patterns of Interaction. Interactional Psychology is a growing subspecialty in the psychology of personality. In the past five years three books of readings have appeared on the topic, two of them

containing original contributions (Endler & Magnusson, 1976 contains reprints; Magnusson & Endler, 1977; Pervin & Lewis, 1978a). While virtually all theorists pay lip service to person-situation interactions, very little empirical research exists because it is difficult to operationally define interaction.

Pervin and Lewis (1978b) present five different ways of thinking about interaction:

1. Descriptive interaction - refers to merely describing the interpersonal relationship(s) between two people and failing to explain, by reference to personal and contextual characteristics, the nature of the interaction.

2. Statistical interaction - refers to the multiplicative algebraic interaction term in ANOVA or moderated multiple regression designs. Most psychologists think of interaction in this very narrow way, implicitly adopting a mechanistic, unidirectional, view of cause and effect (Olweus, 1977; Overton & Reese, 1973).

It is very important that this definition of interaction be exorcised from our thinking because it is so seductive. Numerous problems exist with this definition of interaction. The major problem is that statistically significant algebraic interaction terms are rarely found outside of laboratory settings. This appears to be true, much to the dismay of Cronbach (cf. Cronbach & Snow, 1977), because the extremes of either persons or situations necessary for such terms to be significant rarely occur in natural settings. Thus, as we in I/O psychology have known for years, people who don't "fit" a setting tend to leave it (Mobley, Griffeth, Hand & Meglino, 1979; Porter & Steers, 1973) yielding restriction of range

and, thus, no significant interaction terms.

3. Additive interaction - this refers to the situation in which two (or more) independent variables contribute linearly (but not nonlinearly) to the prediction and/or understanding of some dependent variable. This is also a statistical approach to interaction but it requires no significant interaction term.

Of course it is quite possible for a study to reveal no statistical interaction, i.e., only additive effects are shown, and yet be a fine interactional study. This can happen when a psychologically meaningful situation emerges from the natural interactions of people and knowledge about that situation contributes to the understanding of the behavior of the people in it. For example, Locke, Mento and Katcher (1978) showed how group member goals contributed additively, over and above individual members' ability, to the prediction of the performance of people in different groups.

4. Interdependent interaction - refers to the case in which facets of people and settings are (potentially) independently measurable but, because the people and setting fail to exist in isolation from each other, they are knowable only by assessing reciprocal effects. Note that, in the extreme, this position argues that people and situations can never be understood in isolation from each other (Bowers, 1973). The relevance of this model to most work organizations is that people and settings are difficult to separate; they function as a system of interdependent entities.

5. Reciprocal action-transaction - this is an extension of the interdependent interaction model with the addition of reciprocal causation; i.e., Variable A → Variable B → Variable A. In the study of work, this

model suggests the personalization → socialization → personalization frameworks developed by Schein (1964) and, more recently, Van Maanen (1976).

This brief review of ways to think about interaction at work clarifies what is meant by naturally occurring interaction. Pervin and Lewis' concept of interdependent interaction is the best summary of the position adopted here except for the fact that it is static; it sounds like person and setting have always been non-separable.

However, if one takes a developmental or process perspective to organizations (e.g., Kimberly & Miles, 1980), it becomes clear that particular kinds of individuals found particular kinds of organizations, attract others to the organization who are compatible and select people who are contributory. It is out of this early mix of people pursuing the founder's goals that a particular organization's design emerges. What is being suggested here is that the people come first; they choose their environment, they choose their product or service, they choose their employees and out of this mix of individuals attempting to keep the organization viable comes an organization design. Indeed, as Holland (1973, 1976) has documented so well, there is considerable choosing by people as they search for careers--and, for organizations (Wanous, 1980)--further narrowing the range of people in any one setting.

Goal-oriented Interaction. Work organizations are goal-oriented. Frequently, the goals of a work organization are only implicit but, if one studies the decisions of individuals in organizations, those goals will become clear. Mintzberg (1973, p. 184) captures the sense of this when he writes:

By the way he schedules his own time - by the determination of what he does - the manager exerts a significant influence on his organization. Should he favor one function - marketing or production, for example - subordinates will adjust accordingly and cater to this interest. If the choice of favored area is not made in accordance with real needs, the organization may suffer an imbalance. Managers should consciously allocate their own time as if they are setting priorities of their organizations - for they are.

