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McGlone, Gregory Scott, Ph.D.

The Ohio State University, 1987

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A STUDY OF THE MEASUREMENT OF THE CONSTRUCT VALIDITY OF ORGANIZATIONAL AND DYADIC COMMUNICATION CLIMATE USING INSTRUMENTS WHICH MEASURE COMMUNICATION CLIMATE, ORGANIZATIONAL CLIMATE, AND JOB SATISFACTION

A DISSERTATION

Presented in Partial Fullfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Gregory Scott McGlone, B.A., M.A.

* * * * *

The Ohio State University

1987

Dissertation Committee:

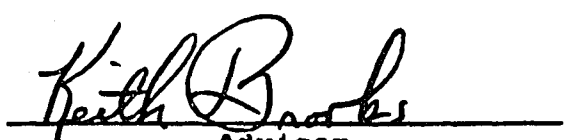
Dr. Keith Brooks, Adviser

Dr. Steve Acker

Dr. John Makay

Dr. John Makay

Approved by



Adviser
Department of Communication

To Fred, Pris, Libby, and Megan

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VITA

October 16, 1953	Born - Kenova, West Virginia
1975	B.A., Marshall University
1975-1977	Assistant Producer, Caracas, Venezuela
1979	M.A., Marshall University
1982-1983	Assistant Professor, Western Illinois University
1983-Present	Professor, Franklin University

FIELDS OF STUDY

Major Field: Communication

Studies in Organizational Communication and Training Workshops	Dr. K. Brooks
Studies in New Technologies and and Telecommunication Regulation	Dr. S. Acker
Studies in Communication Theory, Cross-Cultural Communication, Field Study in Participant-Observation, Phenomenology and Hermeneutics	Dr. J. Pilotta

Minor Field: Business Management

Studies in Formal Organizational Theory, Work Groups in Formal Organizations, and Management and Individual Behavior	Dr. W. Tudor

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CHAPTER I

INTRODUCTION AND REVIEW OF LITERATURE

The construct of climate, whether organizational or communication, has become important to the study of organizations. The importance of climate results from three different factors. First, it results from previously established relationships with other variables. Secondly, it results from the predictive nature of the construct itself. Thirdly, it results from the potential use for change agents in organizational development. These factors show the usefulness and broad applicability of the construct.

This study is concerned with the substantive area of communication climate and organizational climate and the area of methodology related to the application of scales used to measure these important variables. Previous research in this area fails for the most part to keep theory and methodology consistent when theorizing and measuring the climate construct. For example, researchers theorize climate as an organizational variable, but they measure it on an individual level. First, this study will overcome the problem of cross-inference that has plagued most prior research by theorizing and measuring the organizational climate and communication climate constructs on consistent

levels. As possible results, less error variance will be introduced into the study, and relationships between climates and output variables may be shown to be stronger than in the past. Secondly, this study will attempt to reduce the ambiguous, global communication climate construct to a mid-range construct of supervisor accessibility. This will be accomplished if the measure of supervisor accessibility turns out to be more parsimonious and a better predictor of output variables than another measure of communication climate.

ORGANIZATION OF THE STUDY

This study is divided into four chapters. Chapter I will feature a theoretical review of the climate construct. In so doing, this chapter will include a statement of the climate problem which will focus on the importance of the construct and the problem with the construct both theoretically and methodologically. A review of psychometric theory follows. This will be followed by the definitions of the different climate constructs, the review of literature of organizational climate, and the review of literature of communication climate which will include a review of current issues and instrument development. This will be followed by the purpose of the study, the justification of research, the presuppositions of the researcher, and the statement of hypotheses.

Chapter II includes the methodological procedures to be used in this study. This includes the measurement of variables section, survey administration section, and statistical procedures section. The measurement of variables section includes a discussion of rationale for instrument selection and reliability. The survey administration section includes the rationale for population selection, survey administration procedures, and population and sample composition. The statistical procedures section includes a discussion of data and all statistical procedures used in the study.

Chapter III contains the results. This includes the reliability of the instruments. It, also, includes the interrelationship of climate, which are the comparisons of the communication climate instruments with each other and with the organizational climate instrument. It contains climate as a predictor, which is the comparison of the communication climate instruments with the job satisfaction instrument.

Chapter IV is the discussion of results. This will include a summary of the results, study limitations, conclusions, and suggestions for future research.

STATEMENT OF THE PROBLEM

Importance of Climate

As stated previously, climate is an important construct for three reasons. These include its interrelationships

with other variables, its predictive nature (denotes no causation), and its potential use by change agents.

Field and Abelson (1982: 192) suggest climate's previously well-established integration into organizational theory through its relationships to other variables or "links to other organizational constructs" forms "a nomological net." Because climate is related to other variables, it is an important part of this net. Litwin and Stringer (1968) and Payne and Mansfield (1973) underscore this importance by pointing out that through climate one can theoretically move from an organizational level down to the individual level. Refering to organizational climate, Field and Abelson (1982: 182) state "the importance of this concept is evidenced by no fewer than eight major reviews discussing over twenty-five years of climate literature". With the previously cited review and one other, the number goes to ten (Campbell, Dunnette, Lawler & Weick, 1970; Field & Abelson, 1982; Forehand & Gilmer, 1964; Hellriegel & Slocum, 1974; James & Jones, 1974; Litwin & Stringer, 1968; Payne & Pugh, 1976; Poole, 1985; Tagiuri & Litwin, 1968; Woodman & King, 1978). Communication climate, which is usually incorporated under the nomenclature of "organizational communication," has had numerous reviews. The first to review the literature of organizational communication was Guetzkow (1965); the review covered fifteen years of research. Fourteen other reviews of literature have been conducted

concerning communication climate (Berstein, 1976; Daly & Korinek, 1982; Dennis, Goldhaber, & Yates, 1978; Downs & Hain, 1982; Falcione & Kaplan, 1984; Farace, Taylor, & Stewart, 1978; Goldhaber, 1975; Jablin, 1980; Monge, Edwards, & Kriste, 1978; Pietri, Hall, Van Voorhis, & Porterfield, 1974; Porter & Roberts, 1972; Redding, 1972; Redding, 1979; Richetto, 1977). Besides climates nomological fit, it is also important for its predictive nature.

"The construct of climate is useful because it aids in the prediction of organizational phenomena" (Field & Abelson, 1982: 192). Several studies show that climate predicts both attitudinal and behavioral outcomes (Follert, 1980b; Kaczka & Kirk, 1968; Litwin & Stringer, 1968; Pritchard & Karasick, 1973; Trombetta, 1981; Waters, Roach, & Batlis, 1974). These outcomes would include, according to traditional organizational theory, such important output variables as motivation, satisfaction, and performance. "These consistently supportive findings reinforce the predictive capacity of the climate construct" (Follert, 1980b: 91). Because of climate's predictive nature, its potential to be used for organizational development seems obvious.

With climate's interrelationships with numerous variables and its predictability, climate would seem to be a natural organizational variable to try to change for various outcomes. It would allow a change agent to plan and manipulate the climate as well as evaluate the resulting behavior

and subsequent climate. "In summary, climate is seen as a very useful construct" (Field & Abelson, 1982: 194).

Climate's importance does result from its interrelationships, its predictability, and its usefulness in organizational development. Guion (1973: 120) reinforces this importance by stating "the construct . . . climate, may be one of the most important to enter the thinking of industrial-organizational psychologists in many years." Tagiuri (1968: 23) predicted that "if the concept is treated more systematically, its value for prediction and construction of desired environments will inevitably increase." Dennis (1974) suggested that further refinement in measurement of the construct would lead to more meaningful relationships between climate and other variables. This points out that climate has great potential, but it also has some problems.

Problems with Climate

The problems with climate fall into two major areas. These are theoretical and methodological. The theorectical problems will be discussed first. The methodological problems will be discussed secondly.

Theorectical problems. Although the benefits of the construct of climate tend to be numerous, it is the "subject of considerable controversy. Eight reviews . . . have not served to completely clarify it" (Field & Abelson, 1982:

182). The discussion will now focus on some of this controversy by describing the two major problems of the construct of climate. These problems with climate are both theoretical and methodological in nature. The theoretical problems are four-fold. First, the construct seems to be ambiguous. Secondly, the construct is global in nature. Thirdly, the construct has been applied mainly in grand or large-scale theory. Fourthly, because of the application of the construct in mostly large-scale theory, there is a cry for the need for mid-range theory. The methodological problems stem from the theoretical ones. First, there is a problem of assessing the construct in organizations. Secondly, the questionnaires used are a problem. Thirdly, generalizability has become a problem. All of these factors combine to restrict the usefulness of the climate construct. A closer examination of these factors are now in order.

The climate construct is ambiguous. Hill and Northouse (1978: 37) argue that "communication climate is a complex and ambiguous, construct which is difficult to assess in organizations." Although they were limiting their remarks to just communication climate, this could easily apply to climate in general. Hellriegel and Slocum (1974) claim that both organizational and communication climate are difficult to conceptualize theoretically. Woodman and King argue this about organizational climate and its validity issues by stating that:

> until these issues . . . can be resolved, much about organizational climate is likely to elude science and remain in the realm of organizational folklore (1978: 824).

Climate is one of those terms which we all know the meaning of but find difficult to define specifically. We all know what "love" is, or what "patriotism" is, or what "faith" is; until one tries to define one of these terms specifically. Specifically, what is love? Well, it is one of those very broad terms, where as one defines it, it begins to include more factors or variables; until the definition becomes very large and unwieldy. The climate construct is such a term. So many factors can be a part of it, that it becomes very large. It can get to the point that it becomes everything, and when that happens it becomes nothing. Falcione and Kaplan reflect on this ambiguity of the climate construct when they state:

> Much effort has been expended in an attempt to isolate, define, and explain the effects of this construct on the way the member, and the organization as a whole, functions. Unfortunately, these efforts have not been conducted under a consensual definition of the construct, or even with agreement as whether the term represents an underlying theoretical construct that is distinct from other well-investigated organizational variables (1984: 285-286).

The ambiguity of the climate constructs leads to the next problem of globalness.

The climate construct is global in nature. It tends to incorporate too much. Follert sums this idea by arguing that:

> The accretion of cognate dimensions has snowballed into a group of loosely connected scales. . . . Attempts to systemize the component dimensions of communication climate through factor analysis has produced anomalous, conceptually broad, multi-dimensional elements (1980b: 91).

Pritchard and Karasick (1973) echo this sentiment about organizational climate by suggesting that climate was so broad that even six or seven dimensions would not be enough to describe it. Traditonal organizational theory suggests that the major dimensions of organizational climate include autonomy, degree of structure, rewards, and consideration, warmth, and support (Field & Abelson, 1982). Obviously, each dimension has subfactors. The major dimensions of communication climate have "been divided into dozens of ill-defined, vague, and overlapping dimensions" (Hill & Northouse, 1978: 37). Some of these dimensions include: trust, fair consideration by superior, frankness and openness, confidence and acceptance, information adequacy, semantic information distance, and communication satisfaction (Krivonos, 1978). Again, each of these have subfactors. The climate construct is theoretically unwieldy, which leads to the next problem.

The construct has been applied mainly to grand or large scale theory like the one suggested by Richetto (1977). Since the climate construct is so conceptually broad, more utility of this construct will not come about until a stricter theoretical structure is formulated (Follert,

1980b). Richetto states:

> Despite methodological and theoretical advancement, components of the field have yet to be linked into a comprehensive theory of communication theory in ongoing organizations (1977: 341).

Follert (1980b) suggests that any further study of the climate construct include more theoretical grounding. This leads researchers to attempt a reduction of the construct.

There has been a cry for the need for mid-range theory. Several theorists have argued that climate needs a more "functional 'mid-sized' construct" (Follert, 1980b: 91; Forehand, 1974; Redding, 1972; Redding, 1979; Cutlip & Center, 1971; Falcione, 1974). Forehand argues:

> The shades of variation in environmental variables are innumerable. The problems seem insuperable unless we can reduce to a few the terms we use to describe a given environment (1968: 78).

It would appear that the climate construct as presently formulated with its many definitions and dimensions would tend to have researchers in a quagmire. However, this is not the time to do away with the construct; in fact, this drawback may be a blessing in disguise. Climate would seem to have even more reliability, because it has been "tested not only across representation of a single construct, but also across representations of many overlapping definitions of the same construct" (Cook & Campbell, 1979: 62-63). So, it is still very useful, but unwieldy. The next step is to test whether the climate construct can be reduced. In one case where climate was reduced to a mid-range construct, the

correlations between the construct and the variable role clarity obtained were higher than previous measures (Follert, 1980b). The call for mid-range theory is practical and can be supported by research. The discussion which shows the theoretical problems of ambiguity, globalness, use in grand theory, and need for reduction will turn now to methodological problems.

Methodological problems. Obviously, the theoretical problems have given rise to the methodological ones. These include assessment of the construct in organizations, drawbacks of the questionnaires, and limitation on generalizability.

As pointed out earlier, the climate construct is difficult to assess in organizations (Hill & Northouse, 1978). This stems partly from the theoretical vagueness as to where the construct fits into the theory. The concept climate has been used as a dependent variable (George & Bishop, 1971), as an independent variable (Ganesan, 1983), and as an intervening variable (Lawler, Hall, & Oldham, 1974). Hellriegel and Slocum (1974) simply argue that climate is difficult to operationalize. This difficulty in assessing the construct may be further explained by the suggestion that some dimensions of climate may be situation specific (Muchinsky, 1977b). Muchinsky (1977b) argues that the constituting variables of organizational communication still need to be found. If theorists are not exactly sure what the climate

construct entails and how exactly it fits into theory, then this would explain why we have trouble assessing it. This problem of assessment is further compounded by the instrument we choose to use in our research.

The questionnaire methodology has drawbacks. Dimensions of organizational climate can be measured by using any of the ten questionnaires that have been developed for this purpose (Field & Abelson, 1982). Some instruments have as many as 299 items which might lead to task demand problems (Redding, 1979). Some instruments have single item subscales which may result in reliability problems (Falcione, 1974). In addition, the questionnaire method attempts to elicit perceptions of respondents, and then the individual respondent's scores are calculated into an aggregate or an average score for the entire organization. "Average scores create obvious problems especially when people within the same organization view climate dimensions differently" (Field & Abelson, 1982: 186). Another problem with some instruments is that they have been adapted to specific organizations (Follert, 1980b). The questionnaire method alone may not be enough to effectively assess the construct. Hill & Northouse (1978) argue for a two-step methodology of questionnaire and interview. Obviously, the limitations of the instruments will affect the generalizability of the findings.

The generalizability of findings is limited. If different researchers are defining and assessing the climate construct differently, then this would certainly limit one's ability to generalize. One of the main problems with generalizability of findings for climate research is organizational specific questionnaires (Follert, 1980b). Questionnaires that have been especially modified for or designed for a particular organization and are inappropriate for and/or not applicable to other organizations greatly limit the generalizability of findings. Even with instruments designed to measure across different organizations, there exists generalizability problems. Dennis (1974: 139) reflects on his scale by stating that it "could have limited comparative utility."

REVIEW OF PSYCHOMETRIC THEORY

Before the literature is reviewed, a common ground needs to be established concerning psychometric theory and its part in science. The process of science is discussed rarely, or so it seems, in studies where one is conducting scientific inquiry. The two reasons for this seem to be norms and space. The norm appears to be that one does the study or one philosophizes about science, not both. In other words, the scientist takes little time explaining the reasons behind the technique that are used both in the review of literature and methodology sections. The norm may

include the idea that if one does a particular methodology, the reader of that study must already comprehend the rationale and basics of that particular methodology. This is probably not true of readers in many cases. However, there is a little discussion of science in the methodology sections of most studies. Another reason seems to be a pragmatic one; there is not enough space. Most journals do not have the luxury of allowing additional space.

This dissertation is not bound by those restrictions. So, a lengthy discussion of psychometric theory can be set forth. A review of psychometric theory will provide the reader with a basic knowledge from which he/she can interpret the literature review and the methodology procedures of this dissertation. The areas of psychometric theory to be discussed include measurement, reliability, validity, product-moment correlation (PM), factor analysis, and hypothesis testing with factor analysis. Nunnally's (1967) classic work, Psychometric Theory, will be relied on heavily for the discussion of the above areas.

Measurement

One of the major activities of science is measurement. "Measurement consists of rules for assigning numbers to objects to represent quantities of attributes" (Nunnally, 1967: 2). Several key areas of this definition deserves more attention. First, rules for assigning numbers leaves out how these rules are developed and how they are applied.

The only inherent aspect of this section of the definition is that the rules exist. In so doing, these rules apparently are clear to those who are doing the measuring. Secondly, the numbers are assigned to objects. The objects may be people, animals, or things. However, please note that the objects are not measured, they simply are assigned a number (or group of numbers). Since numbers are themselves abstractions, part of measurement is assigning abstractions to objects. Thirdly, these numbers represent quantities of attributes about an object. What is measured is not the object but an attribute of that object. From language theory, one knows that words (used to describe attributes) are incomplete. Words (like attributes) never say enough about an object and reveal too much about an object. This may seem to be a paradox. Yet, any description of an object is a list of attributes. No matter how many attributes are used, the object is never fully described. Still, the object is described in more ways than are inherent to the object, itself. In other words, the object is described in more ways than it actually possesses. Please note that attributes, themselves--like numbers, are abstractions.

To condense the above discussion, one can conclude that measurement is the stipulations we make about assigning abstractions to objects about still other abstractions. This may make science sound esoteric. However, this is not so;

science is concerned with studying, explaining, and predicting the reality of this world. Science simply has to use abstractions as tools toward this end. One of these tools will be discussed below.

Measurement is intertwined with mathematics. Mathematics is one of the abstract tools that science uses. In order to quantify objects concerning attributes, a number system and/or mathematical system must be used. The number system allows one to tell how much of an attribute there is. The mathematical system allows one to manipulate the numbers to a certain extent toward a desired end. This might mean finding the average number of trials subjects take to complete a maze. This would require one to total the number of errors made by the subjects and divide by the number of subjects that participated to find the mean. Another example would be determining how two different variables related to each other by using a product-moment correlation.

Measuring affects which mathematical operations can be used. It is how one assigns the numbers that restricts the mathematical operations. The way one measures is called a scale.

There are four basic levels of measurement. These are nominal, ordinal, interval, and ratio scales. Each one represents rules for applying numbers, and each one dictates which mathematical operations are possible. Each will be discussed in turn.

Nominal scales. Nominal scales allow numbers to label objects or represent classifications of the attributes of objects. For example, a scientist may label apples as specimen one, specimen two, specimen three, et cetera, to distinguish one apple from another. Another example would be to use numbers to represent classifications of attributes of an object. Using the apple example, one might want to classify apples by type and assign a number for each type. Unripe apples would be one; ripe apples would be two; and overripe apples would be three. Note that when nominal scales are used to represent classifications of an attribute, more than one object may have the same number. All unripe apples found by the scientist would be three's.

With nominal scales, there is no intention of using the numbers for any mathematical operations. One reason behind this is the assignment of numbers is arbitrary. The scientist labeling his/her apple specimens could have used 21, 398, 1/2, and a like to label the specimens. As in the latter example above, the classification for unripe apples could have been 100.5 instead of one. No mathematical operations can be used with nominal scales.

Ordinal scales. Ordinal scales rank objects in respect to an attribute. The objects are ranked based on a particular attribute from "most" to "least". Numbers are assigned to this ranking. The results of a horse race are an example. Horse A is first; Horse B is second; and Horse C is

third. The horses as objects are ranked as to the attribute of speed around the race track. Another aspect of rank ordering can be illustrated by the horse race results. No sense of an absolute quantity (of speed, in this case) is indicated by the numbering. One does not know if the race was a fast one or slow one. Still, another aspect of ordinal scales is no magnitude of difference between objects. There is no sense of the magnitude of difference in speed between two objects (horses, in this case). Was Horse A and Horse B's speed nearly the same? Was Horse C half as fast as either Horse A or Horse B? These questions cannot be answered because ordinal scales do not convey that type of information. An ordinal scale provides just the minimal amount of information about an attribute.

As stated previously, the type of scale with its given characteristics dictates which mathematical operations are permissible. Ordinal scales do not permit the use of any of the algebraic functions. One cannot add, subtract, divide, or multiply the scale values. In the previous example of the race results, it would be incorrect to say that Horse A was twice as fast as Horse B because it came in second and three times as fast as Horse C because it came in third. Use of ordinal scales provide the researcher with only the minimal amount of information. The interval scale provides more.

Interval scales. Interval scales rank objects in respect to an attribute, but they also give the magnitude of differences between objects. However, this scale does not give any sense of absolute magnitude of the attribute under study. The classic example of an interval scale is the measurement of temperature. The Celsius temperature scale is a good example. A scientist measures water at three points in time. The three scale values in degrees are: for freezing water--zero, for room temperature water--70, and for boiling water--100. From this example, one can note the three aspects of an interval scale. One knows the rank order of the three samples of water. Freezing was first; room temperature was second; and boiling water was third. The magnitude of difference in temperatures between the scale values can be computed. The magnitude of difference between freezing water and room temperature water is 70 degrees (70 degrees minus zero degrees). Finally, the reader will note that there is no sense of an absolute magnitude of heat (temperature). Even though freezing water is assigned the number of zero, this does not indicate a total lack of heat.

The interval scale permits the use of various algebraic functions depending upon whether one is discussing scale values or intervals between scale values. One only can add and substract scale values. This can be illustrated by using the previous example. The intervals between freezing

water and room temperature water and betweeen room temperature water and boiling water can be calculated by substracting the respective scale values. The intervals are 70 and 30, respectively. However, since magnitudes of differences are known, all the algebraic functions are permissible for use with the intervals (differences between objects on the scale). Thus, the proportion of the interval between room temperature and freezing water (70 degrees) is 2 and 1/3 times that of the interval between room temperature and boiling water (30 degrees). Or, one could state that the difference between the intervals (70 and 30 degrees) is 40 degrees. Although these permissible operations for the interval scale are far superior than that of those of the ordinal scale, the ratio scale permits even more functions.

Ratio scales. The ratio scales rank objects in respect to an attribute, convey intervals between objects, and convey the interval between a rational zero and at least one of the objects on the scale. Measuring height or weight from the rational zero point of no height nor weight would be an example. One could easily rank a group of people by height (say in feet), and also determine the interval or difference in height between any two. Furthermore, one could say that a person numbered 6 feet is twice as tall as one numbered 3 feet. In each case, one gets a sense of absolute height. This all comes about because of the permissible operations that ratio scales allow.

Ratio scales permit many more operations than either ordinal or interval scales. All algebraic functions can be performed on both the scale values and on the intervals. "With these operations come all the power of mathematics, including algebra, analytic geometry, calculus and all the more powerful statistical methods" (Nunnally, 1967: 15).

Reliability

Reliability of measurement deals with whether the measurements are repeatable with consistency. For example, if one measures repeatedly the length of a rod, then the measurements should be nearly the same. The measurements will not be exactly the same each time because certain random effects act as sources of measurement error. Yet, two aspects need to be consistent. First, the measure (a yardstick in this case) must be applied consistently to that which is being measured (the rod in this case). Secondly, the way that the measures are interpreted must be the same. The yardstick must be read consistently the same way. These sources of measurement error are content sampling of the domain, subjectivity of scoring of the measure, and "large variations in people over short periods of time" (Nunnally, 1967: 211).

One type of reliability estimates are based on the number of test items and the internal consistency of the items. Internal consistency refers to the average

correlation among test items. Generally, if the average correlation of test items is high, then the test will be highly reliable.

The internal consistency of the test must be estimated. Several methods exist to make this estimate. Coefficient alpha calculates the reliability coefficient by giving the upper limit of the reliability estimate. For example, if the coefficient alpha is .40 for a test, then that is the highest reliability estimate that will be achieved for that version of the test. If the estimate is very low (as in the above example); then either the test is unreliable and the items do not relate, or the test is too short and needs additional items. One would want a minimum alpha coefficient of an absolute value of .70 for a test used in basic research. If the estimate is high (an absolute value of .70 or above), then the test is highly reliable. Another method which gives similar results to coefficient alpha is correlations between alternative forms of the same test. Different versions of the same test are administered over a short period of time. For example, version one of the test may have the item "I like coffee" and version two have the item "I do not like coffee". These are administered to the same subjects after a lapse of time, preferably weeks. If the item is inversely scored on the second version, then the answers to that question should correlate highly and positively. The tests are correlated to estimate the

correlation coefficient. The result should be similar to that of the coefficient alpha estimate. If the estimate is high, then the test is said to have stability. If the estimates are different by 20 points, then the above sources of measurement error should be investigated (Nunnally, 1967). A third way to estimate reliability is the split-half method. The items on a single test are divided up (the methods differ), and the two halves of the tests are correlated. The correlation is used in a correlation correction formula to estimate the reliability coefficient. One uses the split-half method when items are scored on more than dichotomous points (for example, a scale of one to five), and/or when alternative forms are not available.

Reliability is judged strictly by statistical procedures. The reliability coefficient gives an estimation of the extent that the measurements are repeatable. The methods for estimating the reliability coefficient are coefficient alpha, alternative forms, and split-half. "The reliability coefficient is one index of the effectiveness of an instrument, reliability being a necessary but not sufficient condition for any type of validity" (Nunnally, 1967: 217).

Validity

One concern of measuring is making sure you are measuring what you say you are measuring. Validity is the process of checking to see if the measuring instrument measures what it claims to. Validity is not dichotomous.

An instrument is not valid or invalid. Validity consists more of the degree that an instrument measures what it claims to. In fact, an instrument is never fully validated. The purpose for which the instrument is used is what is validated. An instrument may be valid for use in measuring length, but not for measuring intelligence. Validity is that which is argued, not that which is proved. No one can be absolutely positive that any measuring instrument is valid for a particular use. However, part of that argument is based on empirical research.

There are four types of validity--predictive validity, content validity, face validity, and construct validity. Each will be discussed in turn below.

Predictive validity. Predictive validity concerns areas where it is important to predict behavior or estimate behavior. This behavior is called the criterion. An example is college entrance exams. They try to predict how well a student will do in college. If a student does well on the entrance exam, then he or she should do well in college. If a student does not do well on the entrance exam, then he or she should not do well in college. One must be sure to realize that these predictive instruments only estimate a persons chances and do not reflect the behavior itself nor offer an explanation of that behavior. For example, a particular high scorer on the entrance exam may not do well

in college and drop out. One must not confuse the predictive instrument with the criterion. A good predictive instrument will be able to make these estimates (between the predictor measure and the criterion measure) consistently high for the group it is measuring. Nunnally states:

> Predictive validity is determined by, and only by, the degree of correspondence between the two measures involved. If the correlation is high, no other standards are necessary (1967: 77).

Content validity. Content "validity depends primarily on the adequacy with which a specified domain of content is sampled" (Nunnally, 1967: 79). An example is a final comprehensive test for a mass media history course. Validity of the test would be determined by how well the test items represent the content. Unlike predictor instruments which estimate criterion, content validity instruments are the criterion. In the example of the final test, the criterion of performance is how well one does on the test. Prescriptively, concerns about content validity should be considered when constructing an instrument. Nunnally states "the two major standards for ensuring content validity: (1) a representative collection of items and (2) 'sensible' methods of test construction (1967: 81). However, these are not always easy to do. An example would be sampling for an instrument to measure "quality of life." The domain is not well specified. Another problem is that values dictates which areas of content one stresses. In measuring quality of life, one

might stress the physical aspects over the psychological aspects. Other concerns with judging content validity are discussed below.

Judging content validity cannot be done through statistical procedures. Nunnally states:

> inevitably content validity rests mainly on appeals to reason regarding the adequacy with which important content has been sampled and on the adequacy with which the content has been cast in the form of test items (1967: 82).

Despite this, some circumstantial evidence can be found for content validity. Three areas that give circumstantial evidence will be discussed; however, the reader needs to be aware that all three are fallible and are insufficient for judging content validity. First, one would expect the instrument to be internally consistent. In other words, the test items should be internally consistent at least at a moderate level. Secondly, one could compare results from a pretest and a posttest. If the instrument is designed to measure performance in understanding class content, the student should score low on the pretest and high on the posttest. Thirdly, one could compare instruments that purportedly measure the same thing. For example, two instruments that purportedly measure anxiety should correlate highly. If they correlate zero with each other, then one should suspect both instruments. If they correlate highly as expected; this is good. But as stated earlier, even this is not sufficient. Both could be measuring the same wrong

content. Still, "content validity mainly rests upon an appeal to the propriety of content and the way that it is presented" (Nunnally, 1967: 83).

Face validity. Face validity concerns judgments about already existing instruments. Nunnally (1967) considers it as one aspect of content validity. Once the plan of constructing the instrument (concerns of content validity) is implemented, one needs to make a judgment about the final instrument. This is similar to double checking to make sure that the instrument turned out the way it was planned. Face validity appeals to common sense in making the judgment.

Construct validity. In most cases, the variable of interest is abstract. When the variable is more abstract than concrete, it is referred to as a construct. These usually are variables that are composed of many forms of behavior without any one behavior being truly representative of the whole. Some examples would include intelligence, anxiety level, stress, and climate. Constructs are very important in science because scientists rarely are concerned with observables, but with the constructs they represent. Besides trying to measure constructs, scientists also try to relate one measure of constructs with other measures of constructs. This "relating" is called theory.

Constructs vary on two continua. First, constructs vary from a "large" to a "small" domain of related

variables. Or secondly, constructs vary with respect to how "loosely" or "tightly" those domains are defined (Nunnally, 1967). Obviously, these two continua are related. The larger the domain of related variables; the more difficult it will be to define the construct. One may have problems deciding which variables belong in the construct and which ones do not belong. The more abstract the construct; the harder it is to define.

One of the reasons that constructs are hard to define and contain numerous variables is that scientists make up these constructs:

> "from his own imagination . . . . This construct represents a hypothesis . . . that a variety of behaviors will correlate with one another . . . and/or will be similarly affected by experimental treatments" (Nunnally, 1967: 85).

For example, intelligence does not exist in and of itself. Intelligence is the construct created to represent numerous forms of behavior like problem solving, creative thinking, logic, et cetera.

So now, the question becomes how does one measure the construct. It would be best to use in one study all the measures that exist for a particular construct. Since they would represent the best representation of the domain of observable variables concerning the construct. However, since this is difficult to do in any one study, the use of one instrument would suffice. Yet, it would only suffice if the use of this instrument would yield similar results as

another one would or if the use of this instrument would yield similar results had all the instruments been used. The degree that a single instrument would yield similar results as all the instruments is the degree that it has construct validity.

Nunnally provides a sequence of steps to develop and validate measures of constructs. The three steps to this process are:

> (1) specifying the domain of observables, (2) determining to what extent all, or some, of those observables correlate with each other or are affected alike by experimental treatments, and (3) determining whether or not one, some, or all measures of such variables act as though they measure the construct (1967: 87).

Most scientists will recognize that they seldom do all three steps. What generally happens is that one jumps immediately to step three, because scientists rarely have time to complete the plan mentioned above.

However, from time to time scientists should do meta-analysis by looking at the results of numerous studies concerning a construct and attempt to specify what the domain of that construct is. Once the domain is specified, one should determine how well the "measures of observables 'go together' in empirical investigations" (Nunnally, 1967: 89). This is simply done by correlating each measure with the other ones. Analyzing the results would allow one to judge whether all the measures tend to measure the same thing. (Factor analysis is used often.) A few conclusions are

drawn from the results. If all the measures correlate zero or near zero with each other, then they measure different things. If they all correlate highly, then they measure "much the same thing" (Nunnally 1967: 91). If they break up into different clusters, then they measure many different things.

Still, relations among constructs need to be established. The final determination (if it can be achieved) for construct validity is that the "measures of the constructs" should "behave as expected" (Nunnally, 1967: 93). The measures of constructs should correlate as expected with other measures, and the measures of constructs should be affected in controlled experiments as expected. The measure of the construct is placed into a nomological environment. It should fit by reacting and behaving as hypotheses state it should.

Construct validity deals with relationships that common sense tells exist between a measure of a construct and another variable or construct. Nunnally cautions:

> studies of construct validity are safe when, and should be undertaken only when, (1) the domain of the "other" construct is well defined and (2) the assumption of a relationship between the two constructs is unarguable (1967: 94).

Actually, one does not relate two constructs. What is related is the construct's internal structures. This needs clarification. When one relates the measures of the observables to each other, a series of correlations are made.

This series of correlations forms an internal structure for the construct under study. Given these correlations and a raw score on one of the observables, one could estimate and make probability statements about all the other scores. This interrelationship is the internal structure. Each construct would have its own internal structure. When one relates two constructs, what is really happening is that internal structures are being compared. If the internal structures of two or more constructs are compared and the correlations are high enough, the interrelationship between internal structures is called a cross structure. Given the correlations in the cross structure and a raw score, one could estimate and make probability statements about all the other scores. Finding internal structures and determining cross structures of constructs is the ultimate goal of construct validity. For, "it is not possible to <u>prove</u> that any collection of observables measures a construct" (Nunnally, 1967: 97).

<u>Product-Moment Correlation</u>

The product-moment (PM) correlation is a very useful analysis when one is comparing the relationship of two variables. The PM correlation is so pervasive in the literature that when correlation is mentioned, unless specified otherwise, one assumes that it is the PM correlation (Nunnally, 1967). The PM correlation shows the extent of the relationship between two variables. The

stipulation is that the variables have to be in standard scores. The reason is when variables are expressed in standard scores, then peculiarities of the measures are eliminated and all that is left is the deviation of the items within the measures. For example, a sample of subjects' weight and height are measured. One subject's score is 10 on weight and 10 on height. These scores take on different meaning when they are standardized. The weight score is found to be three standard deviations above the mean, while the height score is found to be two standard deviations below the mean. In this example, the peculiarity of the measures were eliminated.

Placing a variable in the form of standard scores is simple. One divides the standard deviation (degree of dispersion) into the individual deviation scores. Standard scores are represented by the symbol z. Standard scores are very easy to interpret. A standard score of $z = .50$ would signify that the score is one-half a standard deviation from the mean. A standard score of $z = -1.75$ would signify that the score is one and three-quarters of a standard deviation from the mean in the opposite direction from the above example. A standard score of $z = 0$ would signify that the score does not deviate from the mean.

The PM correlation assumes that the relationship between the two variables is linear within a given domain. Thus, the relationship can be expressed in the mathematical

terms of a straight line. This expression is $y = rx + a$; where y is the second variable expressed in a standard score, r is the slope of the line, x is the first variable expressed in a standard score, and a is the intercept point of the y-axis. The goal of the PM correlation is to find the best fitting line that expresses the relationship between the two variables (or sets of standard scores). In so doing, one takes the x value and estimates the y value. This estimate is called y' (estimates of scores on y). Since the scores are standard scores, the y intercept is 0. This means the line passes through the origin when graphed. Thus, the above formula is reduced, and the relationship is expressed solely in terms of r. The term r is the PM correlation coefficient. It is a number from -1.00 to 1.00. The higher the absolute value of the coefficient, the stronger is the relationship. A coefficient of 0 would mean that there is no relationship. A positive coefficient represents a direct relationship, while a negative coefficient represents an inverse relationship.

The goal of PM correlations is to find the best fitting line. To do this, one has to find the r and a that reduces to a minimum the summation of the difference between y and y' (Nunnally, 1967). Various approaches can be taken to achieve this minimizing. Each approach is called a "loss function" (Nunnally, 1967: 111). The loss function that has been most useful is least squares (Nunnally, 1967). In

least squares, r and a "are determined so that the sum of squared differences between actual scores on" y and estimated scores y' "is minimum" (Nunnally, 1967: 111). Thus, r becomes the summation of paired products divided by the number of pairs. In other words, "r is obtained by multiplying pairs of standard scores on the two measures, summing these, and dividing the sum by the number of pairs (persons)" (Nunnally, 1967: 111).

Besides the standard PM correlation, there are three special versions of this PM correlation. They produce the same results as the PM correlation. Nunnally (1967) suggests that confusion exists among nonspecialists who think that all four correlation analyses are different. The other three versions of the PM correlation are phi, point-biserial, and rho. Phi is used when both variables are dichotomous. Plus, since phi and chi-square are related, one can test hypotheses after calculating phi. Chi-square is equal to the total number of people times the square of phi. One would use one-degree of freedom when consulting the chi-square tables (Nunnally, 1967). The second version is the point-biserial. It is used when one variable is continuous and the other is dichotomous. And, the last version is rho, where two sets of ranks are correlated.

The PM correlation is quite useful. Part of it's usefulness is described above. Another aspect is that it "serves as a foundation for many complex methods of

analysis" (Nunnally, 1967, 112), one of which is factor analysis. Factor analysis will be discussed below.

Factor Analysis

The term "factor analysis" represents several methods of analysis which aim to determine how well measures (or items of a measure) go together. Factor analysis is mentioned earlier as the frequently used method associated with construct validity. Nunnally (1967: 289) states that "it is a crucial aspect of construct validation." Remember that part of validation involves developing measures and correlating those measures. Factor analysis comes in when one analyzes the correlations of those measures. According to Nunnally (1967), three results are possible. First, specific factors (those related to a particular collection of items) dominate the measures. Secondly, one common factor dominates the measures. A common factor is a factor that relates to a "variety of types of items" (Nunnally, 1967: 288). And thirdly, numerous common factors dominate the measures. The second result is the one that a scientist is striving for and the one factor analysis is intended to achieve. In short, factor analysis tries to find a common factor that represents the "going together" of measures and that dominates those measures.

Since this section on psychometric theory is intended to provide a common background for the specialist and nonspecialist, a detailed mathematical explanation of factor

analysis would do a disservice to both. An adequate discussion of factor analysis could not possibly be covered in this dissertation for the specialist. If a section like that would be used here, it would serve only to confuse and bewilder the nonspecialist with numerous mathematical computations. An attempt will be made to explain factor analysis with the least amount of mathematical references. This should prove to be validation in words (instead of formulas and procedures) for the specialist and insightful for the nonspecialist. Hopefully, the nonspecialist will be prepared to understand the general literature better. For those who need more detailed explanations of factor analysis, see Fruchter (1954), Harman (1960), Horst (1965), Nunnally (1967), Thurstone (1947), and Torgenson (1958).

Factor analysis starts with a data matrix. The rows represent people, and the columns represent the measures. So, the first row is person's one score on all the measures used. The first column contains the scores by all the people on the first measure. A factor is produced from this matrix when "<u>any linear combination of the variables in a data matrix</u>" exists. (Nunnally, 1967: 291). A linear combination would be the summation of each measure (or item in a measure, now to be referred to as a variable) times a respective weight for that variable. If there were 12 variables in the data matrix, then the factor would be the summation of those twelve measures times their respective

weights. A weight is simply an adjustment for the importance of each variable. For example, variable a is twice as important as variable b, and variable a has a weight of one. Then, the weight of variable b is .5, being half as important. As a result, the weights of variables are consistent across people. It is the score of the people that change. So, each person would have different scores on the factor.

Once the factor is determined, the next step is to see how it relates to each variable in the data matrix. The factor scores are correlated with the variable scores to produce factor loadings. Through what is called partialling, several factors can be determined. Partialling is taking apart "the original variables in terms of a number of uncorrelated linear combinations or factors" (Nunnally, 1967: 293). In essence, partialing is taking out the influence of one factor from the data matrix to see if there is another factor in the data matrix. One can determine whether it is necessary to partial out the first factor from the size of the original factor loadings. Although it is possible to partial out as many factors as there are variables, this is seldom the case. If the correlations are high above .70, there might be only one factor needed to explain the variance of the variables. If they are moderate, then additional factors possibly exist. If they are zero or near zero, then possibly there are no common factors.

Once the factors and factor loadings are determined, estimates about the influence of the factors on the variables can be made. A factor loading matrix is the table of variables, factors, and their respective loadings. The influence of each factor on each variable, all variables, or a group of variables can be determined from the factor loading matrix. The easiest to calculate is the influence on any one variable. The factor loading (correlation) is squared to give the "proportion of variance explained in a particular variable by a factor" (Nunnally, 1967: 293). So, if a factor loading of variable a on Factor A is .50, then Factor A explains 25% (decimal point omitted) of the variance.

Calculating the influence of either of the other two (all or a group of variables) requires more effort but is simplistic. For example for all the variables, the influence would be calculated by first squaring all the factor loadings for a particular factor. Secondly, one summates those squares. Thirdly, one divides that summation by the number of variables. The result would be the average amount of variance explained for this group of variables by that factor. If this is done for each factor, then the average could be totalled to give the researcher an idea of how much of the total variance is explained in the data matrix by the factors. For example, one might find that all the factors account for the majority of the explained variance.

The same procedure would be used for any subgroup of variables. Of course, only the subgroup variables would be squared and summated. The number of variables in the subgroup would be divided into this summation to determine the average proportion of explained variance. For example, Factor A might explain 20% of the variance for the group of variables as a whole, explain 49% of the variance of variables a, b, c, and d, and explain 64% of the variance of variable a.