The goals organizations, i.e., the individuals in an organization, choose to pursue have profound effects upon the kinds of individuals organizations will attract, select, and retain and, subsequently, the nature of the practices and procedures which will emerge. It follows that the nature of the processes which characterize work settings are a relatively direct function of the kinds of individuals in those settings and that the goals of settings determine the kinds of people they will attract. Thus, following on the vocational choice and occupational choice literatures it seems quite clear that people go to work in settings which fit their personality (Holland, 1973), in which they can implement their self-image (Super, 1953), and from which they can obtain outcomes they desire (Vroom, 1964; Wanous, 1980). The very nonrandomness of these choices yield settings characterized by people who share common backgrounds, experiences and goals. This implies that organizations or units with similar goals will have similar climates because similar people will be attracted to them, and selected and retained by them.

People With Each Other. The recent monograph by Owens and Schoenfeldt (1979) is relevant here. It summarizes many years of research by Owens and his students and colleagues regarding the classification of persons into bio-data clusters. A synthesis of what they have been able to show follows: Individuals with similar kinds of experiences prior to going to college behave and feel similarly while in college and later. The research evidence supporting this assertion is very impressive, comprising some 45 studies.

These findings lend considerable support to the thesis that people with similar backgrounds and experiences tend to behave in similar ways and to view their worlds from similar vantage points. It is an easy inferential leap to hypothesize that, with respect to work settings, people tend to be attracted to similar others in settings they fit and it is with those others that they interact. There are two important corollaries to this conclusion: (1) Because the individuals in a particular work context are fairly similar, what evolves from their interaction in one context will probably look different from what evolves from people interacting in other settings; (2) Because the interaction of interest occurs in the work setting, it is natural for it (the interaction) to result in patterns and processes useful for goal attainment. Because different settings have different goals, different practices, procedures, and patterns of interaction will characterize those settings precisely because those settings will attract and retain different kinds of people.

People With (Changing) Facets. It should not be assumed that people who are similar to each other are unchanging; it can be assumed, however, that people in a setting will tend to change similarly as a function of

them being with each other. People at the boundaries of organizations (Thompson, 1967), for example, interact with the larger environment, receive input from it, and transmit that information to the organization for consideration and possible change. In the face of change, some work settings are more able to quickly adapt than others. Speed of adaptation is a direct correlate of the specificity with which roles, practices and procedures have evolved for accomplishing work goals. As these are a product of people and the goals they pursue, it is the people who need to be changed when new behaviors are required by organizations. The reason organizational change is so difficult is because the people in a setting are like each other, and the patterns and processes they have evolved for accomplishing goals are as much a part of them as they are of the organization.

Work Environment. At this point in the discussion it is important to remember that the focus here is on the evolution of work climate. Work settings tend to be more goal-oriented, more unified in sharing perceptions of goals, characterized by more similarity in interests/values, etc. than other settings. It is this relative homogeneity within settings which permits studies to show greater homogeneity in climate perceptions than one might otherwise expect (Drexler, 1977).

I have proceeded at great length over the basic assumption to provide the reader with a sense of how I see climates emerging in organizations. Work climates emerge out of the goal-oriented activities of people which, in turn, emerge from similar people interacting with each other and their changing environments. The climates which emerge are as much a part of the work setting as they are a part of the people because of the nature of the interdependent interaction patterns which characterize work settings.

In a real sense, then, climates are as much a part of the situation as they are of the perceiver; in truth they may be inseparable elements of the system by which work is accomplished.

#### Conclusion

One might question whether or not the concept of climate is necessary in this discussion. Would it not be just as easy to address the issues without using the concept of climate or atmosphere? Yes, it would be just as easy; perhaps easier. But the use of the concept of climate, this "climate approach" referred to earlier, places the locus of behavior at work in people whence cometh behavior. It is the meaning people attach to their settings' practices and procedures which is the necessary element in understanding behavior in the work setting. Weick (1979, p. 142) puts the act of attaching meaning to environments this way:

Sensemaking [of environments] is largely solitary in the sense that structures contained within individual minds are imposed on streams of individual elapsed experience that are capable of an infinite number of individual reconstructions.

This is the enacted environment view of environments.

Before drawing the conclusion that this is equivalent to psychological climate, i.e., individual views of organization, note that I assume that because people in the same work settings tend to attach similar meanings to it, in any one setting the range of reconstructions will be small because of attraction and selection and because deviants will probably self-select themselves out. This lack of random or infinite sensemaking, yields agreement on climate perceptions.

In conclusion let me note a few items. First, in this last section I have failed to emphasize climates, with the S. Following on my earlier comments, however, it should be clear that different kinds of climates will emerge from the natural interactions of different kinds of people. In brief, an entrepreneurial climate in a YMCA would be as strange as a humanist climate in a gambling casino!

Second, the notion of emerging climates really requires mention of the idea that for every newcomer to organizations the setting emerges anew. We know that newcomers are starved for cues and clues about the climates of settings when they arrive at a new job (cf. Van Maanen, 1976; Wanous, 1980) and at Michigan State we are currently trying to do some newcomer research using observations, diaries, and interviews to get at some of the practices and procedures new employees fix on as a basis for their climate perceptions and their behavior. Thus, we are after the identification of practices and procedures that "tell" employees that safety is important or that service is not valued.