Another inportant aspect of the factor loading matrix is that the influence of all the factors as a whole on a variable can be determined. In this case, one squares and summates a row (which represents the variable) of factor loadings. This summation would be the proportion of variance explained by the factors for this given variable. So, it may be found that the factors as a whole explain 70% of the variance for variable a. "The more a variable tends to share common factors with the other variables, the larger will be" this explained variance (Nunnally, 1967: 294).

Factor loadings can be determined by using a correlation matrix. A correlation matrix is simply produced by correlating all the variables in a data matrix with each other. Since the rows and columns are the same (each variable in turn), then the diagonals of the correlation matrix are all one by definition. Each variable correlated with itself equals one. Factor loadings can be attained fairly

easily. First, one multiplies each variable weight by the variable correlation. Secondly, one summates these products. (If the weights are one, then one merely summates the correlations.) This summation is divided by the square root of the summation of all the correlations in the matrix. The result is the factor loading of that variable on the factor.

As stated previously, one use of factor analysis is to find a common factor in a group of variables. This requires two steps. First, one "condenses" the variables into a number of common factors (Nunnally, 1967). Secondly, one rotates the factors. This two-step process is called a stepwise solution. There are two popular ways to condense the variables--centroid method and principal axes. Rotations can be achieved by orthogonal and oblique rotations. Each will be discussed briefly below.

The difference between methods of factor analysis is how each method assigns weights to the variables. In assigning weights, each method attempts to maximize some aspect of the data matrix. So, weights are assigned based on how well they maximize a particular aspect of the data matrix.

One way to condense the variables is the centroid method. Nunnally states:

> The centroid method is defined by linear combinations in which all weights are either +1.0 or -1.0. In other words, the variables are simply summed, with the possibility that some of them might be given negative weights (subtracted rather

than added) (1967: 309).

Since the weights are given by definition, the next most important aspect of the centroid method is its attempt to maximize the sum of loadings. "The centroid method is strictly defined: It is the method which extracts the largest sum of absolute loadings for each factor in turn" (Nunnally, 1967: 315). Factor loadings are obtained by simple division. The numerator is the column summation (summation of column correlations). The denominator is the square of the sum of all the column sums. One divides the numerator by the denominator to obtain the factor loading. This is repeated for each variable (column) in the correlation matrix. The result is all the factor loadings on Factor A.

Another way to condense the variables is the principal axes method. Nunnally (1967) states that this is the best method to use in the first step of the step-wise process. The weights are not defined in principal axes, as they are in the centroid method, but they are the ones that explain the most variance. What is maximized in the principal axes method is the average squared factor loadings. Note that the squared factor loadings represents the variance. Thus, the weights are chosen that maximize these loadings (Nunnally, 1967).

The principal axes method has two advantages over the centroid method. It explains slightly more variance than

the centroid method and fits in well with other forms of analysis like inferential statistics (Nunnally, 1967).

The second step in the step-wise process is rotation. One rotates factors (achieved by either of the two methods mentioned previously) in order to make the factors more interpretable. Many nonspecialists view rotation with suspicion. They may feel that the researcher is manipulating the data in an inconsistent manner. This is not the case. Rotated and unrotated factors explain the exact same amount of variance; the former is just easier to interpret (Nunnally, 1967). An unrotated factor is just a linear combination of variables, whereas; "a rotated factor is simply a linear combination of a set of factors" (Nunnally, 1967: 324).

When one thinks of rotating factors, one can think alternatively that the factors themselves do not rotate, but the coordinates of the grid in which the factors lie rotate. In other words, what 'rotation does is to construct a new coordinate system" (Nunnally, 1967: 332). For example, given two factors represented by the unit vectors A' and B', one could plot them on a graph with the abscissa (sometimes called the x-axis) of A and ordinate (sometimes called the y-axis) of B. To rotate the factors, one would merely move the grid until the abscissa A is now A' and (correspondingly in orthogonal rotations) the ordinate B is now B'. How much one turns the coordinates is a function of both the

assumptions made about the factors and what one wants to maximize. These two areas will be discussed below as they related to orthogonal and oblique rotations.

Orthogonal rotations assume uncorrelated (orthogonal) original factors and orthogonal rotated factors. Thus, the original factors correlate zero, and the rotated factors correlate zero with each other. In other words, the angle of the abscissa and ordinate is 90 degrees. Quartimax rotations "maximize the sum of variances of rows in the factor matrix . . . Varimax method maximizes the sum of variances of squared factor loadings" in the factor matrix (Nunnally, 1967: 332). Each of these areas is maximized in order to determine the weights of the linear combination of a set of factors.

Oblique rotations also has certain assumptions and maximizing efforts. The main assumption of an oblique rotation is that the factors are correlated. Thus, the angle between their vectors is different from 90 degrees. Oblique rotations tend "to maximize the loadings on a factor for the members of a cluster" (Nunnally, 1967: 325). This is because the rotate factor vectors are put through clusters of variables.

Nunnally (1967) suggests that each rotation method, orthogonal or oblique, is good and that use is a matter of preference. No matter which method is used, certain criteria needs to be met. A researcher should seek a rotation

"where there are some relatively pure variables for each factor" (Nunnally, 1967: 328). The first criterion used to insure the above is to "rotate one-third as many factors as there are variables" (Nunnally, 1967: 357). And once rotated, use only those variables that have a factor loading of at least .30 to interpret the factor (Nunnally, 1967). Other variables with factor loadings below .30 do not account for enough variance to be given consideration (Nunnally, 1967). For example, a factor loading of .29 only accounts for 8.4% of the variance.

As discussed previously, factor analysis was used to determine how well measures go together. The step-wise method of looking for a common factor in a group of interesting variables was described above. Factor analysis also can be used to test hypotheses. This is called the direct solution.

Hypothesis Testing

Hypothesis testing is one function of factor analysis. Testing hypotheses with factor analysis is called seeking "direct solutions". There are two ways to seek direct solutions. No matter which way is chosen, two criteria must be met. The purpose of the direct solution is "to test hypotheses about the existence of factors" (Nunnally, 1967: 305). In so doing, one must state the hypotheses in advance. The hypotheses obviously must describe the nature of the linear combinations (Nunnally, 1967). In other

words, the hypotheses deal with the existence of factors and the description of those factors. No matter which method of testing hypotheses is used, "one goes directly to the desired solution, and rotations are not required" (Nunnally, 1967: 333). The following examples will clarify this even further.

The first way to seek a direct solution is to hypothesize that there is one common factor that dominates the measure(s). For example, one may hypothesize that one common factor dominates a group of say five measures of stress. Note that this hypothesis denotes the existence of the factor (common in this case) and describes that factor (dominating all the measures). A direct solution is achieved by correlating each test of stress with the "simple sum" of all the tests (Nunnally, 1967). Substantial correlations would support this hypothesis.

A second way to seek a direct solution is to hypothesize the existence of many (two or more) factors dominating the measure(s). Again, note that the existence of the factors are stated and described. Obviously, one would need to name exactly how many factors dominate. For example (taking the above example of the five stress measures), one might hypothesize that the five measures break down into three factors, with the first two tests belonging to the first factor, the next two tests belonging to the second factor, and the last test forming the third factor. The

linear combinations would be the simple sums of the measures composing that factor. Each measure would be correlated with the simple sum of the measures that compose that factor. Substantial correlations on each factor would support this hypothesis.

Now that a detailed review of psychometric theory has been discussed, the discussion will proceed to the definitions of climate. This will be followed by the review of literature, purpose and justification of the study, presuppositions, statement of hypotheses, and organization of the study.

DEFINITIONS OF THE CLIMATE CONSTRUCTS

Two types of climates appear in this chapter so far, and these are organizational climate and communication climate. The definition of organizational climate has gone through a metamorphosis over the years. Field and Abelson (1982: 185) conclude their review of various definitions by stating that "climate has therefore evolved from being considered exclusively an organizational attribute to an attribute which may be subsystem specific." Forehand and Gilmer defined organizational climate as:

> the set of characteristics that describe an organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over time, and (c) influence the behavior of people in the organization (1964: 362).

In Tagiuri and Litwin's classic work, Organizational

Climate, Tagiuri (1968) modifies and expands Forehand and Gilmer's definition claiming that not enough emphasis was placed on the organizational members' perception. Tagiuri defines organizational climate as:

> a relatively enduring quality of the internal environment of an organization that (a) is experienced by its members, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics (or attributes) of the organization (italics in the original, 1968: 27).

Hellriegel and Slocum (1974) added the idea of subsystems to their definition. They define organizational climate as:

> a set of attributes which can be perceived about a particular organization and/or its subsystems, and that may be induced from the way that organization and/or its subsystems deal with their members and environment (Hellriegel & Slocum, 1974: 256).

James and Jones (1974) argue that research has taken on a third direction besides organizational and subsystem. Individual or psychological climate should be included in future research studies. Schneider argues:

> The concept of climate in the present research may best be described as personalistic; climate is an individual perception. There was no attempt to restrict the climate definition to perceptions shared by members of a work group or organization (1973: 254).

Field and Abelson (1982: 185) point out the common elements of the definition of organizational climate by concluding that "climate has enduring qualities, which may be measured, and which influence behavior of individuals in the organization." James and Jones (1979) simplify the definition by suggesting that all climates, whether they are

organizational, subsystem or group, or individual or psychological, are perceptions members have of their environment. As stated earlier, the definition of organizational climate has changed over time to include three areas of emphasis, which were organizational, group (subsystem), and psychological (individual) climates with the emphasis being on the perception. The focus of the discussion will now turn to the definition of communication climate.

Climate has usually been defined as the dimensions that it entails. Gibb (1961) dichotomized communication climate into either supportive or defensive climates with six factors each. These dichotomies were description-evaluation, problem orientation-control, spontaneity-strategy, empathy-neutrality, equality-superiority, and provisionalism-certainty. A supportive climate would be characterized by description, problem orientation, spontaneity, empathy, equality, and provisionalism. A nonsupportive climate would be characterized by evaluation, control, strategy, neutrality, superiority, and certainty.

Redding (1972) described five a priori dimensions of the ideal managerial communication climate. These dimensions included supportiveness; participative decision-making; trust, confidence, and credibility; openness and candor in communicative relationships; and high performance goals. Dennis (1974) added three more dimensions to those of Redding to include information adequacy,

semantic-information distance, and communication satisfaction. Later through factor analysis, he reduced these seven dimensions to five: Factor I which reflects perceptions about communication with one's superior; Factor II reflects perceptions of downward communication; Factor III reflects supervisor's perceptions about their subordinates' communication; Factor IV reflects perceptions of upward communication opportunities; and Factor V reflects perceptions of reliability of information received from subordinates and colleagues.

In defining communication climate, some researchers suggest that it is similar to organizational climate. Ireland, Van Auken, and Lewis (1978: 7) postulated a "reciprocal relationship between organizational climate and communication climate." Dennis states:

> the concept "communication climate" is regarded as inherently sharing common variance with the concept "organizational climate," although the degree and quality of this sharing cannot be specified. (italics in original, 1974: 31).

Theoretically, considering that communication climate is related to organizational climate makes intuitive sense.

A definition of communication climate will be provided now. Dennis states:

> "Communication climate" will refer to subjectively experienced quality of the internal environment of an organization; the concept embraces a general cluster of inferred predispositions, identifiable through reports of members' perceptions of messages and message-related events occuring in the organization.

> This definition captures the general thrust of Tagiuri's (1968) deacription of organizational climate and Redding's (1972) use of the term "communication" (italics in the original, 1974: 29).

The essence of Tagiuri's (1968) three aspects of organizational climate of (a) members experiencing climate, (b) its influence on behavior, and (c) its description in terms of values or quality is matched in the defintion of communication climate by (a) climate's subjectively experience, (b) perceptions of messages and message-related events, and (c) quality of internal environment, respectively. The only incongruous aspect in the definitions is that Dennis (1974) did not mention the enduring aspect of the communication climate.

REVIEW OF THE LITERATURE OF ORGANIZATIONAL CLIMATE

This review of literature of the organizational climate construct will show an historical perspective. Two models of how organizational climate fits into theory will be shown. The first model is the traditional approach to organizational climate theory. The second model is a revised version of the first. It incorporates the different theoretical and operationalized levels of organizational climate, that heretofore, have been absent in organizational climate research.

Because of a need to develop models of organizations in which climate was theoretically positioned delineating its

boundaries, dimensions, and variables, Field and Abelson (1982) developed two climate models. The first model was a traditional model depicting organizational climate as the central role. The second model gave psychological climate the central role. The author will rely heavily on Field and Abelson (1982) for their theoretical modeling. Each of the two models will be discussed in reviewing the literature for organizational climate.

Field and Abelson (1982: 182) formulated the first model using "traditional wisdom concerning climate." The model has eight major sections (See Figure 1 on page 52). Each of the sections will be discussed below.

The first major section contains the antecedents of organizational climate. These can be divided into three major classes of influences: external, organizational, and personal. The external and organizational variables affect organizational climate both directly and indirectly (Field & Abelson, 1982). The external influences further can be divided into the variables of physical environment and socio-cultural environment. The organizational influences further can be divided into the variables of centralization, configuration, formalization, size, standardization, structure, and technology. The personal influences further can be divided into the variables of managerial behavior, leadership pattern, and rewards/controls.

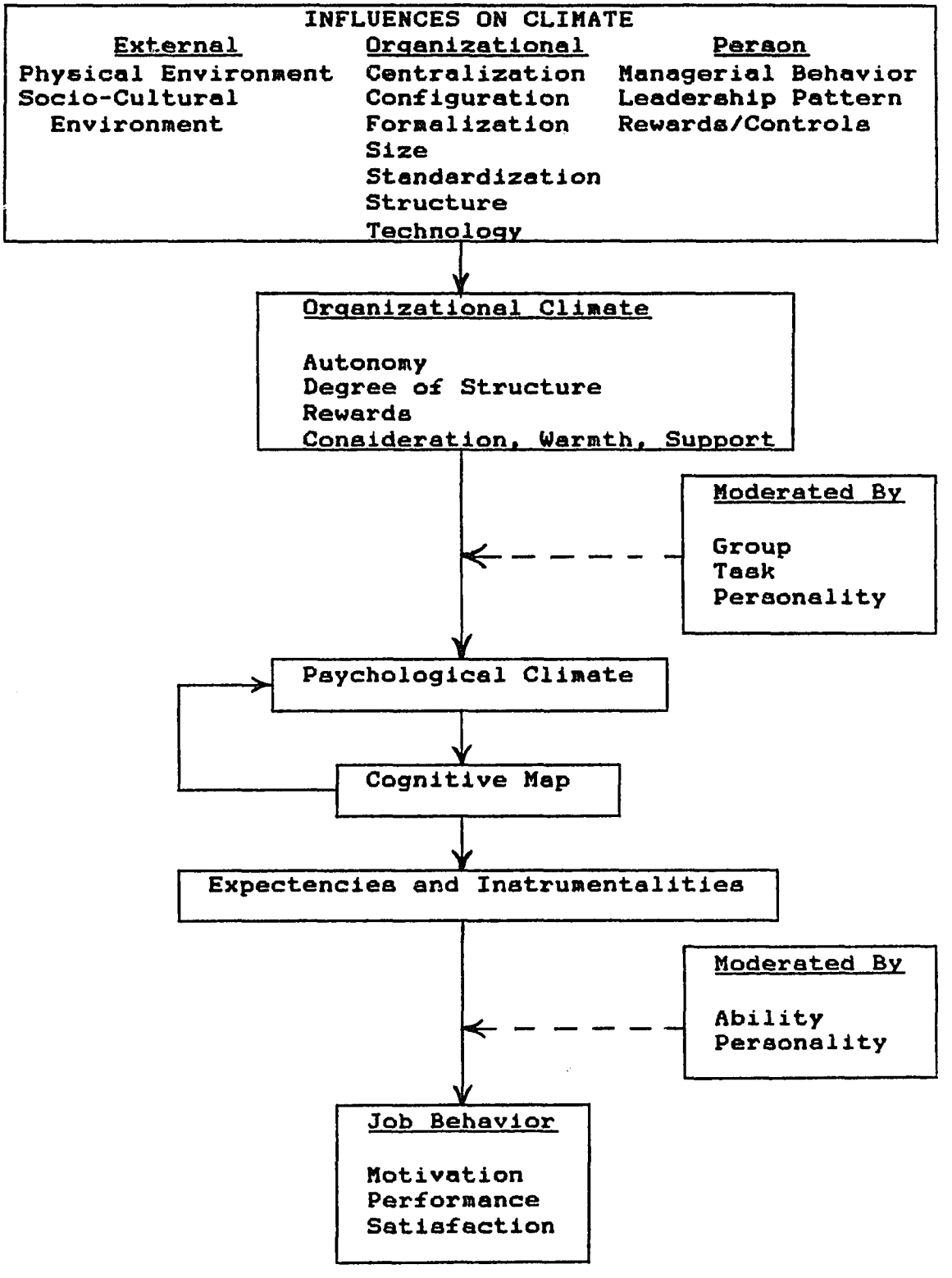

Fig. 1 Traditional Climate Model
(Field & Abelson 1982: 183)

The second section is the organizational climate itself. It was influenced by the three major classes of variables: external, organizational, and personal. It is composed of four broad dimensions: autonomy, degree of structure, rewards, and consideration, warmth, and support.

Organizational climate is then moderated by the third section of the model. The three variables that help moderate organizational climate's influence on psychological climate are group, task, and personality.

The fourth section is the psychological climate which is affected by the organizational climate although moderated. This section, the psychological climate, is the individual's perception of climate. It acts to create a cognitive map, the fifth section. This cognitive map serves "to filter future incoming information" (Field & Abelson, 1982: 184). These two sections, psychological climate and cognitive map, interact to influence each other.

The sixth section of the model are the expectencies and instrumentalities. These are created by the individual as a result of the individual's cognitive map. These in turn are moderated in their effect on job behaviors.

The seventh section of the model acts as a moderator. The two variables that moderate the expectencies and instrumentalities' effect on job behaviors are the abilities and personalities of that individual.

Although moderated, expectencies and instrumentalities affect the eighth section of this model, job behaviors. Included in these job behaviors are motivation, performance, and satisfaction. For a more indepth description of the model and its related literature links see Field and Abelson (1982).

Now that the first traditional model has been described briefly, the discussion will look at the model from another perspective. As stated previously, organizational climate plays the central role in this model. Field and Abelson state:

> Organizational climate, or those "objective" organizational attributes (those attributes which are theoretically proposed to be perceived by the majority), <u>appear</u> to be the central unifying force (italics added, 1982: 184).

The emphasis is on the word "appears". After an extensive review of the literature, Field and Abelson (1982) suggest that the construct organizational climate needs to be reconceptualized to include psychological climate as the central role player, to allow for more levels or subclimates, and to include other variables which previously have been undeclared theoretically.

The second model represents a theoretical reconceptualization of the construct organizational climate. The central role of organizational climate has been replaced by psychological climate. Group climate has been added along with other variables. Basically, the beginning and the end

of the model are similar; it is the middle, the reconceptualization of climate itself, which has changed (See Figure 2 on page 56).

The revised model has nine major sections. The beginning is a similar beginning as the traditional model. The antecedents of climate are external, organizational, and personal. The external variables are physical and sociocultural environment. The organizational variables include centralization, configuration, formalization, size, standardization, structure, and technology. The personal variables include managerial behavior, leadership pattern, and rewards/controls. These influences are again moderated by the group the individual belongs to, the task of the individual, and the personality characteristics of the individual. These moderated antecedents influence a new section of the model.

The next part of the model places greater emphasis on the perceptual nature of climate. It will be noted that another section has been added and attached to psychological climate. Also, psychological climate has been repositioned to take the central role.