Third, and finally, while the "climate approach" has been useful, it is not time to be sanguine. Even the most optimistic climate researcher (probably me) realizes they many of the pitfalls have not yet been explicated. What I have tried to do in the present piece is show more about where we are and how I think climates emerge than indicate, again, the problems.

#### Reference Notes

1. Joyce, W. F., & Slocum, J. W., Jr. Consequences of collective climates in organizations. Unpublished paper, The Wharton School, CC, University of Pennsylvania, 1979.
2. Schneider, B., & Dachler, H. P. Work, family and career considerations in understanding employee turnover. Unpublished paper, Department of Psychology, University of Maryland, 1978.

## References

- Argyris, C. Some problems in conceptualizing organizational climate: A case study of a bank. Administrative Science Quarterly, 1957, 2, 501-520.
- Berger, C. J., & Cummings, L. L. Organizational structure, attitudes and behavior. In, B. M. Staw (Ed.), Research in organizational behavior, Vol. 1, Greenwich, CT: JAI Press, 1979.
- Bowers, K. S. Situationism in psychology: An analysis and critique. Psychological Review, 1973, 80, 307-336.
- Campbell, J. P., Dunnette, M. D., Lawler, E. E., III, & Weick, K. E., Jr. Managerial behavior, performance, and effectiveness. New York: McGraw-Hill, 1970.
- Campbell, J. P., & Pritchard, R. D. Motivation theory in industrial and organizational psychology. In, M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.
- Cronbach, L. J., & Snow, R. E. Aptitudes and instructional methods: A handbook for research on interactions. New York: Irvington, 1977.
- Dieterly, D. L., & Schneider, B. The effect of organizational environment on perceived power and climate: A laboratory study. Organizational Behavior and Human Performance, 1974, 11, 316-337.

- Drexler, J. A. Organizational climate: Its homogeneity within organizations. Journal of Applied Psychology, 1977, 62, 38-42.
- Endler, N. S., & Magnusson, D. (Eds.) Interactional psychology and personality. New York: Hemisphere, 1976.
- Fishbein, M. A behavior theory approach to the relations between beliefs about an object and the attitude toward the object. In, M. Fishbein (Ed.), Readings in attitude theory and measurement. New York: Wiley, 1967.
- Forehand, G. A., & 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, NY: Pergamon, 1972.
- Gellerman, S. W. The company personality. Management Review, 1959, 48, 69-76.
- Guion, R. M., & Gottier, R. F. Validity of personality measures in personnel selection. Personnel Psychology, 1965, 18, 49-65.
- Guion, R. M. A note on organizational climate. Organizational Behavior and Human Performance, 1973, 9, 120-125.
- Hackman, J. R., & Lawler, E. E., III. Employee reactions to job characteristics. Journal of Applied Psychology Monograph, 1971, 55, 259-286.
- Hellriegel, D., & Slocum, J. W., Jr. Organizational climate: Measures, research and contingencies. Academy of Management Journal, 1974, 17, 255-280.
- Holland, J. L. The psychology of vocational choice (rev. ed.). Waltham, MA: Blaisdell, 1973.

- Holland, J. L. Vocational preferences. In, M.D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.
- James, L. R., Hartman, E. A., Stebbins, M. W., & Jones, A. P. An examination of the relationship between psychological climate and a VIE model for work motivation. Personnel Psychology, 1977, 30, 229-254.
- James, L. R., Hater, J. J., Gent, M. J., & Bruni, J. R. Psychological climate: Implications from cognitive social learning theory and interactional psychology. Personnel Psychology, 1978, 31, 783-814.
- James, L. R., & Jones, A. P. Organizational climate: A review of theory and research. Psychological Bulletin, 1974, 81, 1096-1112.
- Johannesson, R. E. Some problems in the measurement of organizational climate. Organizational Behavior and Human Performance, 1973, 10, 118-144.
- Johnston, H. R. A new conceptualization of source of organizational climate. Administrative Science Quarterly, 1976, 21, 95-103.
- Jones, A. P. & James, L. R. Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. Organizational Behavior and Human Performance, 1979, 23, 201-250.
- Joyce, W. F., & Slocum, J. W., Jr. Climates in organizations. In, S. Kerr (Ed.), Organizational behavior. Columbus, OH: Grid, 1979.
- Kimberly, J. R., & Miles, R. H. (Eds.) The organizational life cycle. San Francisco: Jossey-Bass, 1980.

- 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.
- Lewin, K., Lippitt, R., & White, R. K. Patterns of aggressive behavior in experimentally created "social climates". Journal of Social Psychology, 1939, 10, 271-299.
- Litwin, G. H., & Stringer, R. A. Motivation and organizational climate. Boston: Harvard Business School, Division of Research, 1968.
- Locke, E. A., Mento, A. J., & Katcher, B. L. The interaction of ability and motivation in performance: An exploration of the meaning of moderators. Personnel Psychology, 1978, 31, 269-280.
- Magnusson, D., & Endler, N. S. (Eds.) Personality at the crossroads: Current issues in interactional psychology. Hillsdale, NJ: Erlbaum, 1977.
- McGregor, D. M. The human side of enterprise. New York: McGraw-Hill, 1960.
- McGuire, W. J. The Yin and Yang of progress in social psychology: Seven koan. Journal of Personality and Social Psychology, 1973, 26, 446-456.
- Mintzberg, H. The nature of managerial work. New York: Harper & Row, 1973.
- Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. Review and conceptual analysis of the employee turnover process. Psychological Bulletin, 1979, 86, 493-522.

- Naylor, J. D., Pritchard, R. D., & Ilgen, D. R. A theory of behavior in organizations. New York: Academic Press, 1980.
- Newman, J. E. Understanding the organizational structure-job attitude relationship through perception of the work environment. Organizational Behavior and Human Performance, 1975, 14, 371-397.
- Newman, J. E. Development of a measure of perceived work environment (PWE). Academy of Management Journal, 1977, 20, 520-534.
- Olweus, D. A. A critical analysis of the "modern" interactionist perspective. In, D. Magnusson and N. S. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology. Hillsdale, NJ: Erlbaum, 1977.
- Overton, W. F., & Reese, H. W. Models of development: Methodological implications. In, J. R. Nesselroade and H. W. Reese (Eds.), Life-span developmental psychology. New York: Academic Press, 1973.
- Owens, W. A., & Schoenfeldt, L. F. Toward a classification of persons. Journal of Applied Psychology Monograph, 1979, 65, 569-607.
- Payne, R. L., Fineman, S., & Wall, T. D. Organizational climate and job satisfaction: A conceptual synthesis. Organizational Behavior and Human Performance, 1976, 16, 45-62.
- Payne, R. L., & Pugh, S. S. Organization structure and organization climate. In, M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.
- Pervin, L. A., & Lewis, M. (Eds.) Perspectives in interactional psychology. New York: Plenum, 1978.a

- Pervin, L. A., & Lewis, M. Overview of the internal-external issue. In, L. A. Pervin and M. Lewis (Eds.), Perspectives in interactional psychology. New York: Plenum, 1978.b
- 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., & Steers, R. M. Organizational, work and personal factors in employee turnover and absenteeism. Psychological Bulletin, 1973, 80, 151-176.
- Powell, G. N., & Butterfield, D. A. The case for subsystem climates in organizations. Academy of Management Review, 1978, 3, 151-157.
- Quinn, R. P. Effectiveness in work roles: Employee responses to work environments, Volumes 1 and 2. Ann Arbor: Survey Research Center, University of Michigan, 1977.
- Roberts, K. H., Hulin, C. L., & Rousseau, D. M. Developing an interdisciplinary science of organizations. San Francisco: Jossey-Bass, 1978.
- Schein, E. H. How to break in the college graduate. Harvard Business Review, 1964, 42, 68-76.
- Schneider, B. Organizational climate: The customer's view. Journal of Applied Psychology, 1973, 57, 248-256.
- Schneider, B. Organizational climates: An essay. Personnel Psychology, 1975, 28, 447-479.
- Schneider, B. An interactionist perspective on organizational effectiveness. In, D. Whetten and K. Cameron (Eds.), Organizational effectiveness. New York: Academic Press, in press.

- 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., & Bartlett, C. J. Individual differences and organizational climate, II: Measurement of organizational climate by the multitrait-multirater matrix. Personnel Psychology, 1970, 23, 493-512.
- 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., Parkington, J. J., & Buxton, V. M. Employee and customer perceptions of service in banks. Administrative Science Quarterly, 1980, 25, 252-267.
- Schneider, B., & Snyder, R. A. Some relationships between job satisfaction and organizational climate. Journal of Applied Psychology, 1975, 60, 318-328.
- Schwab, D. P. Construct validity in organizational behavior. In, B. M. Staw and L. L. Cummings (Eds.), Research in organizational behavior, Vol. 2. Greenwich, CT: JAI Press, 1980.
- Sirotnik, K. A. Psychometric implications of the unit-of-analysis problem (with examples from the measurement of organizational climate). Journal of Educational Measurement, 1980, 17, 245-282.
- Smith, P. C., Kendall, L. M., & Hulin, C. L. The measurement of satisfaction in work and retirement. Chicago: Rand McNally, 1969.
- Steers, R. M. Organizational effectiveness: A behavioral view. Santa Monica, CA: Goodyear, 1977.