This new subsection will be called the perceptual development section for lack of a name. The quasi-physical, quasi-social, quasi-conceptual facts are a function of the moderated antecedents. The quasi-nature of the above emphasize the perceptual process in action. Although Field

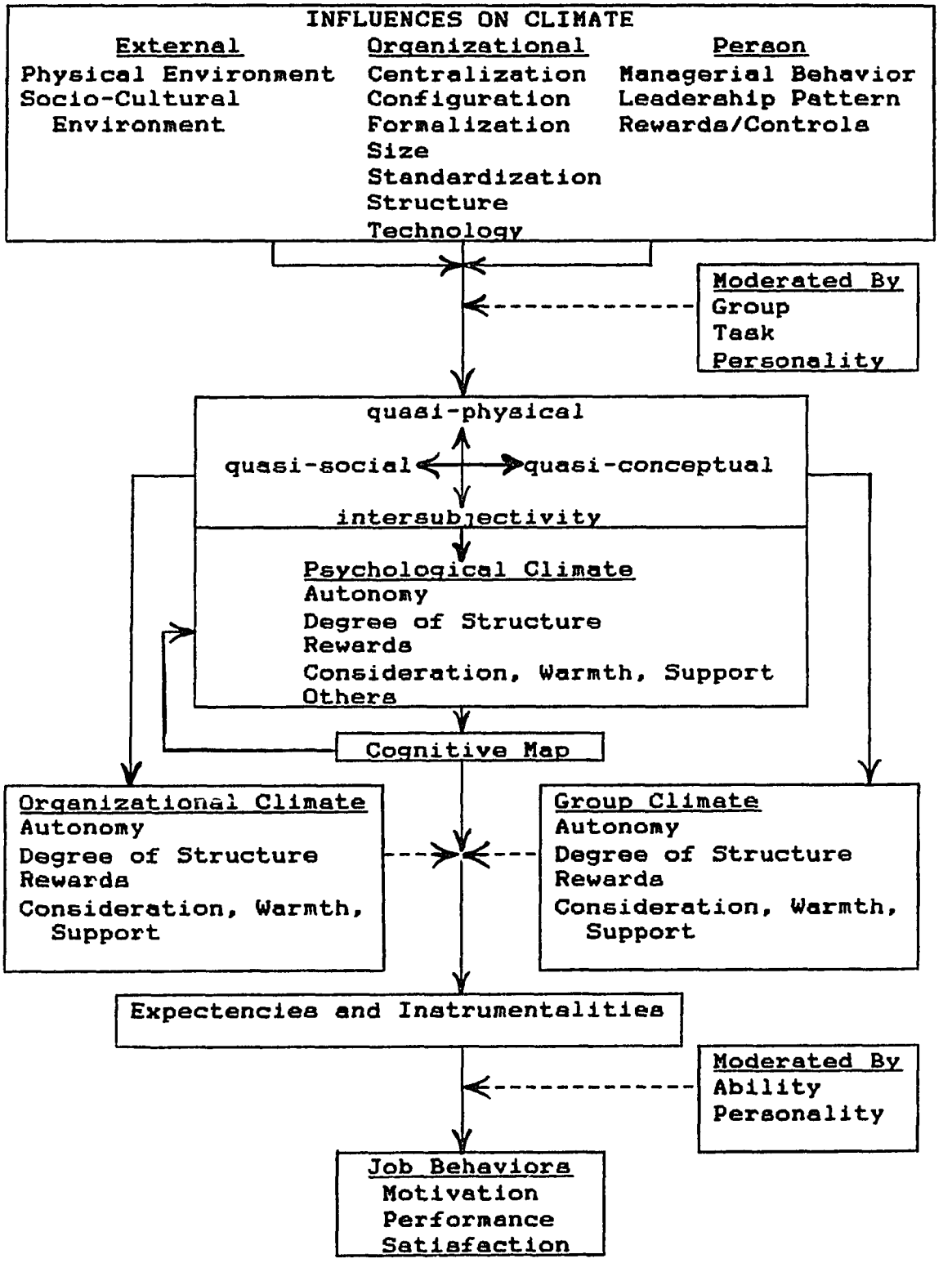

Figure 2. Revised Climate Model
(Field & Abelson 1982: 195)

and Abelson (1982) did not expand on this area, it is assumed that "quasi" allows for perceptual filtering and for selective perception.

To further show this process, Field and Abelson (1982) include the concept, intersubjectivity. Again, they did not elaborate on this idea. However, by use of the Husserlian term, they implied that the individual acts in a "lived-world," the Lebenswelt. The Lebenswelt is where one performs all of the acts toward objects, tasks, and others. It always is experienced in a context which is historically based. By historically based, one is not refering to a "chronological succession of events (Historie) but history as lived in terms of moral codes, economic situations, religious practices--in short, Geschichte" (Stewart & Mickunas, 1974: 127). So the moderated influences of the antecedents of climate exhibit this Geschichte with its imprints of the Lebenswelt. "The intersubjective world thus constitutes a temporal context for human actions . . . and contains systems of meaning for the individual" (Stewart & Mickunas, 1974: 127). It is this idea of systems of meaning acting in a temporal context which allows individuals to perceive common meaning between conscious minds. This intersubjectivity "is maintained through a continuous process of structuration that links members in systems of practice" (Poole, 1985: 104-105). This intersubjectivity makes the Lebenswelt an intersubjective community of individuals.

Climate then is always a perception of the world, not a Decartean object existing on its own.

This phenomenological approach puts greater emphasis on the perceptual role. Climate does not exist in a vacuum but is defined and experienced by people. The traditional model would have organizational climate existing apart from a person's perceptions of it. Intersubjectivity allows for the socialization process that a new employee would experience before that employee could come to a consensus with other employees in describing the group or organizational climate.

The psychological climate is a cognitive representation of the "quasi" factors. It is represented by the four broad dimensions of autonomy, degree of structure, rewards, consideration, warmth, support, and others. Field and Abelson (1982) recognize that there are other factors which may affect the psychological climate. However, they conclude that these would be situation-specific.

Again, the psychological climate forms a cognitive map which acts as a filter of future communication. This cognitive map will interact with the psychological climate. Because of filtering, changes in the dimensions may be perceived thus creating another cognitive map.

The next two sections to be discussed are organizational climate and group climate. Although they are on a similar level with psychological climate, organizational

climate's role has been removed from a central position, and group climate has been added to the model. The discussion will first look at group climate, then it will turn to organizational climate.

Field and Abelson (1982: 196) state "group climate would occur when there is a consensus among group members concerning the interactions of quasi-facts and intersubjectivity." Since the climate would be a consensus, it would not be absolute. Different members would have varying impact on the group climate perceptions. Some may not have any impact, while others would have a great impact. However, Field and Abelson (1982: 196) suggest that an individual's pschological climate impact would be "to the extent of the consensus."

The same would occur for the organizational climate. However, the consensus would be on the organizational level not the group level.

The three climates may coexist to influence expectencies and instrumentalities. In the most simplistic form, psychological climate would exist and be the sole antecedental influence on expectencies and instrumentalities. Psychological climate could interact with group climate and/or organizational climate to influence expectencies and instrumentalities. Field and Abelson hypothesize that:

> The extent to which organizational and group climate would influence expectancy and instrumentality would be dependent upon the degree of consensus concerning these two aspects of climate. It would

> appear that the greater the consensus the greater the predictive power of these climate aspects (1982: 196).

Again, the influence of the expectencies and instrumentalities on the job behaviors of motivation, performance, and satisfaction are moderated by the individual's ability and personality. Field and Abelson further hypothesize about the predictability of the climate construct on job behaviors by stating:

> The accuracy of predicting job behaviors should increase as the climate consensus within the organization increases from that of psychological climate only, to situations where both group and organizational climate are also present (1982: 196).

This revised model places the organizational climate construct in theoretical perspective. All the relevant variables, whether antecedent, concurrent, or output, have been described, and their relationships stipulated. Now, the discussion will turn to the review of literature of the organizational climate construct.

Because of the wealth of literature on the organizational climate construct, the review of literature discourse would be considerably long. Since the major relationships have just been previously discussed and since it is so well-documented in the numerous reviews, the literature will not be reviewed here in depth. The author refers the reader to one of the ten previously cited major reviews of literature. Besides the most thorough review by Field and Abelson (1982), there are nine other major reviews (Campbell,

Dunnette, Lawler & Weick, 1970; Forehand & Gilmer, 1964; Hellriegel & Slocum, 1974; James & Jones, 1974; Litwin & Stringer, 1968; Payne & Pugh, 1976; Poole, 1985; Tagiuri & Litwin, 1968; Woodman & King, 1978.) However, the organizational climate construct will be reviewed briefly as it relates to job satisfaction, performance, and a few other variables not mentioned previously.

The relationship between organizational climate and performance has remained complex. James and Jones (1971) reported that climate dimensions did predict performance, when divisions were the subgroups. However, this did not hold true for other subgroups. Other studies have reported a clear link between organizational climate and performance (Lawler, Hall & Oldham, 1974; Joyce & Slocum, 1982). Yet, Brass (1981) only found marginal support that performance was related to organizational climate. Pritchard and Karasick (1973) reported that organizational climate was related to organizational performance but not to individual performance.

The link between organizational climate and job satisfaction has been much clearer. Numerous studies have reported such a link (Awal & Stumpf, 1981; Brass, 1982; Gavin & Howe, 1975; James & Jones, 1979; Joyce & Slocum, 1982; Narayanan & Venkatachalam, 1982; Lawler, Hall & Oldham, 1974). Moore (1982) reported similar findings; however, it was reported that organizational climate affected

satisfaction with supervision more for males than with females.

Other variables have been reported to relate to organizational climate. Attitudes about the organizational climate increases as role conflict decreases (Dewine & Barone, 1984). As stated previously, personality would moderate organizational climate. Type A personalities have been shown to be attracted to climates that correspond to their personalities (Burke & Deszia, 1982). In another study, little support was found that organizational climate helped the success of the acceptance of a new word-processing system (Komsky, 1986).

Other research has casted doubt on the strength of the relationships discussed by Field and Abelson (1982). Birch (1982) reported that organizational climate was not related to organizational size. Another antecedent of organizational climate has been structural variables. However, two studies find little (Brass, 1981) or no support (Lawler, Hall & Oldham, 1974) for this relationship.

REVIEW OF LITERATURE OF COMMUNICATION CLIMATE

Now that organizational climate literature has been reviewed, the discussion will turn to the review of literature of communication climate. The development of communication climate parallels the development of organizational

climate in several ways. However, communication climate has received less attention than organizational climate.

Communication climate is studied generally under the heading of organizational communication. Leipzig and More (1982) contend that organizational communication generally fall into three areas: (1) organizational behavior, (2) organizational communication, and (3) business communication. As the name indicates, organizational behavior is the area of study which views behaviors of individuals in and between organizations. The organizational communication studies focus on the application of communication theory to organizations. The business communication studies focus on written skills in organizations. The communication climate studies tend to fall under the organizational communication studies. In fact, the term communication climate is often subjugated under the general terms climate, organizational communication, or communication. Often when reviewing organizational climate and communication climate, authors of studies do not consistently make a clear distinction between the two concepts. Sometimes both are combined and refered to as climate. Despite this sometime confusion, the concept of communication climate has its own distinct history of study.

Two distinct traditions of studies in organizational communication have emerged. Jablin (1980) labels them the psychological tradition and the sociological tradition. The

psychological tradition includes the studies on communication climate. The sociological tradition includes the studies on network analysis. This discussion will focus on the former.

There are four issues that this current psychological tradition of communication climate research faces. They are objective versus subjective climate, descriptive versus evaluation, level of analysis, and elements of analysis (Jablin, 1980). Each of these areas will be discussed below.

There is controversy over the issue of subjective or objective climates. This mainly deals with both theoretical conceptualization and methodological operationalization. There has been some concern as to how to conceptualize climate. Is communication climate just the physical setting, or is it the perception of that setting? An objective approach would only operationalize the physically verifiable variables. These might include the occurrence or nonoccurrence of a communication event, the duration of the event, the actors in the event, or the time or duration of the event (Jablin, 1980). Obviously, the rich texture of the communication event would not be tapped by this approach. A subjective approach would only tap the perceptions of the participants in the communication event. Perceptions are not as easily verified nor are they as reliable as objective indices. Campbell, Dunette, Lawler, and Weick (1970)

suggest that even if both procedures are used to measure a given variable, both measures operate at a different level of explanation. Poole dismisses this dichotomy altogether:

> Rather than being objective or subjective, climates are intersubjective constructs, collective constructs that bridge the perspectives of numerous subjects. The intersubjectivity of the climate is maintained through a continuous process of structuration that links members in systems of practice, and it can be explained by elucidating the mechanism driving this process (1985: 104-105).

This is a minor issue, most researchers believe communication climate to be a perceptional variable both theoretically and operationally.

The second issue has caused more concern than the first. That is the issue of descriptive versus evaluation. Guion (1973) and Johannesson (1973) suggested that climate was redundant with satisfaction because of the affective nature of the measuring instruments. Since some instrument items asked for affective responses, the concept itself was concluded to be evaluative in nature. However, other researchers conclude the opposite; communication climate and satisfaction are different constructs and relate to various other organizational variables differently (Hellriegel & Slocum, 1974, Lafollette & Sims, 1975, Payne, 1973, Schneider & Snyder, 1975). This difference can be explained by stating that climate is a description of the environment, whereas satisfaction is an evaluation of that description.

What helps give rise to this issue is that several communication climate measures mixed both descriptive and evaluative items into the questionnaires used (Payne, Fineman, & Wall, 1976, Schneider, 1975). Roberts and O'Reilly's (1974) Organizational Communication Questionnaire uses both descriptive and evaluative items. Researchers have recently placed more emphasis on trying to rid current measuring instruments of communication climate of the evaluative items.

The third issue is level of analysis. "The level or unit of analysis is of key concern in climate research since it affects the focus of measurement and the explanatory power of results" (Jablin, 1980: 332). Since the construct of organizational climate has been divided into three levels of psychological climate, group climate, or organizational climate, then these levels of climate should exist for communication climate. Communication climate studies usually use the individual as the unit of analysis (Muchinsky, 1977b). However, Follert (1980a; 1980b; 1982a; 1982b; 1983; 1984), Dallinger (1983), Dallinger and Hample (1984), Wilson (1985), and Scudder, Wilson, and Wilson (1985) have used the dyad as the unit of analysis. Thus, most communication climate research is not on the organizational level but on the individual level, although it is purported to be on the organizational level.

The problem with unit of analysis can be overcome. The individual level or dyadic levels can be aggregated into organizational level communicate climate scores (Howe, 1977; Jones & James, 1979). However, Jablin (1980: 333) warns us that "aggregation of individual 'psychological' communication climate scores to higher-order systems should be done cautiously and meet basic empirical aggregation criteria." Further, one should report the level of analysis for the communication climate study.

The last issue is elements of analysis. The question arises for each researcher as to which aspects or dimensions or elements to study. As stated earlier, climate is a multi-faceted construct, and its boundaries have not been fully explored nor limited. Restricting communication climate research to just one aspect would delute the rich texture of the construct. It would also restrict the results by not emphasizing climate dimension's coexistent and concurrent interaction. Researchers should not focus on one area, for example, superior-subordinate communication to the exclusion of other variables. Nor should we expect to find "x" number of dimensions which are descriptive of communication climate (Woodman & King, 1978). Since communication climate is a description of an organization's communication events and patterns, then there should be differences between organizations' communication climate. It is part of our job as researchers to find those dimensions that may be

"comparable across jobs and organizations" (Jablin, 1980: 334).

Another view on this element of analysis suggests that typological descriptions may be a valuable avenue to explore. For example, Gibb (1961) identified two types of communication climates supportive and defensive. Supportive climate is produced by decriptive, problem-oriented, spontaneous, empathic, equal and provisional behavior. Defensive climate is produced by evaluative, controling, strategic, neutral, superior, and certainty behavior. These typological descriptions are viewed best as "coherent 'packages' of attributes rather than in terms of discrete variables" (Poole, 1985: 89). Thus, one can conclude that dimensions are not the essence of climate; "climates are totalities consisting of coherent configurations of attributes" (Poole 1985: 89). Analogically, a house is more than just the boards of its structure. It is the configuration of the boards that make the house. Similarly, dimensions do not a climate make. One needs to know more about a climate than just its dimensions. Poole (1985) suggested further research in this area with emphasis on discovering if climates did have particular configurations of dimensional values. If no clustering is found, then Poole (1985) suggests that reduction of climates to separate dimensions is appropriate.

This final issue of elements of analysis has yet another twist to it. Just as there are many different levels of

climates, there may be many different types of climates. To follow this line of argument, the relationship of climate to practices needs to be identified. Climate grows out of individual experiences in the organization over time. It is these repeated practices that give rise to generalizations about the organization. It is these perceptions of the practices that give rise to climate. "If practices create climate, then there should be a separate climate for each distinct set of practices in the organization" (Poole, 1985: 82). Besides a communication climate, organizations have a safety climate (Zohar, 1980), an educational climate (Harris, 1983), and a customer service climate (Schneider, Parkington & Buxton, 1980).

From this brief review of the current issues several important findings can be summated. Jablin (1980: 331) concludes that "subjective and objective climate measures may operate on different "levels of explanation". However, despite this, Poole (1985) concludes that the climate construct is intersubjective in nature. Climate can be discriminated from satisfaction conceptually based on the description-evaluation criterion. Communication climate can be conceptualized on many different levels. This level needs to be reported in the research. And finally, communication climate is not a static construct, but consists of many dimensions interacting concurrently. One should keep these findings in mind as the discussion turns from the

current issues in communication climate research to a review of the research itself.

Redding (1972) first postulated an "ideal" communication climate. He considered this "ideal" communication climate to consist of five dimensions: supportiveness; participative decision-making; trust, confidence, and credibility; openness and candor in communicative relationships; and high performance goals: emphasis on, clarity of, and rewards for.

The first study designed to assess the dimensions of communication climate was conducted by Dennis (1974). Dennis hypothesized that Redding's (1972) five dimensions constituted the core of the communication climate construct, but also suggested that three more dimensions made up the construct. These three were information adequacy, semantic-information distance, and communication satisfaction. As a result of a modified Q-sort by three communication-knowledgeable judges, the dimensions of information adequacy and communication satisfaction were combined. So, the hypothesized dimensions used in the study were: supportiveness; participative decision-making; trust, confidence and credibility; openness; high performance goals; communication satisfaction/information adequacy; and semantic-information distance.

Factor analyzing the data resulted in twelve factors, but five were selected "for the most meaningful

interpretation of the respective domains" (Dennis, 1974: 83). The five factors selected accounted for 52% of the total variance. Factor One consisted of items dealing with one's superior including supportiveness and openness. Factor Two consisted of items dealing with perceived quality and accuracy of downward communication. Factor Three consisted of items dealing with openness and freedom of superior-subordinate communication. Factor Four consisted of items dealing with upward communication opportunities as it relates to participative decision-making. Factor Five consisted of items dealing with information reliability from subordinates and peers. Factors One and Two accounted for the most total variance with 19.87% and 13.93%, respectively.

The second part of his study focused on the relationship between the communication climate dimensions and Likert's (1967) causal, intervening, and end-result variables. Causal variables were supervisory leadership and organizational climate. The intervening variables were peer leadership and group process. The end-result variable was job satisfaction.

Several statistical procedures were performed. A canonical analysis was performed with the five factor communication climate dimensions as predictors and four Likert variables--supervisory leadership, organizational climate, peer leadership, and group process--as criteria.

Organizational climate shared the most average variance with communication climate factors at r = .56. Two series of multiple regressions were performed on the data. Dennis (1974) reports that the five factor communication climate dimensions predict 65% of the variance in supervisory leadership and predict 72% of the variance in organizational climate. Using a series of step-wise multiple regressions, further findings were ascertained. In the first step, Factor One was used as the predictor. It accounted for approximately 63% of the variance for supervisory leadership and 39% of the variance for organizational climate. After Factor Two was added, 31% more variance was accounted for organizational climate.

The relationship between organizational climate and communication climate was explored further. The sum of the total scores for each correlated positively at r = .77. The shared variance between these two concepts was approximately 59%. Each item in the communication climate scale was correlated with each item in organizational climate for a total of 108 correlations. Dennis (1975) only reported those variances of 16% or greater. Only three of Likert's dimensions shared substantial variance with two of the five factors. The Likert dimensions were communication flow, human resource primacy, and decision-making practices. Communication flow shared the most variance with Factor One, then Factor Two, then Factor Four. Human resource primacy

and decision-making practices varied the most with Factor Two. Overall, Factor Two varied the most with all three Likert dimensions.

The last area of focus of the Dennis study was on the relationship between the communication climate dimensions and Likert's end-result variable. The variable was identified earlier as job satisfaction; however, it consisted of seven items--four assessing supervisor rating and three job satisfaction. A multiple regression was performed with the communication climate dimensions used as predictors. The absences of significant relationships were found. A post hoc analysis revealed no relationship between the communication climate dimensions and the performance rating. However, one of the job satisfaction items correlated strongly with all items in Factor One. This item measured "how satisfied are you with your boss." All correlations were positive r = .43 or better. Another job satisfaction item correlated with ten items of Factor Two. This item measured "how satisfied are you with this organization--compared to most others." These correlations ranged from positive r = +.40 to .48 with a mean of r = .44.

The discussion will now attempt to draw several conclusions from these findings. Communication climate has several dimensions. These "communication climate factors identified by Dennis are significantly related to important causal factors" (Falcione & Kaplan, 1984: 296). Communication

climate shares the most variance with organizational climate. Dennis states:

> At any rate, in toto, the communication climate factors correlated more strongly with organizational climate than they did with the other "causal" or "intervening" variables; hence, it is concluded that the "communication climate" instrument does indeed represent a perceptual domain very similar to that encompassed by the term "organizational climate" (1974: 143).

The results of the relationships between communication climate and the end-result variables were basically nonsignificant. However, after a post hoc analysis, significant correlations were found between Factor One and Two and two job satisfaction items.

As stated previously, Dennis's study was the first study designed to determine the dimensions of communication climate. However, another instrument was developed a year earlier which measured communication climate. The instrument was developed by Downs, Hazen, Quiggens, and Medley (1973) and measures communication satisfaction. Communication climate is one of eight dimensions that make up communication satisfaction. As stated previously, one of the current issues facing communication climate is the affective versus descriptive issue. Communication satisfaction would fall on the affective end of the continuum and would include all the emotional responses. Communication climate construct would fall at the opposite end of this proposed continuum and include only descriptive responses. Besides, communication climate, there are seven other dimensions:

supervisory communication, organizational integration, media quality, coworker communication, corporate information, personal feedback, and subordinate communication. The instrument has been revised (Downs & Hazen, 1977), and currently each dimension has five items.

Conflicting results have been reported using this instrument. The most consistent finding is that the instrument correlates most highly with job satisfaction (Clampitt & Girard, 1986). However, when the instrument was correlated with job satisfaction and then compared across six organizations, the results varied dramatically (Downs, 1979). Yet, when just communication climate, personal feedback, and supervisory communication dimensions were compared, the correlations were consistently high across the six organizations (Downs, 1979). This is consistent with other research findings; communication climate, personal feedback, and supervisory communication dimensions tend to have the strongest correlations (Clampitt & Girard, 1986; Pincus, 1986).

The satisfaction with communication climate subscale contains five items. Each item is measured on a seven-point Likert scale where 1 = very satisfied, 4 = indifferent, and 7 = very dissatisfied. The five items are:

> 19. Extent to which the company communication motivates and stimulates an enthusiasm for meeting it's goals.
> 21. Extent to which the people in my organization have great ability as communicators.
> 23. Extent to which the company's communication makes me identify with it or feel a vital part of

it.
26. Extent to which I receive on time the information needed to do my job.
27. Extent to which conflicts are handled appropriately through proper communication channels (Crino & White, 1981: 833).

In their original factor analysis, Downs and Hazen (1977) reported that factor one (communication climate) accounted for 22% of the explained variance. This was a very global factor; it contained items on "both the organizational and personal level" (Downs & Hazen, 1977: 66). Downs and Hazen note:

> Of the seven factors, communication climate seems to stand out as the single most important factor. Not only does it account for more variance than the other factors, but the subjects' responses to a general item, "satisfaction with the organization," also loaded on the communication climate factor (1977: 68).

After eliminating items without significant loadings on any factors and again factor analyzing the items, nine factors resulted. The global communication climate factor yielded three separate factors, while the other factors remained the same. One factor was a narrower version of communication climate and dealt with how the organization handled communication problems. The second factor was called the personal feedback factor and dealt with personal achievement and work communication. The third factor was called communication timing factor and dealt with the timeliness of communication meeting immediate needs. This latter factor was dropped from the scale; because it was not "consistent over the factor analytic work" . . . it did not "account for the

largest part of the variance" . . . , and it did not "represent the consistent separation of certain marker variables from earlier pilot studies" (Downs & Hazen, 1977: 69).

About the same time, Roberts and O'Reilly (1974) developed a 36-item, 16 dimension instrument that measured organizational communication. The 16 dimensions were trust, influence, mobility, desire for interaction, accuracy, summerization, gatekeeping, overload, directionality-upward, directionality-downward, directionality-lateral, time in face-to-face communication, time spent writing, time using the telephone, and time using other modes. All the communication items correlated positively with job satisfaction except for two. Overload and directionality-upward correlated negatively. Some of the communication items correlated positively with organizational competence, organizational commitment, and leadership. Muchinsky (1977a: 188) suggested that one flaw with the instrument is that "it deals more precisely with individual communication in organizations than with organizational communications."

Some confirming and conflicting findings to Roberts and O'Reilly (1974) study were reported by Muchinsky (1977b). He correlated three different instruments in order to understand the relationships between different dimensions. The instruments were a modified Litwin & Stringer's (1968) organizational climate scale, the previous mentioned Roberts and O'Reilly's (1974) organizational communication climate

scale, and Smith, Kendall, and Hulin's (1969) job satisfaction scale. He sums the correlations between communication and organizational climate by stating:

> Taken as a whole, the communication-climate correlations suggest that certain aspects of organizational communication are highly related to perceived climate, while other communication dimensions appear unrelated to climate. . . . there is no one singular relationship between organizational communication and perceived climate (Muchinsky, 1977b: 601).

Less than half of the correlations between communication and job satisfaction dimensions were significant. Trust, influence, and satisfaction with communication correlated positively and significantly with all dimension of job satisfaction. Directionality-downward correlated significantly and positively with job-satisfaction. Directionality-laterally was correlated significantly and negatively with all job satisfaction dimensions, except for satisfaction with coworkers. Directionality-upward correlated significantly and positively with satisfaction with supervision (Muchinsky, 1977b). This contradicted the findings of Roberts and O'Reilly (1974).

Another communication climate instrument was developed by Falcione (1978). It was a 26-item, 5-dimension scale. The dimensions were communication receptivity, communication satisfaction/expectations, coordination, decision making, and organizational commitment. Using these 5 dimensions as predictors of safety, Falcione (1978) reported that

communication receptivity accounted for 33% of the total variance in safety. Falcione and Kaplan (1984: 298) state that "perception of one dimension of a supervisor's credibility is partially a function of how receptive he or she is to the communication needs of the subordinate." This is consistent with similar findings.

However, the most thoroughly developed organizational communication instrument is the ICA Communication Audit. The audit was developed over a period of years in different phases. Phase I (1971-1974) consisted of the development of audit procedures and instruments; Phase II (1974-1976) consisted of pilot-testing of audit procedure and instruments; and Phase III (1976-present) consisted of the implementation of the audit procedure and data bank (Goldhaber & Rogers, 1979). For a better description of this long and complicated process see Goldhaber and Rogers (1979). The instrument contains five parts which are a questionnaire survey, interviews, network analysis, communication experiences, and communication diary. "All of the instruments can be said to measure the communication climate from micro and macro perspectives" (Falcione & Kaplan 1984: 299). Each section of the audit can be administered separately or in any combination with the other sections. The questionnaire survey measures both the current and ideal informational needs. The ICA Communication Audit has been administered in numerous organizations. In one study (Daly, Falcione, &

Damhorst, 1979) using the ICA Communication audit, communication climate was hypothesized to be significantly related to job satisfaction and satisfaction with relationships in the organization. The findings basically supported these different hypotheses.

Goldhaber, Yates, Porter, and Lesniak (1978) report a summary of the findings from the first 16 audits. They warn that these are more tentative hypotheses than knowledgeable claims. Despite their disclaimer, the summary highlights important directions for future research. The ten findings follow:

1. Employees do not receive or send a great amount of information in their organization.
2. As hierarchial level increases, follow-up decreases.
3. Those closest to you are the best sources of information.
4. The quality of information from the top is lower than other sources.
5. Although fast yet not an accurate source, the grapevine provides the employee with too much unwanted information.
6. More face-to-face communication is desired from top management.
7. The communication climate of your immediate surroundings is better and healthier than that with top management.
8. Employees do not perceive their future with the organization with optimism.
9. Demographic and communication variables show no general relationship.
10. Employees perceive job satisfaction, interpersonal relationships, and work progress as fine, when communication distances are close. However, as source and receiver distance increases, so do various communication problems (Goldhaber, Yates, Porter & Lesniak, 1978).

Again, the author warns the reader that these are very general statements which are not to be infered as definite

findings.

One of the most recent instruments to be designed is the Organizational Communication Profile (OCP). This 8-dimension scale surveys "organization member attitudes, perceptions, expectations, and degree of satisfaction with the manner in which information is handled in the organization" (Peterson & Pace, 1986a: 2). The scale has 87 items. Of these 87 items, 53 items use a Likert-type scale; 7 items are rank ordering values; 16 items are true-false; 7 items are demographic; 2 items are forced choice; and two are open-ended questions. The instrument measures across all levels of the organization. The 8 dimensions are communication climate, organizational satisfaction, media quality, information accessibility, information load, information dispersion, message fidelity, and organization culture. The communication climate dimension has six subsections, which are: trust, participative decision making, supportiveness, openness in downward communication, listening in upward communication, and concern for high performance goals. Each of these subsections have two scale items each.

The instrument has had normative data established for each section and item. The mean, low mean, and high mean have been normalized. "Acceptable scores" ranges act as parameters in assessing organizational communication. In an unpublished manuscript detailing the results of a resent study, Peterson & Pace (1986b) report partial support

consistent with the idea that communication climate is an organizational variable. The findings indicated that a warehouse when compared to two stores had scores which were significantly below minimal expectations for the communication climate scale subsections of trust, supportiveness, openness in downward communication, and listening in upward communication. The warehouse was consistently below the other stores in all other dimensions, with the exception of the subsection of satisfaction with pay. However, since the OCP measures at all levels in the organization, the generalizability of the results seem restricted.

Research concerning the communication climate construct has attempted to relate to two important output variables of performance and job satisfaction. The relationship between communication climate and performance is complex and unclear, whereas the relationship between communication climate and job satisfaction is clearer. The discussion will now turn to the communication climate-performance link and then to the communication climate-job satisfaction link.

Like organizational climate and communication climate, performance has been conceived as a multidimensional construct (Downs & Hain, 1981). However, unlike these two constructs, performance has received less study (Pincus, 1986). Thus, there is little and inconclusive evidence explaining the communication climate-performance link.

Research on the communication climate-performance link has reported mixed results. First, the discussion will focus on the studies that have found links between communication climate and performance, then the discussion will focus on those studies that have not found support for that link. Supervisor communication (Jain, 1973; Jenkins, 1977) and internal managerial communication (Tubbs & Hain, 1979), dimensions of communication climate, have been related to organizational performance. In another study, supervisor communication and group information exchange dimensions correlated significantly with cost of operation per employee ($r = -.58$ and $-.65$ at $p \leq .025$) and cost of operation per client served ($r = -.50$ and $-.50$ at $p \leq .05$, respectively, Snyder & Morris, 1984). Communication climate, also, has been related significantly to unit effectiveness (Petelle, 1981). Schuler (1979) reported that the communication climate informative dimension was related to performance. Petelle & Petelle (1986) reported five significant relationships with performance. They found that the overall variable of organizational relationships ($r = .52$) with two of its component variables supervisor relationships ($r = .39$) and upper management relationships ($r = .31$), the structure component autonomy ($r = .38$), and the communication processes component quality of communication ($r = .33$) related to performance at $p \leq .05$.

Similar results have been found using the communication satisfaction scale. Communication climate (as measured by the communication satisfaction scale) was strongly related to performance. Specifically, quality of supervisory communication and information exchange within the peer work group were strongly related to critical revenue and workload measures of overall organizational performance with the correlations ranging from r = -.46 to -.65 (Snyder & Morris, 1984). In another study using the communication satisfaction scale, supervisor communication and communication climate were related significantly to performance with the correlations r = .21 and .12 at $p \leq .05$, respectively (Pincus, 1986).

However, this communication climate-performance relationship has been shown to be moderated by intervening variables. Hatfield, Gatewood, Boulton and Huseman (1983) reported that individual demographics moderated this relationship. Hawkins and Penley (1978) and Lewis, Long, and Cummings (1981) reported that the communication climate-performance link was moderated by motivation.

However, there has been research that has contradicted these findings. Anderson and Level (1980) found no significant relationships between perceived downward communication and performance. Similarly, convergent validity for the above finding was found for the link between organizational climate and performance (Downey, Hellriegel & Slocum, 1975;

Sims & Szilagyi, 1975).

Previous research has been unable to clarify the relationship between communication climate and performance. The relationship appears to be more complex than that of job satisfaction. The discussion will now turn to the communication climate-job satisfaction link.

The construct communication climate has been most strongly related to job satisfaction. Communication climate was related positively and significantly to job satisfaction with $r = .86$ at $p \leq .01$ (Applbaum & Anatol, 1979). The closer that the current communication climate was to the ideal communication climate the greater the job satisfaction (Alesse, 1982). Further support for this relationship has been reported in other studies (Hall, 1981; Roberts & O'Reilly, 1974; Schuler, 1979). Generally, this relationship has been reported as a positive correlation. The relationship between communication climate and job satisfaction has been shown to be moderated by hierarchial level (Downs, 1977; Compton, 1986).

However, most studies reported that certain dimensions of the communication climate construct related to certain dimensions of the job satisfaction construct. For example, Falcione (1972 & 1974) found that communication climate was related with job satisfaction in general and most highly with the dimension of satisfaction with supervision, specifically. Certain organizational communication dimensions

(which generally are included as dimensions of communication climate), that is, organizational communication relationships and amount of information received were related to job satisfaction (Goldhaber, Yates, Porter, & Lesniak, 1978). The previous study also reported that among the components of organizational communication relationships dimensions, superior-subordinate relationships and involvement within a work system correlated highest with job satsifaction. Also, it was reported that age was related with job satisfaction. In another study, the dimension of information adequacy had a significant positive relationship with a composite organizational satisfaction score with r = .34 and with the dimension supervision satisfaction r = .47 (Compton, 1986). The communication climate dimensions of communication openness, information adequacy (Trombetta, 1981), supervisor receptivity to information (Wheeless, Wheeless & Howard, 1982), and feedback received (Schmidt, Anderson & Clarke, 1983) were strongly correlated with job satisfaction.

In related research, the dimension of communication climate on the communication satisfaction instrument discussed previously has been found to relate consistently with significant positive correlations to job satisfaction (Downs, 1979; Clampitt & Girard, 1986; Pincus, 1986). The dimensions of personal feedback and supervisory communication as measured by the communication satisfaction instrument also consistently have produced the exact same results

(Downs, 1979; Clampitt & Girard, 1986; Pincus, 1986). For example, Pincus (1986) reported that supervisory communication (r = .43), communication climate (r = .39), and personal feedback (r = .38) related most strongly with the global job satisfaction construct at $p \leq .001$. As previously discussed, Downs (1979) reported that the global communication satisfaction construct did not remain consistent in predicting job satisfaction across organizations. However, when just the three dimensions communication climate, supervisory communication, and personal feedback were used to correlate with job satisfaction, the results were consistent across organizations (Downs, 1979).

It should be noted from the review of the communication satisfaction instrument that communication climate was originally a factored dimension; which through subsequent factor analysis, itself was subdivided into three factors of a smaller communication climate, personal feedback, and timeliness. So in the original factor analysis, communication climate and personal feedback were part of the same factor. The third factor that was consistent in research findings was supervisory communication. The consistency of communication climate, personal feedback, and supervisory communication and the need for a reduction in the global communication climate construct lead the discussion to another line of communication climate research.

This line of research has been conducted by Follert under the general term of accessibility. Follert (1982a) argued that while the quality of interpersonal relationships in organizational research has received ample attention, little attention has been paid to the quantitative availability of supervisors. This quantitative availability of the supervisor was conceptualized in the construct of accessibility. He contended that accessibility was a major determinant of communication climate.

In support of this notion, Follert (1983) draws on support from interpersonal theory and communication network research. Research on interpersonal attraction and proximity helps explain why the bonds in superior-subordinate relationships develop the way they do (for example, into one of openness and mutual trust). The major conclusion of this research is that those in close physical proximity tend to develop relationships. So, accessibility to the supervisor plays a key role in developing the superior-subordinate bond. Accessibility, also, plays a role in the development of communication patterns. Laboratory research in communication networks show relationships between accessibility to others and task satisfaction (Shaw & Rothchild, 1956), the amount of communication (Cohen, 1962; Guetzkow & Simon, 1955; Shaw, 1954; Shaw, Rothschild & Strickland, 1957), and leadership emergence (Leavitt, 1951). Accessibility plays a key role in determining other aspects of the relationship.

Follert (1980a) labels two important constraints placed on the accessibility of the superior. First, the dyadic expectations of the relationship may act as a constraining or facilitating factor. This factor will be called dyadic accessibility. Secondly, the norms of the organization may act as a constraining or facilitating factor. This factor will be called mormative accessibility. Each of these factors will be discussed below.

In supporting the first factor, Follert (1980a; 1980b; 1982a; 1982b, 1983, 1984) integrates the findings of several diverse areas of research. Findings from the vertical dyad linkage model, leadership theory, role theory, performance feedback, and interpersonal theory support the idea that dyadic relationships may influence the accessibility of supervisors. The vertical dyad linkage model (Graen, 1976) suggests that superiors systematically interact differently with subordinates based on the supervisor's designation of the subordinate. Supervisors treat subordinates as either "in-group" or "out-group" members (Dansereau, Cashman, & Graen, 1973; Graen, Orris & Johnson, 1973). "In-group" members communicate more with superiors, influence their supervisors, and are given more responsibility from their supervisors, whereas "out-group" members communicate less, influence less, and are given less responsibility. Leadership research shows that the dyadic relationships moderated subordinate paticipative decision making, supportiveness,

sensitivity, attention (Graen, Orris, & Johnson, 1973), role clarity (Dansereau, Graen & Haga, 1975), and subordinate's evaluation of their superiors (Graen, 1976). Role theory indicates longevity of the relationship leads to mutual agreement about subordinate's job responsibility (Kraut, 1965). Performance feedback research shows that performance feedback and role ambiguity are negatively related (Oliver & Brief, 1978). Hence, accessibility to superiors can reduce role ambiguity. Finally, the interpersonal relationship that a subordinate has with the superior can limit the subordinate's access to information (Oliver & Brief, 1978; Rizzo, House, Lirtzman, 1970). "Taken together, these findings indicate that the dyad is an appropriate unit of analysis. Dyads have unique relational characteristics which obligate superior and subordinate" (Follert, 1982a: 136).

In supporting the second factor, Follert (1980a; 1980b; 1982a; 1982b; 1983; 1984) integrates findings from rules theory, role theory, and formalization research. Findings from these areas support the idea that norms influence the accessibility of supervisors. Harris and Cronen (1978) reported that constitutive rules moderated the interpretations of interactional behavior. O'Brien (1978) found that promotability depended upon certain behavioral expectations. For example, question-asking in one situation was considered interest in the job (a positive attribute); while in another situation, it was considered ignorance (a negative

attribute). Formalization, which would indicate a high level of shared expectations about a particular job, related negatively to role ambiguity (House & Rizzo, 1972; Morris, Steers & Koch, 1979). Follert sums the findings this way:

> Rules theory predicts that an organizational subsystem will develop expectational sets for job-related behavior. Behavior consistent with these expectational sets is reinforced by organizational members, while aberrant behavior is penalized. This formulation is entirely consistent with the major postulates of role theory. Kahn et al. (1964) have argued that role senders in organizations provide the feedback which focal persons use to construct expectational sets for their jobs. Applying these findings to organizational communication allows the prediction that companies which stress "open communication" would also have superiors which were more accessible to subordinates (1982a: 137).

Thus, accessibility of superiors has been shown to be a key determinant of communication climate. Dyadic and normative accessibility have been shown to be two key determinants of accessibility.

The use of this scale has resulted in numerous significant correlations identifying relationships with various variables. Follert (1980a) reported that dyadic and normative accessibility correlated significantly with role clarity ($r = .40$ at $p \leq .001$ and $r = .45$ at $p \leq .001$, respectively). Follert (1980b) reported that dyadic accessibility correlated significantly with length of association with superior ($r = .39$ at $p \leq .006$), amount of job related information received ($r = .41$ at $p \leq .01$), and role clarity ($r = +.76$ at $p \leq .001$). Follert (1980b), also, reported that

normative accessibility correlated significantly with work group size ($r = .29$ at $p \leq .034$), cohesion ($r = .31$ at $p \leq .027$), and role clarity ($r = .68$ at $p \leq .001$). In a study assessing the independent contribution dyadic and normative accessibility made to communication climate, Follert (1983) reported multiple correlation of $R = .71$ ($R^2 = .50$ at $p \leq .0009$) for dyadic and $R = .67$ ($R^2 = .44$ at $p \leq .0009$). In the same study, Follert (1983) determined the predictive strength of the model using a stepwise regression. The results showed that dyadic accessibility accounted for the most variance ($R = .7090$, $R^2 = .5027$) with normative accessibility adding only 6.92% more variance ($R = .7562$, $R^2 = .5719$). Follert (1980b: 98) concludes by stating that "these findings, then, suggest that communication climate can be narrowed conceptually to component elements which do predict job related outcomes." Follert (1980a; 1980b; 1982a; 1982b; 1983; 1984) has managed to reduce the communication climate construct.