- Super, D. E. A theory of vocational development. American Psychologist, 1953, 8, 185-190.
- Sutton, R. I., & Rousseau, D. M. Structure, technology, and dependence on a parent organization: Organizational and environmental correlates of individual responses. Journal of Applied Psychology, 1979, 64, 675-687.
- Tagiuri, R., & Litwin, G. H. (Eds.) Organizational climate: Explorations of a concept. Boston: Harvard University Press, 1968.
- Thompson, J. D. Organizations in action. New York: McGraw-Hill, 1967.
- Van Maanen, J. Breaking in: Socialization at work. In, R. Dubin (Ed.), Handbook of work, organization, and society. Chicago: Rand McNally, 1976.
- Vroom, V. R. Work and motivation. New York: Wiley, 1964.
- Wanous, J. P. Organizational entry: Recruitment, selection and socialization of newcomers. Reading, MA: Addison-Wesley, 1980.
- Weick, K. E. The social psychology of organizing (2nd ed.). Reading, MA: Addison-Wesley, 1979.
- Woodman, R. W., & King, D. C. Organizational climate: Science as folklore. Academy of Management Review, 1978, 3, 816-826.
- Woodward, J. Industrial organization: Theory and practice. London: Oxford University Press, 1965.
- Zohar, D. Safety climate in industrial organizations: Theoretical and applied implications. Journal of Applied Psychology, 1980, 65, 96-102.

Distribution List

Mandatory

- 12 Defense Documentation Center  
ATTN: DDC-TC  
Accessions Division  
Cameron Station  
Alexandria, VA 22314
- 1 Library of Congress  
Science and Technology Division  
Washington, DC 20540
- 3 Chief of Naval Research  
Office of Naval Research  
Code 452  
800 N. Quincy Street  
Arlington, VA 22217
- 6 Commanding Officer  
Naval Research Laboratory  
Code 2627  
Washington, DC 20375

ONR Field

- 1 Commanding Officer  
ONR Branch Office  
1030 E. Green Street  
Pasadena, CA 91106
- 1 Psychologist  
ONR Branch Office  
1030 E. Green Street  
Pasadena, CA 91106
- 1 Commanding Officer  
ONR Branch Office  
536 S. Clark Street  
Chicago, IL 60605
- 1 Psychologist  
ONR Branch Office  
536 S. Clark Street  
Chicago, IL 60605
- 1 Commanding Officer  
ONR Branch Office  
Bldg. 114, Section D  
666 Summer Street  
Boston, MA 02210
- 1 Psychologist  
ONR Branch Office  
Bldg. 114, Section D  
666 Summer Street  
Boston, MA 02210
- 1 Office of Naval Research  
Director, Technology Programs  
Code 200  
800 N. Quincy Street  
Arlington, VA 22217

OPNAV

- 1 Deputy Chief of Naval Operations  
(Manpower, Personnel, and  
Training)  
Scientific Advisor to DCNO  
(Op-01T)  
2705 Arlington Annex  
Washington, DC 20350
- 1 Deputy Chief of Naval Operations  
(Manpower, Personnel, and  
Training)  
Director, Human Resource Manage-  
ment Division (Op-15)  
Department of the Navy  
Washington, DC 20350
- 1 Deputy Chief of Naval Operations  
(Manpower, Personnel, and  
Training)  
Head, Research, Development and  
Studies Branch (Op-102)  
1812 Arlington Annex  
Washington, DC 20350
- 1 Deputy Chief of Naval Operations  
(Manpower, Personnel, and  
Training)  
Director, Human Resource Manage-  
ment Plans and Policy Branch  
(Op-150)  
Department of the Navy  
Washington, DC 20350
- 1 Chief of Naval Operations  
Head, Manpower, Personnel,  
Training, and Reserves Team  
(Op-964D)  
The Pentagon, 4A578  
Washington, DC 20350
- 1 Chief of Naval Operations  
Assistant, Personnel Logistics  
Planning (Op-987P10)  
The Pentagon, 5D772  
Washington, DC 20350

NAVMAT

- 1 Program Administrator for Man-  
power, Personnel and Training  
HQ Naval Material Command (Code  
08D22)  
678 Crystal Plaza #5  
Washington, DC 20370
- 1 Naval Material Command  
Management Training Center  
NMAT 09M32  
Jefferson Plaza, Bldg. #2,  
Rm 150  
1421 Jefferson Davis Highway  
Arlington, VA 20360

NPRDC

- 5 Commanding Officer  
Naval Personnel R&L Center  
San Diego, CA 92152
- 1 Navy Personnel R&D Center  
Washington Liaison Office  
Bldg. 200, 2N  
Washington Navy Yard  
Washington, DC 20374

BUMED

- 1 Commanding Officer  
Naval Health Research Center  
San Diego, CA
- 1 Commanding Officer  
Naval Submarine Medical  
Research Laboratory  
Naval Submarine Base  
New London, Box 900  
Groton, CT 06340
- 1 Director, Medical Service  
Corps  
Bureau of Medicine and Surgery  
Code 23  
Department of the Navy  
Washington, DC 20372
- 1 Naval Aerospace Medical  
Research Lab  
Naval Air Station  
Pensacola, FL 32508
- 1 CDR Robert Kennedy  
Officer in Charge  
Naval Aerospace Medical  
Research Laboratory  
Detachment  
Box 2940, Michoud Station  
New Orleans, LA 70129
- 1 National Naval Medical Center  
Psychology Department  
Bethesda, MD 20014
- 1 Commanding Officer  
Navy Medical R&D Command  
Bethesda, MD 20014

Naval Postgraduate School

- 1 Naval Postgraduate School  
ATTN: Dr. Richard S. Elster  
Department of Administrative  
Sciences  
Monterey, CA 93940

Naval Postgraduate School (cont.)

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1 | Naval Postgraduate School<br>ATTN: Professor John Senger<br>Operations Research and<br>Administrative Science<br>Monterey, CA 93940 | 1 | Commanding Officer<br>Human Resource Management<br>Center<br>5621-23 Tidewater Drive<br>Norfolk, VA 23511 | 1 | Naval War College<br>Management Department<br>Newport, RI 02940   |
| 1 | Superintendent<br>Naval Postgraduate School<br>Code 1424<br>Monterey, CA 93940  | 1 | Commander in Chief<br>Human Resource Management<br>Division<br>U.S. Atlantic Fleet<br>Norfolk, VA 23511   | 1 | LCDR Hardy L. Merritt<br>Naval Reserve Readiness Command<br>Region 7 Naval Base<br>Charleston, SC 29408 |

HRM

- |   |  |   |   |   |  |
|---|--|---|---|---|--|
| 1 | Officer in Charge<br>Human Resource Management<br>Detachment<br>Naval Air Station<br>Alameda, CA 94591                             | 1 | Officer in Charge<br>Human Resource Management<br>Detachment<br>Naval Air Station Ehidbey<br>Island<br>Oak Harbor, WA 98278 | 1 | Chief of Naval Technical<br>Training<br>ATTN: Dr. Norman Kerr, Code 9161<br>NAS Memphis (75)<br>Millington, TN 38054   |
| 1 | Officer in Charge<br>Human Resource Management<br>Detachment<br>Naval Submarine Base New London<br>P.O. Box 81<br>Groton, CT 06340 | 1 | Commanding Officer<br>Human Resource Management<br>Center<br>Box 23<br>FPO New York 09510                                   | 1 | Navy Recruiting Command<br>Head, Research and Analysis<br>Branch<br>Code 434, Rm 8001<br>801 North Randolph Street<br>Arlington, VA 22203                                    |
| 1 | Officer in Charge<br>Human Resource Management<br>Division<br>Naval Air Station<br>Mayport, FL 32228                               | 1 | Commander in Chief<br>Human Resource Management<br>Division<br>U.S. Naval Force Europe<br>FPO New York 09510                | 1 | CAPT Richard L. Martin, U.S.N.<br>Prospective Commanding Officer<br>USS Carl Vinson (CVN-70)<br>Newsport News Shipbuilding and<br>Drydock Company<br>Newsport News, VA 23607 |
| 1 | Commanding Officer<br>Human Resource Management<br>Center<br>Pearl Harbor, HI 96860  | 1 | Officer in Charge<br>Human Resource Management<br>Detachment<br>Box 60<br>FPO San Francisco 96651                           |   |  |
| 1 | Commander in Chief<br>Human Resource Management<br>Division<br>U.S. Pacific Fleet<br>Pearl Harbor, HI 96860                        | 1 | Officer in Charge<br>Human Resource Management<br>Detachment<br>COMNAVFORJAPAN<br>FPO Seattle 98762                         |   |  |

USMC

- |   |  |
|---|--|
| 1 | Commandant of the Marine Corps<br>Headquarters, U.S. Marine Corps<br>Code MPI-20<br>Washington, DC 20380 |
| 1 | Headquarters, U.S. Marine Corps<br>ATTN: Dr. A. L. Siatkosky,<br>Code RD-1<br>Washington, DC 20380       |