In summary, research in the field of organizational climate and communication climate reveals that the concepts are extremely useful. They predict important organizational outcome variables, are linked to other organizational variables, and have great potential for change agent use (Field & Abelson, 1982). However, there are great theoretical and methodological problems surrounding these concepts. The constructs are too global in nature and produce anomalous

results (Follert, 1980b). Researchers are facing the issues of whether climate is intersubjective versus objective and whether climate is descriptive versus evaluative. Plus, the unit of analysis and level of analysis confound previous research efforts. Finally, there is a need to attempt to reduce the climate construct (Cutlip & Center, 1971; Follert, 1980b; Falcione, 1974; Forehand, 1974; Redding, 1972; Redding, 1979).

Research needs to be conducted that takes into account the above restrictions. Fundamentally, the research needs to establish the researcher's bias on the four major issues facing climate research today. A single valid and reliable instrument needs to be developed and tested, as well as appropriate climate models (Field & Abelson, 1982). Research that would do the above would help to treat the construct systematically . "If the concept is treated more systematically, its value for prediction and construction of desired environments will inevitably increase" (Tagiuri, 1968: 23).

PURPOSE OF THE STUDY

Further research in the area of climates needs to be theoretically clearer and more methodologically stringent in the areas of unit of analysis and level of analysis. Besides these improvements, further research needs to attempt to reduce the climate concept by finding a more parsimonious

instrument. This is needed to help eliminate some of the unwieldy aspects of the climate construct. Since climate is a description of the environment, and the permutations of variables in the environment are innumerable; a practical description of environments would not result unless the terms used to describe specific environments were limited or greatly reduced (Forehand, 1968).

In order to accomplish the above, several tasks need to be undertaken in future research. First, relating to theoretical issues, researchers must theorize taking into account the existence of climates at different levels (e.g., organizational, group or subunit, pyschological, dyadic). One should be careful not to make cross-inferences. Secondly, researchers need to report in their studies their own presuppositions, so that readers will know the biases under which the researcher is operating. Thirdly, relating to methodological issues, researchers need to find or develop instruments that will measure these climates on the appropriate level of study; that is, an instrument used by a researcher to measure climate on the organizational level should not measure at the subunit or dyadic level or worse across all levels. This refers back to the idea of not making cross-inferences. Better still would be to find or develop an instrument that would measure climate on more than one level by design. Research needs to avoid measuring across levels indiscriminantly. Fourthly, these instruments

need to be evaluated against each other. They must be compared by using the same sample to measure the same concept. Fifthly, these instruments need to be assessed in their ability to predict certain known output variables. Those that predict best should be used in future research. Sixthly, instruments need to be judged for their parsimonious character and used in future research. Seventhly, after steps four through six have been undertaken, researchers may be able to reduce the climate construct to the dimensions or categories of the best instrument.

As stated previously, the best way to begin to clear up the confusion that surrounds the climate constructs is through clearer theorizing and more stringent methodology. Thus, this study is undertaken to begin that process.

The purpose of this study is seven-fold. First, this research will take into account the existence of different levels of analysis. Secondly, prior to the actual study, the researcher's presuppositions concerning the current issues in the climate field will be identified. This is important because a researcher's presuppositions bias the study. Thirdly, this study will help test the viability of the use of three existing climate measures. The use of existing instruments is deemed more economically practical than possibly adding to the confusion by developing a new instrument. (However, note that half of one instrument, the Profile of Organizational Characteristics, is modified.

This is done because no organizational climate instrument reviewed measured organizational climate on the dyadic level.) Fourthly, this study will compare two communication climate instruments using the same sample to measure reportedly the same construct. Fifthly, this study will compare the instruments as predictors of the output variable job satisfaction. Sixthly, this study will assess (based on the above results and if possible with those results) which, if either, of the two communication climate instruments is more parsimonious. Finally, this study will attempt to reduce the communication climate construct to the dimensions of supervisor accessibility. This can be done if supervisory accessibility as measured by the Supervisory Accessibility Scale (Follert, 1982b) (a) correlates with organizational climate as well as or better than the five-factor instrument (Dennis, 1974) and (b) predicts job satisfaction as well as or better than the five-factor instrument (Dennis, 1974).

In order to accomplish these purposes, several comparisons will be made. The first comparison will be between Dennis's (1974) five-factor instrument (FFI) and Follert's (1982b) Supervisory Accessibility Scales (SAS) to determine if they tend to measure a similar phenomenon. The second comparison will be between the FFI and a shortened version of Likert's (1967) Profile of Organizational Characteristics (POC, copyrighted 1978 by Rensis Likert) which measures organizational climate. The original version of the POC is

quite long and is not meant to be used as a unit. The 1978 POC is the part of the original that purports to measure organizational climate. This comparison will help determine if communication climate and organizational climate are highly related as been reported in prior research (Dennis, 1974; Albrecht, 1978). The third comparison will be between Dennis' (1974) FFI and Likert's (1978) POC and between Follert's (1982b) SAS and Likert's (1978) POC to determine if communication climate (as measured traditionally and by accessibility, respectively) and organizational climate are highly correlated as been reported in prior research (Dennis, 1974; Albrecht, 1978). Fourthly, the two communication climate instruments will be compared to the Job Descriptive Index (Smith, Kendall & Hulin, 1969) to ascertain which one is a better predictor of this important output variable. This study will be important because it could help overcome some of the problems associated with the climate construct by possibly reducing the climate construct to supervisory accessibility, systematizing methodology, and helping to integrate results into a more coherent theory.

JUSTIFICATION OF RESEARCH

Research in the area of climate is well-justified for numerous reasons. Climate is linked to other important organizational variables (Field & Abelson, 1982), has an important predictive nature (Follert, 1980b), and has great

potential to be used by change agents (Field & Abelson, 1982). Because of the anomalous results of prior research, climate needs further research. Also, because of the above characteristics of the climate construct, finding the best method of assessing it would greatly increase the utility of the construct for theory building, prediction, and organizational change. Another reason for research on climate is to fully differentiate the organizational climate construct from the communication climate construct. Another reason for research on communication climate is to help integrate this construct into organizational theory. Still, another reason for research on climate is to try to overcome the lack of generalizability problem plaguing this construct.

This type of research is needed because (to this author's knowledge) no one ever has compared statistically communication climate instruments that purported to measure the same construct. Although measuring organizational climate, Huddleston (1982) reported that a content analysis technique and a questionnaire technique measured different aspects of the total organizational climate construct. Similarly, Axley (1983) compared two innovativeness instruments. However, these only are related studies.

In the area of organizational communication, three studies compare instruments (Muchinsky, 1977b; Greenbaum, 1986; Jones, 1982). Muchinsky (1977b) compares three instruments. These are the Improved Climate Questionnaire

(Form B) (Litwin & Stringer, 1968), Organizational Communication Questionnaire (Roberts & O'Reilly, 1974), and the Job Descriptive Index (Smith, Kendall & Hulin, 1969). The Roberts and O'Reilly (1974) questionnaire is a "climate type" instrument. It is not suggesting that it measures communication climate, but organizational communication. Muchinsky (1977b: 604) states that this instrument is better named "'individual communication in organizations' rather than 'organizational communication'". Also, considerable doubt exists about the validity and reliability of Litwin & Stringer's (1968) Improved Climate Questionnaire (Form B) (Muchinsky, 1976; Sims & LaFollette, 1975). Although not exactly comparing two climate instruments, Muchinsky (1977b) is somewhat of a similar study and provides a precedent for this study.

In another study, Greenbaum (1986) compares three instruments measuring organizational wide communication. These are the Communication Audit Survey Questionnaire (CAS), the Communication Satisfaction Questionnaire (CSQ), and the Organizational Communication Questionnaire (OCQ). Each of these have been discussed previously. The CAS includes sections of the instrument that would be labeled communication climate; however, other parts focus on network analysis. The CSQ is a climate type instrument but focuses mainly on the affective nature of communication. The OCQ, discussed above, focuses primarily on individual

communication and did not claim to measure climate. Greenbaum's (1986) study consists, basically, of a review of literature discussing various aspects related to these instruments.

Still in an another study, Jones (1982) compares two communication instruments. Jones (1982) reports that the CAS and an organizational communication effectiveness questionnaire yield similar results.

This study differs from Greenbaum's approach but is similar to the approach that Muchinsky (1977b) and Jones (1982) take. This study plans to use the same instruments in the same study. In this way, these instruments can be compared directly using various statistical tests. This will be direct, in that, all the instruments will be completed by the same subjects. Greenbaum's (1986) study is only a first step in the comparison of instruments. The next step is to compare instruments using the same subjects as in this study.

PRESUPPOSITIONS

The presuppositions on which a scientist conducts research are extremely important. The author of each study, whether on climate or another variable, should always state the presuppositions which guide the research. Field and Abelson (1982) state that this is especially important in climate research. So, the following are this author's

presuppositions concerning the four issues that face climate research today. First, climate should be considered to be intersubjective. Poole (1985) argues persuasively that climate is neither objective nor subjective, but intersubjective. The continuous process of structuration of practices maintains climate as intersubjective (Poole, 1985). Secondly, climate should be measured as a descriptive variable. Communication theory tells us that when one communicates, what is communicated is more that just words. One communicates feelings as well. Communication practices have both a descriptive and evaluative nature to them. However, it is believed that one should measure the descriptive aspect, rather than the evaluative and allow it to help delineate climate. A description of a practice (such as, my boss gives me feedback a lot about my job performance) is more restrictive and can be used to generalize across organizations than an individual's affective response to each message. Thirdly, the level of analysis can be on any level that the researcher decides. This research will use the dyad and the organization as levels of analysis in order to compare the two. There is enough evidence to support the idea of different levels in organizations (Farace & MacDonald, 1974). Fourthly, the unit of analysis will be dimensions or factors, rather than typological descriptions. One of the purposes of this research is to see whether the communication climate construct can go through a reduction.

Use of dimensions as the unit of analysis is appropriate and is in keeping with the practices previously described by Poole (1985).

STATEMENT OF HYPOTHESES

Communication climate has been measured using different instruments. Dennis's (1974) five-factor instrument purportedly measures communication climate. Also, Follert (1982a) claims that the communication climate construct can be reduced to a two-factor accessibility construct, which is measured by the Supervisory Accessibility Scale. The items on these two instruments will be correlated to see if they tend to measure a similar phenomenon. If they actually do measure the same phenomenon, then they should correlate highly. This leads to the first null hypothesis:

> NH1 The five-factor instrument and the Supervisory Accessibility Scale (both measuring communication climate) have no relationship or correlate negatively with each other.

Since previous research has reported different levels of climate (for example, Tuttle, 1981), Hypothesis 1 needs to be refined as to the level of climate that is purported to be measured. This leads to two corollary null hypotheses:

> NH1a The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the dyadic level have no relationship or correlate negatively with each other.

NH1b The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the organizational level have no relationship or correlate negatively with each other.

Since previous research has indicated that communication climate is a subset of organizational climate (Dennis, 1974; Albrecht, 1978), the communication climates should correlate moderately with the organizational climates. And since they are measured on different levels, hypotheses for both levels should be proposed. Hence, the following null hypotheses are made:

NH2 The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH2a The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH2b The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

NH3 The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH3a The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH3b The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

Since assessing the two communication climate instruments as predictors is important, they will be correlated with the instrument that measures the output variable job satisfaction. This instrument is the Job Descriptive Index. This leads to one major and four corollary null hypotheses:

NH4 Communication climate and job satisfaction have no relationship or correlate negatively with each other.

NH4a Communication climate as measured by the five-factor instrument on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4b Communication climate as measured by the five-factor instrument on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4c Communication climate as measured by the Supervisory Accessibility Scale on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4d Communication climate as measured by the Supervisory Accessibility Scale on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

CHAPTER II

METHODOLOGY

MEASUREMENT OF VARIABLES

Rationale for Instrument Selection

The four instruments that are used in this study are the five-factor communication climate scale (FFI) (Dennis, 1974), the Supervisory Accessibility Sale (SAS) measuring communication climate (Follert, 1982b), the Profile of Organizational Characteristics (POC) (Likert, 1978) measuring organizational climate, and the Job Descriptive Index (JDI) (Smith, Kendall & Hulin, 1969) measuring job satisfaction. The communication climate scale developed by Dennis (1974) will be used as one measure of communication climate, because it is the original communication climate scale. Another reason that it will be used is that it is generated by factor analysis and represents a global approach to the measure of communication climate. Stating that FFI is generated by factor analysis means that a pool of questions (76 in this case) are reduced by principal axes factor analysis with a varimax rotation to five factors (representing 45 questions in this case). These fewer questions accounted for the most variance and allowed a five factor

solution to be accepted. The other scale that will be used to measure communication climate is Follert's SAS. The reason for the choice of this scale is that it represents a more parsimonious measure of communication climate. Each of the above scales also are chosen because each is capable of measuring on the dyadic level (supervisor-subordinate) and on the organizational level. Organizational climate will be measured by the POC. The reason this scale is chosen to measure organizational climate is that it has satisfactory reliability and has been used in several studies. The Job Descriptive Index will be used to measure job satisfaction. It is chosen because of its high reliability, convergent validity, discriminant validity, and popularity.

Reliability

The reliability of the four instruments will be discussed below. The FFI (Dennis, 1974) will be discussed first, followed by the SAS instrument (Follert, 1982b), then the POC (Likert, 1978), and the JDI (Smith, Kendall & Hulin, 1969). This will be followed by a brief discussion of the background information section of the survey package.

FFI. The FFI was developed for the dissertational study by Dennis (1974). The reliability of the factors were assessed using inter-item correlations. In this method, all items are correlated with each other to produce a correlation matrix. Dennis (1974) reports these for each of the

five factors. All the interitem correlations reported below are significant at the $p \leq .001$, df = 351). Factor I consisted of 21 items and had an interitem range of .33 to .76 with a mean of .55. The item-total correlations ranged from +.64[1] to .82 with a mean of .70. Factor II consisted of 12 items and had an interitem range of .29 to .66 with a mean of .47. The item-total correlations ranged from .69 to .78 with a mean of .73. Factor III consisted of 5 items and had an interitem range of .24 to .56 with a mean of .37. The item-total correlations ranged from .67 to .77 with a mean of .70. Factor IV consisted of 5 items and had an interitem range of .38 to .62 with a mean of .48. The item-total correlations ranges from .73 to .80 with a mean of .76. Factor V consisted of 2 items and had an interitem correlation of .41. The item-total correlations ranged from .83 to +.85 with a mean of .84. The item-total correlations indicate a strong internal consistency of all five factors used in the study (Dennis, 1974).

SAS. The SAS instrument was developed for the dissertational study by Follert (1980a). It has been subsequently refined (Follert, 1982b; Follert, 1984; Scudder, Wilson & Wilson, 1985; Wilson, 1985). The reliability estimates for the Dyadic Accessibility Scale (DAS) were .86 for both the pilot study and dissertational study. The Normative Accessibility Scale (NAS) had estimates of .78 for the pilot and +.75 for the dissertational study. The SAS had an overall

reliability of .88. This last reliability was ascertained by summing the items in the DAS and the NAS for a combined assessment of the instrument as a whole (Follert, 1980a). In another study (Follert, 1983), the DAS had an internal reliability of .89; while the NAS had an internal reliability of .60. These reliability estimates were for shortened forms of both instruments. The DAS only contained 6 items. The NAS only contained 4 items.

In research conducted by others, the reliability estimates remain high. Wilson (1985) reports reliability estimates for the DAS of .87 for the full scale, .88 for a 7-item version, and .859 for a 3-item version. Similarly, reliability estimates for the NAS are .74 for the full scale, .64 for a 4-item version, and .68 for a 3-item version. Scudder, Wilson, and Wilson (1985) report that the reliabilities could be improved. Their work will be reviewed shortly.

The SAS has been criticized for the high correlations between the two dimensions of supervisory accessibility--dyadic and normative (Dallinger & Hample, 1984). Dallinger found correlations between dimensions of r = .69 (Dallinger, 1983) and r = .67 (Dallinger & Hample, 1984). The problem was in the measurement of the normative dimension. It was hypothesized that a subject would have had to generalize, using inductive reasoning, from one's immediate supervisor to all supervisors in the organization (Dallinger & Hample,

1984). In other words, the immediate supervisor would have been the basis for generalizing about other supervisors. Hence, normative accessibility taps both dyadic and normative dimensions. This criticism may be valid.

However, those who claim that climate belongs to the organization at the organizational level ignore this possibility. In fact, the concept of measuring climate at the organizational level bases itself on the unsupported presupposition that individuals have organizational-wide knowledge of how others act in the organization as a whole. In large organizations, this is truly impossible. However, Dallinger and Hample (1984) would suggest that subjects have so little knowledge of their work environments that they would have to use their own supervisor as a basis. In some cases and under certain circumstances, this would apply. This may be, however, a constant error built into instruments, where subjects are asked to generalize about topics of which they have limited knowledge. Based upon this criticism, Scudder, Wilson, and Wilson (1985) reevaluated the SAS.

Scudder, Wilson, and Wilson (1985) evaluated various versions of the SAS. One problem that was reported was that valence of the question was a confounding variable. So, a four-factor version was hypothesized. It contained dyadic positive, dyadic negative, normative positive, and normative negative. In study one, dyadic positive had an internal consistency of .854, which jumped to .88 when item 8 was

deleted. Dyadic negative had a correlation of .822, which jumped to .896 when item 9 was deleted. The subscales had a coefficient of determination of .984 and a goodness of fit index of .97. "This is an excellent fit" (Scudder, Wilson & Wilson, 1985: 23). Similar analyses were performed for the normative scales. The coefficient of determination was +.954, and the goodness of fit index was .997.

In comparison to the 17-item version, the 15-item version was "slightly superior" on all indices. Scudder, Wilson, and Wilson (1984: 29) concluded that "the 15-item four-factor model . . . was shown to be a reasonable model through confirmatory factor analysis procedures. The model demonstrated some predictive utility . . .". The 15-item, also, was felt to be superior on grounds of parsimony.

Because of the above findings, a 15-item version of the SAS will be used for this study. Items 8 and 9 will be deleted from the analysis. The dyadic positive has three items. The dyadic negative has four items. The normative positive has six items. The normative negative has two items.

POC. The POC was developed by Likert (1967) based on prior research (Likert, 1961). Later, the POC was refined and reduced to its present form (Likert, 1978). Reliability for the POC has been estimated using Likert's (1967) original interitem correlations. Using the Spearman-Brown

formula, the results have given split-half reliabilities in the range of .90 to .96.

The POC has been consistently related to both external and internal criterion variables. Likert (1967) reported a coorelation between the POC scores and performance of r = +.61. Also, in another study, Likert (1967) reported a correlation between POC scores and sales of r = .93, which accounted for 86% of the variance. However, Davis (1976) reported a nonsignificant positive correlation between the POC and performance of r = .40. Yet, some subscales proved to be correlated significantly with performance. Performance was related significantly to the POC subscales of decision making at r = .80 and of communication at r = .70.

The correlations between the POC and internal criterion variables have shown similar results. Ketchel (1976) reported correlations between the POC mean score and member rating of effectiveness at r = .83 and member scaled expectancy rating at r = .74. The POC has been correlated with organizational commitment and job involvement resulting in multiple R = .53 and .35, respectively. The subscale communication correlated the highest with organizational commitment at r = .50; while the subscale decision making correlated the highest with job involvement at r = .32 (Nogradi, 1977).

JDI. The JDI was developed by Smith and her associates. The JDI has undergone extensive development. Vroom

praised Smith and her associates by stating that they:

> have recently completed an impressive program of research on the measurement of job satisfaction. The product of this research, an instrument called the Job Descriptive Index, is without a doubt the most carefully constructed measure of satisfaction in existence today. . . . The extensive methodological work underlying this measure as well as the available norms should insure its widespread use in both research and practice (1964: 100).