Navy Miscellaneous

- |   |  |   |  |
|---|--|---|--|
| 1 | Officer in Charge<br>Human Resource Management<br>Detachment<br>Naval Base<br>Charleston, SC 29408             | 2 | Naval Military Personnel<br>Command<br>HRM Department (NMPC-6)<br>Washington, DC 20350   |
| 1 | Commanding Officer<br>Human Resource Management<br>School<br>Naval Air Station Memphis<br>Millington, TN 38054 | 1 | Naval Training Analysis and<br>Evaluation Group<br>Orlando, FL 32813   |
| 1 | Human Resource Management<br>School<br>Naval Air Station Memphis (96)<br>Millington, TN 38054                  | 1 | Commanding Officer<br>Naval Training Equipment<br>Center<br>Orlando, FL 32813  |
| 1 | Commanding Officer<br>Human Resource Management<br>Center<br>1300 Wilson Boulevard<br>Arlington, VA 22209      | 1 | Chief of Naval Education and<br>Training (N-5)<br>ACOS Research and Program<br>Development<br>Naval Air Station<br>Pensacola, FL 32508 |

Other Federal Government

- |   |  |
|---|--|
| 1 | National Institute of Education<br>Educational Equity Grants Program<br>1200 19th Street, N.W.<br>Washington, DC 20208                       |
| 1 | National Institute of Education<br>ATTN: Dr. Fritz Muhlhauser<br>EOLC/SMO<br>1200 19th Street, N.W.<br>Washington, DC 20208                  |
| 1 | National Institute of Mental<br>Health<br>Minority Group Mental Health<br>Programs<br>Rm 7 - 102<br>5600 Fishers Lane<br>Rockville, MD 20852 |

Other Federal Government (Cont.)

- |   |   |   |   |   |  |
|---|---|---|---|---|--|
| 1 | Office of Personnel Management<br>Organizational Psychology<br>Branch<br>1900 E Street, N.W.<br>Washington, DC 20415            | 1 | Air Force Institute of<br>Technology<br>AFIT/LSGR (Lt. Col. Umstot)<br>Wright-Patterson AFB<br>Dayton, OH 45433 | 1 | Dr. Larry Cummings<br>University of Wisconsin-Madison<br>Graduate School of Business<br>Center for the Study of<br>Organization Performance<br>1155 Observatory Drive<br>Madison, WI 53706 |
| 1 | Chief, Psychological Research<br>Branch<br>ATTN: Mr. Richard Lanterman<br>U.S. Coast Guard (G-P-1/2/62)<br>Washington, DC 20590 | 1 | Technical Director<br>AFHRL/ORS<br>Brooks AFB<br>San Antonio, TX 78235  | 1 | Dr. John P. French, Jr.<br>University of Michigan<br>Institute for Social Research<br>P.O. Box 1248<br>Ann Arbor, MI 48106   |
| 1 | Social and Developmental<br>Psychology Program<br>National Science Foundation<br>Washington, DC 20550                           | 1 | AFMPC/DPMYP<br>(Research and Measurement<br>Division)<br>Randolph AFB<br>Universal City, TX 78148               | 1 | Dr. Paul S. Goodman<br>Graduate School of Industrial<br>Administration<br>Carnegie-Mellon University<br>Pittsburgh, PA 15213   |

Army

- 1 Army Research Institute  
Field Unit - Monterey  
P.O. Box 5787  
Monterey, CA 93940
- 1 Deputy Chief of Staff for  
Personnel, Research Office  
ATTN: DAPE-PBR  
Washington, DC 20310
- 1 Headquarters, FORSCOM  
ATTN: AFPR-HR  
Ft. McPherson, GA 30330
- 1 Army Research Institute  
Field Unit - Leavenworth  
P.O. Box 3122  
Fort Leavenworth, KS 66027
- 2 Technical Director  
Army Research Institute  
5001 Eisenhower Avenue  
Alexandria, VA 22333

Air Force

- 1 Air University Library/  
LSE 76-443  
Maxwell AFB, AL 36112
- 1 DEPARTMENT OF THE AIR FORCE  
Air War College/EDRL  
Attn: Lt Col James D. Young  
Maxwell AFB, AL 36112
- 1 AFOSR/NL (Dr. Fregly)  
Bldg. 410  
Bolling AFB  
Washington, DC 20332

Current Contractors

- |   |  |   |   |
|---|--|---|---|
| 1 | Dr. Clayton P. Alderfer<br>School of Organization<br>and Management<br>Yale University<br>New Haven, CT 06520                      | 1 | Dr. J. Richard Hackman<br>School of Organization and<br>Management<br>Yale University<br>56 Hillhouse Avenue<br>New Haven, CT 06520               |
| 1 | Dr. H. Russell Bernard<br>Department of Sociology<br>and Anthropology<br>West Virginia University<br>Morgantown, WV 26506          | 1 | Dr. Asa G. Hilliard, Jr.<br>The Urban Institute for Human<br>Services, Inc.<br>P.O. Box 15068<br>San Francisco, CA 94115                          |
| 1 | Dr. Arthur Blaiwes<br>Human Factors Lab., Code N-71<br>Naval Training Equipment Center<br>Orlando, FL 32813                        | 1 | Dr. Charles L. Hulin<br>Department of Psychology<br>University of Illinois<br>Champaign, IL 61820   |
| 1 | Dr. Michael Borus<br>Ohio State University<br>Columbus, OH 43210   | 1 | Dr. Edna J. Hunter<br>United States International<br>University<br>School of Human Behavior<br>P.O. Box 26110<br>San Diego, CA 92126              |
| 1 | Dr. Joseph V. Brady<br>The Johns Hopkins University<br>School of Medicine<br>Division of Behavioral Biology<br>Baltimore, MD 21205 | 1 | Dr. Rudi Klaus<br>Syracuse University<br>Public Administration Department<br>Maxwell School<br>Syracuse, NY 13210                                 |
| 1 | Mr. Frank Clark<br>ADTECH/Advanced Technology, Inc.<br>7923 Jones Branch Drive,<br>Suite 500<br>McLean, VA 22102                   | 1 | Dr. Judi Komaki<br>Georgia Institute of Technology<br>Engineering Experiment Station<br>Atlanta, GA 30332   |
| 1 | Dr. Stuart W. Cook<br>University of Colorado<br>Institute of Behavioral Science<br>Boulder, CO 80309                               | 1 | Dr. Edward E. Lawler<br>Battelle Human Affairs<br>Research Centers<br>P.O. Box 5395<br>4060 N.E., 41st Street<br>Seattle, WA 98105                |
| 1 | Mr. Gerald M. Croan<br>Westinghouse National Issues<br>Center<br>Suite 1111<br>2341 Jefferson Davis Highway<br>Arlington, VA 22202 | 1 | Dr. Edwin A. Locke<br>University of Maryland<br>College of Business and Manage-<br>ment and Department of<br>Psychology<br>College Park, MD 20742 |

Current Contractors (Cont.)

- |   |  |   |   |
|---|--|---|---|
| 1 | Dr. Ben Morgan<br>Performance Assessment<br>Laboratory<br>Old Dominion University<br>Norfolk, VA 23508   | 1 | Dr. Arthur Stone<br>State University of New York<br>at Stony Brook<br>Department of Psychology<br>Stony Brook, NY 11794 |
| 1 | Dr. Richard T. Mowday<br>Graduate School of Management<br>and Business<br>University of Oregon<br>Eugene, OR 97403   | 1 | Dr. James R. Terborg<br>University of Houston<br>Department of Psychology<br>Houston, TX 77004                          |
| 1 | Dr. Joseph Olmstead<br>Human Resources Research<br>Organization<br>300 North Washington Street<br>Alexandria, VA 22314   | 1 | Drs. P. Thorndyke and<br>M. Weiner<br>The Rand Corporation<br>1700 Main Street<br>Santa Monica, CA 90406                |
| 1 | Dr. Thomas M. Ostrom<br>The Ohio State University<br>Department of Psychology<br>116E Stadium<br>404C West 17th Avenue<br>Columbus, OH 43210                               | 1 | Dr. Howard M. Weiss<br>Purdue University<br>Department of Psychological<br>Sciences<br>West Lafayette, IN 47907         |
| 1 | Dr. George E. Rowland<br>Temple University, The Merit<br>Center<br>Ritter Annex, 9th Floor<br>College of Education<br>Philadelphia, PA 19122                               | 1 | Dr. Philip G. Zimbardo<br>Stanford University<br>Department of Psychology<br>Stanford, CA 94305                         |
| 1 | Dr. Irwin G. Sarason<br>University of Washington<br>Department of Psychology<br>Seattle, WA 98195  |   |   |
| 1 | Dr. Benjamin Schneider<br>Department of Psychology<br>Michigan State University<br>East Lansing, MI 48824  |   |   |
| 1 | Dr. Saul B. Sells<br>Texas Christian University<br>Institute of Behavioral<br>Research<br>Drawer C<br>Fort Worth, TX 76129   |   |   |
| 1 | Dr. H. Wallace Sinaiko<br>Program Director, Manpower<br>Research and Advisory Services<br>Smithsonian Institution<br>801 N. Pitt Street, Suite 120<br>Alexandria, VA 22314 |   |   |
| 1 | Dr. Richard Steers<br>Graduate School of Management<br>and Business<br>University of Oregon<br>Eugene, OR 97403  |   |   |

**E**  
**D**