The reliability of the JDI has been high. The reliability in Study A for the JDI Direct scales resulted in an average corrected estimate of .79 (Smith, Kendall & Hulin, 1969). In Study B, the average corrected reliability was .85 using the Spearman-Brown Formula. The internal consistencies of Work, Pay, Promotions, Supervison, and Co-workers were .84, +.80, .86, .87, and .88, respectively (Smith, Kendall & Hulin, 1969). The JDI has received support for its discriminant and convergent validity from the numerous studies (Blood, 1969; Evans, 1969; Gillet & Schwab, 1975; Hulin, 1968; Hulin, 1969; Hulin, 1976; Hulin & Waters, 1971; Lafollette & Sims, 1975; Schneider & Snyder, 1975; Smith, Kendall & Hulin, 1969; Smith, 1974; Smith, Smith & Rollo, 1974; Soliman, 1970; Waters & Waters, 1969; Welsch & Lavan, 1981). The JDI has been shown to be highly reliable, has good convergent and discriminant validity, and has been used in numerous research.

Background Information. The demographic section of the survey was taken from the background information section of

the ICA Communication Audit (Goldhaber & Rogers, 1979). Some changes have been made to the instrument. Questions 7 and 8 were added to help place respondents in appropriate categories. Question 12 was updated to reflect present salary ranges. A paragraph thanking the respondents, asking them to check for blank responses, and reassuring anonymity was added.

SURVEY ADMINISTRATION

Rationale for Population Selection

Subjects were selected from one organization. An initial pool of organizations in the mid-west were contacted by letter.[2] A total of sixteen organizations were contacted; of these, three indicated that they would be willing to take part in the research. The contacted organizations were characteristically diverse. Some were nationally known, both private and publicly owned; while others were small organizations of less than twenty employees. It was felt that this diversity of characteristics made a good pool of businesses to contact. In the first wave of responses, four organizations responded that they would be willing to participate in the survey. A second letter was sent as a follow up. No other organizations were willing to participate, except for one that indicated that they might be willing in a year from now. The four organizations that were willing to participate included an educational

institution, a financial organization, an insurance organization, and a retail organization. The financial organization was chosen, because it had a large number of employees. Over a period of approximately six months, the researcher negotiated with this organization. At the end of this time, the organization declined to participate; because the survey administration would be too disruptive to everyday activity and because a similar survey had been conducted recently. The retail organization was selected for this research, because it had the next greatest number of employees. Also, the organization was a national company. And concern for reliability and generalizability dictated a large sample size. The retail organization best fit these needs.

Survey Administration Procedures

The survey was administered in late February, 1987. The survey was distributed through interoffice mail to nearly 3,181 employees nation wide. The survey packet contained a cover letter (See Appendix A), the survey questionnaire (See Appendix B), and a self-addressed and prepaid return envelope. The letter to employees of the company indicated their chance to participate in the survey, mentioned the support the survey had from one of the highest executives in the company, directed them to a liason person, explained the procedures for taking the survey, guaranteed them anonymity, and urged them to participate. The letter gave March 6 as the deadline for responding. This was approximately two

weeks from the time employees received the survey packet. The bulk of survey packets returned during the first three weeks of March, although a few trickled in through April. The response rate was that 860 employees out of a possible 3,181 number of employees returned usable surveys. This was a response rate of approximately 27.1%. Eight other surveys were returned; four were incomplete and thus judged unusable, four were blank. A survey was judged unusable, if not one hypothesis could be tested using the data from it. For the purpose of this study, the first 510 surveys received were used for this study.

Population and sample characteristics

The population of the organization was approximately 3,376. Because of a situation with a union, 195 survey packets were not sent. As a result, the sample frame size was 3,181. The total sample size was 510.

The demographic and other occupational characteristics of the sample will be discussed below. (Please see Appendix C for a complete breakdown of the demographics and occupational characteristics of the sample.) In the sample, 59.2% are hourly workers, and 38.4% are salaried workers. Females make up 62.2% of the sample, while males make up 36.1%. Fulltime employees make up 75.7% of the sample, while permanent parttime employees make up 21.9%. The greatest number of employees (38.4%) have been with the organization

from one to five years, while the second greatest number of employees (37.8%) have been with the organization less than one year. Most employees (46.3%) have been at their present position less than one year, while the next group of employees (42.0%) have been at their present position from one to five years. Most employees do not supervise anyone (50.0%) or are first-line supervisors (25.3%). Most employees had graduated from high school (32.0%). Those with some college or technical school (26.7%) or completed college or technical school (25.5%) are about even. Most employees had an age range of 21 to 30 years (46.5%) or 20 and under years (18.6%). Over 44% of the employees say they have had no communication training, while the next largest group (25.3%) say that they have had some training. Most employees (51.8%) make less than $11,999 last year, with an additional 18.6% making less than $17,999. Most employees are about evenly distributed among being employed previously by two other organizations (22.7%), no other organizations (22.0%), or one other organization (21.6%). The majority of employees (65.1%) are not looking for another job, yet 27.3% of employees are looking for jobs.

STATISTICAL PROCEDURES

Data

The type of data gathered was of two types. Interval data was gathered from the scales. Interval and nominal

data was gathered from the background information.

Statistics

The statistics that will be used in this study will be generated using the statistical package SPSSx, which is a registered trademark of SPSS Inc. The NOS version of this statistical package will be used. Reliability of scales will be assessed using Cronbach's (1951) alpha coefficient. These interitem correlations should exceed .25 to be considered acceptable (Nunnally, 1967). The minimal level of acceptability for the alpha coefficient for the whole scale is .70 (Nunnally, 1967). Since the data from the scales is assumed to be interval, correlations will be used on the different climate scales. Since this study is concerned with hypothesis testing, direct solutions will be sought for testing some null hypotheses. Since the FFI and the SAS claim to measure the same thing, the subsections of these instruments will be treated as factors and correlated to the simple sum of each level, respectively. This is in accordance with Nunnally's (1967) discussion of direct solutions of factor analysis. In other words, the FFIO (organizational level of the FFI) and the NAS (organizational level of the SAS) will be separate factors. Each will be correlated to the simple sum of both. High factor scores would mean that they measure much the same thing. Similarly, the FFIS (supervisor level of the FFI) and the DAS (supervisor level of the SAS) will be separate factors.

Each will be correlated to the simple sum of both. This is how Null Hypotheses NH1, NH1a, and NH1b will be tested.

The other null hypotheses will be tested using correlations. The Null Hypotheses NH2, NH2a, and NH2b, will be tested by correlating the different levels of the FFI to the different levels of the POC. Specifically, the FFIO will be correlated with the POCO (organizational level of the POC). The FFIS will be correlated with the POCS (supervisor level of the POC). Similarly, the Null Hypotheses NH3, NH3a, and NH3b will be tested by correlating the different levels of the SAS to the different levels of the POC. The NAS will be correlated to the POCO. The DAS will be correlated to the POCS.

Somewhat similarly, the Null Hypotheses NH4, NH4a, NH4b, NH4c, and NH4d will be tested by correlating the different levels of the FFI and the SAS to the JDI. Specifically, the FFIO, the FFIS, the NAS, and the DAS will be correlated to the JDI.

Since the survey package contains several instruments, an ordering effect might be present. A oneway analysis of variance will be used to check for this possible effect. If an effect is found, then all the correlations mentioned above will be partial correlations controlling for the order effect.

FOOTNOTES

[1] The word processing computer software program Wordstar, (a registered trademark), was used to write this dissertation. When a period appears in the first column of a line, the program assumes that it is a dot command and will not print that line. So when a correlation coefficient begins a line with a period, that line is not printed. To print these lines the symbol "+"is added to the correlation coefficient. This addition of the "+" in no way distorts the meaning of the correlation coefficient; however, it does produce an inconsistency in format. Please excuse this inconsistency. The symbol "+" will be added only to correlation coefficients that begin a line. All other positive correlation coefficients will not have the symbol "+".

[2] Contact letters and subsequent follow-up letters cannot be revealed because they might jeopardize the anonymity of the participating organization. One of the conditions of participating in the survey is almost complete anonymity. The organization has agreed to be identified only as "a retail organization headquartered in the midwest."

CHAPTER III

RESULTS

This chapter will be divided into four major parts. First, the reliabilities of the instruments will be discussed. Secondly, there will be a section discussing the ordering effect of the survey instruments. Thirdly, the next section will discuss the interrelationship of climate. This section will discuss the results related to the first three major null hypotheses. Fourthly, the last section will discuss climate as a predictor and gives the results related to the fourth null hypothesis. In each of the last two sections, the "sub"-hypotheses will be discussed, in turn, prior to discussing the major null hypotheses.

RELIABILITIES OF THE MEASURING INSTRUMENTS

FFI

The reliabilities of the FFI instrument are quite high. The organizational section of the FFI instrument (FFIO) has an alpha coefficient of .9462, while the supervisor section of the FFI instrument (FFIS) has an alpha coefficient of +.9715. The FFI instrument as a whole has an alpha coefficient of .9681. These are higher reliability coefficients

than those reported by Dennis (1974). He reports item-total correlations between .83 and .85 with a mean of .84 (Dennis, 1974).

SAS

The reliabilities for the SAS instrument are high but not as high as the FFI reliabilities. NAS, the organizational section of the SAS instrument, has a coefficient alpha of .7691, while the seven-item version of DAS has a coefficient alpha of .8561. (Please remember that because of previous research, items 8 and 9 are not used in this study.) The SAS instrument as a whole has a coefficient alpha of .868. These are similar to the results reported by Follert (1980a, 1982b, 1984).

POC

The reliabilities for the POC are high. They are higher than SAS but lower than FFI. The organizational section of the POC instrument (POCO) has a coefficient alpha of +.9362, while the supervisor section of the POC instrument (POCS) has a coefficient alpha of .9355. The POC as a whole has a coefficient alpha of .9525. This is consistent with findings of Likert (1967).

JDI

The reliability of the JDI is high. The coefficient alpha for the JDI is .9326. This is higher than the reliability estimates reported by Smith, Kendall, and Hulin

(1969). They reported reliabilities of .79 and .85 for different studies using the Spearman-Brown Formula.

INSTRUMENT ORDERING EFFECT

Since there were several instruments in the survey packet, the four surveys used in this study were ordered into 24 variations. Thus, there were 24 versions of the survey packet. This was done in order to check for an ordering effect of the instruments. Some evidence for such an effect was found. See Table 1. A Oneway Analysis of Variance was performed for the 24 versions using the grand mean of the four survey instruments. The F-ratio is 1.6081, $p = .0374$.

TABLE 1.
Analysis of Variance of the Ordering Effect of the Instruments

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Probability
Between Groups	23	8.0801	.3513	1.6081	.0374
Within Groups	486	106.1725	.2185		
Total	509	114.2525			

To make sure that the difference was not due to the large number of groups, a Tukey Honestly Significant Difference was performed. The results indicated that no two groups were significantly different at $p \leq .05$. This post hoc test argues against there being an ordering effect.

Mostly likely the F-ratio of 1.6081, p = .0374 is an artifact of random statistical chance due tc the large number of groups. In a size of 24 groups, chance dictates that one would be significant, and only one was. The Tukey HSD indicates the likelihood of no order effect.

INTERRELATIONSHIP OF CLIMATE

Communication Climate--Null Hypothesis NH1

NH1 The five-factor instrument and the Supervisory Accessibility Scale have no relationship or correlate negatively with each other.

NH1a The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the dyadic level have no relationship or correlate negatively with each other.

NH1b The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the organizational level have no relationship or correlate negatively with each other.

Both Dennis (1974) and Follert (1982a) claim that their instruments measure the construct of communication climate. In order to test this, one seeks a direct solution in factor analysis. The direct solution is to treat each instrument as a factor, to correlate it to the simple sum of the two, and not to seek a rotation because it is not necessary (Nunnally, 1967). This results in factor loadings for each instrument. This is the method that will be used to test Null Hypotheses NH1, NH1a, and NH1b.

The first direct solution for the dyadic level results in two high factor loadings. One loading is for FFIS, and the other is for DAS. The factor loading of FFIS on the total of the two is .9844. The factor loading of DAS on the total of the two is .8156. Both have $p < .001$.

The above results indicate that FFIS and DAS tend to measure something in common. What they do measure is a question of validity. Based on prior research, one can argue that they both measure communication climate on the dyadic level.

The other direct solution for the organizational level results in two high factor loadings. One loading is for FFIO, and the other is for NAS. The factor loading of FFIO on the total of the two is .9709. The factor loading of NAS on the total of the two is .6765. Both have $p < .001$.

The above results indicates that FFIO and NAS tend to measure something in common. Again, what that something is a question of validity. Based on prior research, one can argue that they both measure communication climate on the organizational level.

Thus based on the above results, one can reject the null hypotheses that follow:

NH1a The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the dyadic level have no relationship or correlate negatively with each other.

NH1b The five-factor instrument and the Supervisory Accessibility Scale measuring

communication climate on the organizational level have no relationship or correlate negatively with each other.

One can accept hypotheses that these two instruments measure communication climate on both the supervisor (dyadic) level and on the organizational level.

Given that the two above null hypotheses were not accepted, one can reject the major hypothesis:

NH1 The five-factor instrument and the Supervisory Accessibility Scale have no relationship or correlate negatively with each other.

In so doing, one can accept the hypothesis that these two instruments measure something in common. Based on prior research, one can argue that these two instruments measure communication climate.

Communication and Organizational Climate--
Null Hypotheses NH2 and NH3

NH2 The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH2a The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH2b The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

NH3 The Supervisory Accessibility Scale measuring communication climate and the Profile of

Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH3a The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH3b The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

Since previous research indicates that communication climate is a subset of organizational climate (Dennis, 1974; Albrecht, 1978), the communication climates should correlate moderately with the organizational climates. In order to test these hypotheses, correlations are performed.

The results produce four correlations. The first pair relate to NH2a and NH2b and indirectly to NH2. The second pair relate to NH3a and NH3b and indirectly to NH3.

The results of the first pair produce high correlations on the dyadic level. The correlation between DAS and POCS is .6583, $p < .001$. The correlation between FFIS and POCS is .7917, $p < .001$.

The above results indicate that what FFIS and DAS measure shares substantial common variance with organizational climate on the dyadic level. One can argue that what is measured is the dyadic level of communication climate. This conclusion is based on prior research and the above

results. This is, also, partial evidence that the communication climate construct measured on the dyadic level behaves as expected in the nomological environment. This is necessary but not sufficient evidence for construct validity for the dyadic level of communication climate construct.

Likewise, the results of the second pair produce moderate to high correlations on the organizational level. The correlation between NAS and POCO is .5272, $p < .001$, while the correlation between FFIO and POCO is slightly higher at .6890, $p < .001$.

The above results indicate that what FFIO and NAS measure shares substantial common variance with organizational climate on the organizational level. One can argue that what is measured is the organizational level of communication climate. This argument is based on prior research and the above results. This is, also, partial evidence that the communication climate construct measured on the organizational level behaves as expected in the nomological environment. This is necessary but nct sufficient evidence for construct validity for the organizational level of communication climate construct.

Given the above results, one can reject the following hypotheses:

NH2a The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH2b The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

NH3a The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH3b The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

One can accept the hypotheses that communication climate measured on both the dyadic and organizational levels by both the SAS and FFI instruments is a subset of organizational climate measured on both the dyadic and organizational levels, respectively, as measured by the POC.

Given that the four above null hypotheses were not accepted, one can reject the following major hypotheses:

NH2 The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH3 The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

COMMUNICATION CLIMATE AS A PREDICTOR

Communication Climate and Job Satisfaction-- Null Hypothesis NH4

NH4 Communication climate and job satisfaction have no relationship or correlate negatively with each other.

NH4a Communication climate as measured by the five-factor instrument on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4b Communication climate as measured by the five-factor instrument on the organizational level and job satisfaction as measured by the Job Deacriptive Index have no relationship or correlate negatively with each other.

NH4c Communication climate as measured by the Supervisory Accessibility Scale on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4d Communication climate as measured by the Supervisory Accessibility Scale on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

Relations among constructs need to be established. The final determination (if it can be achieved) for construct validity is that the "measures of the constructs" should "behave as expected" (Nunnally, 1967: 93). The measures of constructs should correlate as expected with other measures. The measure of the construct is placed into a nomological environment. It should fit by behaving as hypotheses state it should. Thus, communication climate as measured by the different instruments will be placed in this nomological

environment to see if it predicts ("predicts" used here is synonymous with estimates and denotes no sense of causation) job satisfaction as measured by the JDI as the hypotheses state it should.

The results produce four correlations related to NH4a, NH4b, NH4c, and NH4d. All of the correlations are moderate to high. The correlation between FFIS and JDI is .5678. The correlation between FFIO and JDI is .6784. The correlation between DAS and JDI is .4492. The correlation between NAS and JDI is .4504. All of the above correlations are at $p < .001$.

The results above indicate that what the subscales of the FFI and SAS measure correlates moderate to high with job satisfaction. One can argue that what is measured is communication climate on the respective levels. Based on the above results and prior research, one can conclude that the respective levels of communication climate, dyadic and organizational, behave as expected in the nomological environment. This, by itself, is partial but not sufficient evidence of construct validity for the levels of dyadic and organizational communication climate.

Given the above results, one can reject the following null hypotheses:

> NH4a Communication climate as measured by the five-factor instrument on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4b Communication climate as measured by the five-factor instrument on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4c Communication climate as measured by the Supervisory Accessibility Scale on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4d Communication climate as measured by the Supervisory Accessibility Scale on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

One can accept the hypotheses that the different levels of communication climate as measured by the different instruments do predict job satisfaction as measured by the JDI.

Given that the four above null hypotheses are not accepted, one can reject the following major hypothesis:

NH4 Communication climate and job satisfaction have no relationship or correlate negatively with each other.

One can conclude that communication climate correlates with job satisfaction. One can also conclude that communication climate as measured by the two different instruments fit into the nomological environment by behaving as expected.

One of the purposes of this study is to compare the FFI and SAS to see if the communication climate construct can be reduced to the two components of the SAS, dyadic accessibility and normative accessibility. This can be done if (1) the subscales of SAS have comparable reliability as the

subscales of FFI; (2) if the subscales of SAS have similar factor loadings as the subscales of FFI on the sum total of communication climate; (3) if the subscales of SAS correlate to the subscales of the POC as well as the subscales of FFI do; and (4) if the subscales of SAS correlate to the JDI as well as the subscales of FFIO do. In each of these cases, the SAS instrument does not do as well as the FFI instrument. (1) The reliability of FFI is in the mid to high 90's, while SAS is in the mid 70's and 80's. (2) The factor loadings of FFI on the sum of communication climate is in the high 90's, while SAS's factor loadings are in the high 60's and low 80's. (3) The correlation coefficients of FFI with the POC are at least .14 higher than their respective counterparts of SAS. (4) The correlation coefficients of FFI with the JDI are .11 and .22 higher respectively than their counterparts of SAS. As a whole, the FFI is superior to the SAS in measuring communication climate.

However, when time is a premium, cost is a factor, and accuracy is not crucial, an organization may want to use the SAS instrument. This conclusion is based on the parsimony of the instrument. FFI has 45 questions, whereas SAS 17 questions. Although FFI is superior to SAS in every category above, the statistics on the SAS instrument are still respectable. Besides, it can be administered in just over one-third of the time of the FFI. Under the conditions listed above, SAS can be quite useful.

CHAPTER IV

DISCUSSION OF RESULTS

This chapter is divided into the following four major sections: summary, study limitations, conclusions, and recommendations for future research. The summary consists of a brief look at the background of the study, the results, the interrelationship of climate, and communication climate as a predictor. In the interrelationship of climate, the relationship of the two communication climate instruments to each other will be discussed. Also, the relationship of the two communication climate instruments to the organizational climate instrument will be discussed. In the climate as predictor section, the relationship of the two communication climate instruments to the job satisfaction instrument will be discussed. The study limitations consist of a discussion on generalizability of the results, the problems with self-reports, the demand characteristics of completing the survey packet, and the possible response bias of some instruments. The conclusions will follow next. Finally, this chapter will finish with recommendations for future research.

SUMMARY

Background

This study began with the statement of the usefulness of the climate construct. The importance of climate came from three different areas. First, it came from previously established relationships with other variables. Secondly, it came from the predictive nature of the construct. Thirdly, it came from the potential use for change agents in organizational development.

However, it quickly became apparent that the construct had problems. The climate construct was too ambiguous and too global in nature. The climate construct for the most part had only been applied in grand scale theory. And since the latter was the case, there was a need for mid-range theory.

This study was concerned with the substantive area of communication climate and organizational climate and the area of methodology related to the application of scales used to measure these important variables. Previous research in this area failed for the most part to keep theory and methodology consistent when theorizing and measuring the climate construct.

From the literature four major null hypotheses were proposed. With each null hypothesis, two corollary null hypotheses were proposed for the organizational and dyadic levels of climate. Null Hypothesis NH4 had four

corollary null hypotheses; two for each instrument.

Results

All four major null hypotheses and corollary null hypotheses were rejected at the $p < .001$ level. The alternative hypotheses were accepted.

Interrelationship of Climate

FFI and SAS. The reliabilities of the FFI as a whole and of the subscales of FFI were higher than their corresponding counterparts of the SAS. The FFIO had a reliability of .94, while NAS had .77. The FFIS had a reliability of +.97, while DAS had .86. The FFI as a whole had a reliability of .97, while SAS had .87. Despite the fact that all the reliabilities were within acceptable limits, the FFI, FFIO, and the FFIS were far more reliable than SAS, NAS, and DAS, respectively. One of the criteria for reducing the communication climate construct to the two components of the SAS instrument was for SAS to be comparably reliable as FFI.

The following Null Hypotheses NH1, NH1a, and NH1b were rejected:

NH1 The five-factor instrument and the Supervisory Accessibility Scale (both measuring communication climate) have no relationship or correlate negatively with each other.

NH1a The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the dyadic level have no relationship or correlate negatively with each other.

NH1b The five-factor instrument and the Supervisory Accessibility Scale measuring communication climate on the organizational level have no relationship or correlate negatively with each other.

The internal structures of FFIS and DAS correlated with the internal structure of the simple sum of the two at .98 and +.82, respectively. NH1a was rejected because the loadings of the two factors on the simple sum were so high. The internal structures of FFIO and NAS correlated with the internal structure of the simple sum of the two at .97 and +.67, respectively. NH1b was rejected because the loadings of the two factors were so high. NH1 was rejected because both NH1a and NH1b were rejected. All the above correlations were at $p < .001$.

The interrelationship of the instruments seemed to suggest that both instruments tended to measure something in common. The interrelationship of the instruments on the dyadic level seemed to suggest that indeed both the DAS and FFIS instruments tended to measure something in common. The interrelationship of the instruments on the organizational level seemed to suggest that indeed both the NAS and FFIO instruments tended to measure something in common. These findings were consistent with both instruments tending to measure communication climate.

One now has to assess how each of the two subscales of FFI and SAS do in fitting into the nomological environment. Each one has to be judged on how well they correlate with

organizational communication and how well they predict job satisfaction.

FFI and POC. The reliabilities of the POC, POCO, and POCS were quite high. The POCO had a reliability of .94. The POCS had a reliability of .94. The POC had a reliability of .95. This indicated the flexibility of the POC instrument. Remember that the POCS was a modifed form of the original POC. The POC originally asked what you would like the climate to be. This was changed to ask about your immediate supervisor.

The following Null Hypotheses NH2, NH2a, and NH2b were rejected:

NH2 The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH2a The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH2b The five-factor instrument measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

The internal structures of FFIS and POCS correlated at .79, $p < .001$. NH2a was rejected because communication climate and organizational climate on the dyadic level shared

substantial common variance. This meant that FFIS accounted for approximately 62% of the explained variance of organizational climate on the dyadic level. This was consistent with FFIS's fit into the nomological environment. FFIS was behaving as expected. The internal structures of FFIO and POCO correlated at .69, $p < .001$. NH2b was rejected because communication climate and organizational climate on the organizational level shared substantial common variance. This meant that FFIO accounted for approximately 47% of the explained variance of organizational climate. Again, this was what was expected. Communication climate as measured by FFI on both levels shared substantial variance with organizational climate on the respective levels. NH2 was rejected because both NH2a and NH2b were rejected. These findings were consistent evidence for the construct validity of communication climate on both dyadic and organizational levels.

SAS and POC. The following Null Hypotheses NH3, NH3a, and NH3b were rejected:

NH3 The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate have no relationship or correlate negatively with each other.

NH3a The Supervisory Accessibility Scale measuring communication climate and the Profile of Organizational Characteristics measuring organizational climate on the dyadic level have no relationship or correlate negatively with each other.

NH3b The Supervisory Accessibility Scale measuring communication climate and the Profile of

> Organizational Characteristics measuring organizational climate on the organizational level have no relationship or correlate negatively with each other.

The internal structures of DAS and POCS correlated at .66, $p < .001$. NH3a was rejected because communication climate and organizational climate on the dyadic level shared substantial common variance. This meant that DAS accounted for approximately 43% of the explained variance of organizational climate on the dyadic level. This was consistent with what was expected. The internal structures of NAS and POCO correlated at .53, $p < .001$. NH3b was rejected because communication climate and organizational climate on the organizational level shared substantial common variance. This meant that NAS accounted for approximately 28% of the explained variance of organizational climate on the organizational level. This was consistent with what was expected. Communication climate as measured by SAS on both levels shared substantial variance with organizational climate on the respective levels. NH3 was rejected because both NH3a and NH3b were rejected. These findings were consistent evidence for the construct validity of communication climate on both dyadic and organizational levels.

Summary of interrelationships of climate. Climate as measured by the respective instruments were interrelated. This supported previous research (Dennis, 1974). Both instruments tended to measure something in common. There was

strong evidence that this something in common was communication climate. Both dyadic and organizational levels of the FFI and SAS instruments correlated highly with the sum total of communication climate. Both dyadic and organizational levels of the FFI and SAS instruments correlated highly with organizational climate. These findings were consistent with the way that communication climate should have behaved. It should have produced high correlations among instruments that measure it. Communication climate also should have correlated well with organizational climate. The communication climate construct fits into this aspect of the nomological environment. The last piece of evidence is how communication climate correlates with job satisfaction, which will be discussed next.

Communication Climate as a Predictor of Job Satisfaction

FFI and JDI. The reliability of the JDI was .93. This was higher than the reliabilities reported by Smith, Kendall and Hulin (1969) of .79 and .85. The reliabilities of the subscales of Work, Supervision, Pay, Promotion, and Co-workers were .83, .86, .81, .90, and .89, respectively. These were similar to the reliabilities reported by Smith, Kendall, and Hulin (1969).

The following Null Hypotheses NH4a and NH4b were rejected:

NH4a Communication climate as measured by the five-factor instrument on the dyadic level and job satisfaction as measured by the Job

Descriptive Index have no relationship or correlate negatively with each other.

NH4b Communication climate as measured by the five-factor instrument on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

The internal structures of FFIS and FFIO correlated with the internal structure of the JDI at .57 and .68, respectively. Both of the above correlations were at $p < .001$. Thus, communication climate on both levels was related to job satisfaction. For this reason, NH4a and NH4b were rejected. This was consistent for the construct validity of communication climate on both the dyadic and organizational levels. These findings and the previous findings indicated that communication climate on either the dyadic or organizational levels fit the nomological environment by behaving as was expected. Communication climate on the dyadic and organizational levels should have correlated with job satisfaction, and it did.

SAS and JDI. The following Null Hypotheses NH4c and NH4d were rejected:

NH4c Communication climate as measured by the Supervisory Accessibility Scale on the dyadic level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

NH4d Communication climate as measured by the Supervisory Accessibility Scale on the organizational level and job satisfaction as measured by the Job Descriptive Index have no relationship or correlate negatively with each other.

The internal structures of DAS and NAS correlated with the internal structure of the JDI at .45 and .45, respectively. Both of the correlations were at $p < .001$. Thus, communication climate on both levels was related to job satisfaction. For this reason, NH4c and NH4d were rejected. This was consistent for the construct validity of communication climate on both the dyadic and organizational levels. These findings and the previous findings indicated that communication climate on either the dyadic or organizational levels fit the nomological environment by behaving as was expected. Communication climate on the dyadic and organizational levels should have correlated with job satisfaction, and it did.

The corollary Null Hypotheses NH4a, NH4b, NH4c, and NH4d were rejected. Thus, the following major Null Hypothesis NH4 was rejected:

> NH4 Communication climate and job satisfaction have no relationship or correlate negatively with each other.

Summary of communication climate as a predictor of job satisfaction. The above results indicated that communication climate did correlate with job satisfaction. Communication climate on either the dyadic or the organizational level correlated with job satisfaction. Communication climate on either the dyadic or the organizational level measured by either of the respective subscales of the FFI and

SAS instruments correlated with job satisfaction. This indicated that communication climate on either the dyadic or organizational level measured by either of the respective subscales of the FFI and SAS instruments has predictive validity. This was consistent with how communication climate should have fit and behaved in the nomological environment. This was evidence for the construct validity of the communication climate construct.

General Summary

This study had seven general purposes mentioned previously. All but the last one was achieved. This study (1) took into account different levels of climate, (2) identified the researcher presuppositions, (3) tested the use of three existing climate instruments, (4) compared two communication climate instruments using the same sample, (5) compared the two communication climate instruments as predictors of job satisfaction, and (6) judged which of the two communication climate instruments was better. The one purpose that was not achieved was (7) reducing the communication climate construct to the dimensions of supervisor accessibility. Number six and seven will be discussed in more detail below.

This study was concerned with the substantive area of communication climate and with the area of methodology related to the application of scales used to measure this important variable. Thus, this study was concerned with the

construct validity of the communication climate construct. Nunnally (1967) provided a sequence of steps to develop and validate measures of constructs. The three steps to this process were:

> (1) specifying the domain of observables, (2) determining to what extent all, or some, of those observables correlate with each other . . . , and (3) determining whether or not one, some, or all measures of such variables act as though they measure the construct (Nunnally, 1967: 87).

The first criterion was that the domain of the observables have been specified. The domain of observables was represented as the items that made up both the FFI and SAS. The items of FFIS and DAS made up the domain of observables of the dyadic level of communication climate. The items of FFIO and NAS made up the domain of observables of the organizational level of communication climate.

The second criterion was the extent that all, or some, of those observables correlated with each other. The correlations of DAS and FFIS with their sum total of communication climate the dyadic level and NAS and FFIO with their sum total of the communication climate on the organizational level represented this criterion. These correlations were high, as they should have been.

The last criterion was determining whether "the measures of such variables act as though they measure the construct" (Nunnally, 1967: 87). Support was found for this in two areas. The first area was the interrelationship of

climate. Dennis (1974) stated that communication climate and organizational climate shared substantial variance. So for the dyadic and organizational levels of both FFI and SAS to act as though they measured the communication climate construct, they should have correlated with organizational climate measured on those two levels. As the results indicated, they did this.

The second area was communication climate as a predictor. (The term predictor is synonymous with the term estimator and denotes no sense of causation.) Construct validity has dealt with relationships that common sense tells us exist between a measure of a construct and another variable or construct. Prior research and common sense has told us that communication climate should have been able to predict (estimate) job satisfaction. Nunnally cautioned:

> studies of construct validity are safe when, and should be undertaken only when, (1) the domain of the "other" construct is well defined and (2) the assumption of a relationship between the two constructs is unarguable (1967: 94).

In this case, job satisfaction was well defined. Vroom (1964) praised Smith and her associates for the thoroughness of the methodological work in constructing the JDI. Vroom (1964: 100) went on to state that the JDI "is without a doubt the most carefully constructed measure of satisfaction in existence today." The relationship between communication climate and job satisfaction has been well studied, documented, and agreed upon. Numerous studies have supported

this relationship (Alesse, 1982; Applbaum & Anatol, 1979; Clampitt & Girard, 1986; Compton, 1986; Dennis 1974; Downs, 1977 & 1979; Falcione, 1972 & 1974; Goldhaber, Porter & Lesniak, 1978; Hall, 1981; Pincus, 1986; Roberts & O'Reilly, 1974; Schmidt, Anderson & Clarke, 1983; Schuler, 1979; Trombetta, 1981, Wheeless, Wheeless & Howard, 1982). It has been made clear that the domain of job satisfaction was well defined and that the relationship between communication climate and job satisfaction has been established. So, this study has met the criteria for a safe study of construct validity established by Nunnally (1974).

Thus, this criterion of the measures acting as though they measure the construct was verified by correlating the subscales of the SAS and FFI to the JDI. As the results indicated, the DAS, NAS, FFIS, and FFIO correlated with the JDI at .45, .45, .57, and .68, respectively. Communication climate has been shown to correlate with job satisfaction.

Thus, the third criterion of the measures acting as though they measured the construct was met by the correlations of communication climate to organizational climate and to job satisfaction. The measures of communication climate did act as if they measured the communication climate construct.

Having met the three criteria above, the measures of DAS, NAS, FFIS, and FFIO were validated for measuring communication climate. DAS and FFIS were validated for

measuring communication climate on the dyadic level. NAS and FFIO were validated for measuring communication climate on the organizational level.

Remember that although one talks about construct validity of a construct (like communication climate), what is validated is not the construct but the measure of that construct. Finding internal structures and determining cross structures is the ultimate goal of construct validity (Nunnally, 1967). This is what has been accomplished in this study. Although the evidence and argument is strong to support the conclusions, "it is not possible to <u>prove</u> that any collection of observables measures a construct" (Nunnally, 1967: 97).

One of the purposes of this study was to compare the FFI and SAS instruments to assess which performed better. The comparisons were between the subscales of these two instruments. The subscales were compared on reliability, and with correlations concerning the sum total of communication climate, organizational climate, and job sastisfaction.

The subscales of the FFI instrument were far superior to those of the SAS. FFIO and FFIS had reliabilities in the mid to high 90's, while DAS and NAS had reliabilities in the mid 80's and 70's, respectively. FFIS had the highest average correlation of .78 with the sum total of communication climate, organizational climate, and job satisfaction. FFIO had the same average correlation of .78 with sum total of

communication climate, organizational climate, and job satisfaction. DAS had the next highest average correlation of +.64 with sum total of communication climate, organizational climate, and job satisfaction. NAS had the lowest average correlation of .55 with sum total of communication climate, organizational climate, and job satisfaction. The FFI instrument as a whole was far superior to the SAS.

Obviously, in future research, the FFI instrument would be better to use than the SAS instrument. The future use of SAS as a measure of communication climate should be limited. Whenever there is a choice between using the two, and time, cost, and accuracy are not premium influences; then the researcher, change agent, or organization should choose the FFI instrument. However, there are two cases when SAS could be used justifiably. Each case reflects the influence of the above premium influences.

When time, cost, and accuracy are premium influences, SAS could be used. Two examples will illustrate the two cases when use of SAS would prove justifiable. For example, an organization budgets for a full-scale communication climate survey every five years (using FFI) and still wants an estimate of climate during an intervening year. Also, the organization does not want to spend much extra time and money on another full-scale survey. This organization is willing to accept a rough estimate of the climate. Then, the use of SAS would be well justified. SAS takes less time

to administer and cost less to reproduce than FFI.

The second example would be in a case of construct validity. An organization may allow a researcher to survey the employees but limit the time and cost of the project. This would directly limit the number of questions that could be asked. A new climate instrument could be used along with SAS, if this would fit within the limit on the number of questions. Indirect comparisons could be made between the new climate instrument and FFI on how each related to SAS. Obviously, this last case would be a rare one since FFI has only 28 items more than SAS.

Unless researchers choose to use the best validated instruments, then they will not be able to narrow the domain of observables of the communication climate construct. Once instruments have been validated and compared against each other, only the better (best) instrument should be used. Just as FFI is superior to SAS, another instrument may prove to be better than FFI. Then FFI should not be used, and the other instrument should be used. In this way, researchers may be able to limit the domain of observables for this important communication climate construct.

The FFI instrument is not the ultimate instrument for measuring communication climate. Even if such an instrument exists, it is only a tool to measure the construct of communication climate. The construct and the measure of that construct are different entities. No matter how good an

instrument is at measuring a construct, aspects of that construct will not be measured by the instrument. Like all instruments, the FFI instrument has this weakness. The FFI instrument will be critiqued in light of its strengths and weaknesses. This will provide a basis for what a "better" instrument for measuring the communication climate construct might be like.

There are several strengths of the FFI instrument. First, it relies on defining climate as a perception. This is beneficial because an objective criterion does elicit different perceptions at different times even within the same individual. In many cases, a person acts based on their perceptions of the objective criterion and not on the criterion, itself. Secondly, FFI is descriptive in nature and not evaluative. The instrument does attempt to measure descriptive perception of behavior and not emotional reaction to that perception. Thirdly, FFI measures on two levels of analysis. It measures the organizational level and the dyadic level. (The FFI instrument easily could be adapted to measure on the subgroup level by changing the wording to apply just to that level.) Fourthly, FFI is easy to administer. Subjects respond to 45 questions on a Likert scale for this pencil-and-paper survey. Finally, FFI uses dimensions as the elements of analysis. This allows for use of higher forms of statistical analysis like factor analysis, cluster analysis, and multiple regression. In

contrast, typological descriptions as elements of analysis limit the type of analysis possible.

The FFI has five dimensions. Dennis (1974) labels them Factor I, Factor II, Factor III, Factor IV, and Factor V. Factor I contains items related to superior's supportiveness of subordinate communication. Factor II contains items related to the quality and accuracy of downward communication. Factor III contains items related to superior's perceptions of communication with subordinates. Factor IV contains items related to opportunities for and influence of upward communication. Factor V contains items related to the credibility of information from subordinates and colleagues.

The FFI instrument has several weaknesses. These weaknesses fall into three categories--general, methodological, and dimensional. Generally, FFI can be criticized for its lack of use of objective criterion, its lack of use of typological descriptions, its failure to account for network analysis, and its lack of expounding on the rich texture of the communication climate. The first three can be dismissed rather easily. Climate is intersubjective in nature and transcends the objective-subjective controversy. As stated earlier, typological descriptions limit analysis and thus limit generalizability. Network analysis is another genre of study of communication. Communication climate studies generally do not fall into this area of research. The last

general criticism cannot not be dismissed. The FFI instrument cannot begin to measure the rich texture of a communication event. The history, culture, meaning, power, motivation, modality, context, and all the other aspects of a communication episode are not measured by the FFI instrument.

A second criticism is the methodology. The FFI instrument uses only one type of methodology. The FFI instrument has no open-ended questions. Open-ended questions would allow subjects to discuss aspects of the communication climate that were not covered in the fixed-choice questions. The FFI instrument does not use communication episodic diaries to record individual communication events. The use of diaries would add to the ability to describe the rich texture of the communication event. The FFI instrument fails to ask about the quantity of communication. Is there an underload or overload of communication in certain areas? The instrument fails to measure the content of communication and its impact on climate. No specific communication content areas like benefits, performance reviews, promotion potential, and retention are measured. The representatives of the organization in which this study was conducted asked to have four questions added. These questions related to benefits. Another criticism is that the source of communication is not clearly identified. This might border on network analysis, but the FFI does not identify the employee's most important sources of information.

The FFI limits the description of the communication climate construct to five dimensions. Obviously, more dimensions could be used. Some dimensions that have been measured in the past that are not measured by the FFI include, time in face-to-face communication, commitment/motivation of communication, communication distance, modality of the communication, and the quality of the medium used. The FFI does not have a dimension on horizontal or coworker communication. It does ask two questions. They relate to the frankness and candidness of colleagues and to the reliablity of information from those colleagues. Each of these two items appear in different dimensions as defined by Dennis (1974). One is part of Factor III, and the other one is part of Factor V.

Given the above critique of the FFI instrument, the intervention strategies that could be designed based on the results of the instrument are limited by the dimensions that it measures. Intervention strategies that related to interpersonal communication between supervisors and subordinates might be used given information from Factors I and III. Intervention strategies related to listening, nonverbal communication, and positive reinforcement would be more specific examples of these strategies. Intervention strategies that related to dissemination of organizational information, conflict management, and employee performance review might be used given information from Factor II. Improving

the organizational news organ, showing employees how to handle conflict in meetings, and clearly showing how performance is rewarded with promotion, raises, awards, etc. would be more specific examples of these strategies. Intervention strategies that related to decision making and goal setting might be used given information from Factor IV. Role playing a decision game like what items would you take to the moon or a management by objective strategy would be more specific examples of these strategies. Intervention strategies that related to trust might be used given the information from Factor V. Cooperative games might be used as a more specific example of this strategy. Finally, since FFI measures on both organizational and dyadic levels, strategies that help eliminate or explain discrepencies between these levels could be used. This might take the form of workshops on writing clearer job descriptions, or it might take the form of management by objective conference at a local retreat.

STUDY LIMITATIONS

Generalizability

Care must always be taken in applying the results of research in one context to that of another. Several factors could act to limit or enhance the generalizability of these results. These include peculiarities of the population and the physical setting of the organization.

The obvious factor that would greatly reduce or enhance the generalizability of the findings would be the degree that the sample is peculiar from the general work force. Some of the peculiarities of this sample include that over 62.2% of the sample were women, that no one was paid on a commission, that over 18% of the work force is under 20 years of age, and over 77% of the workers have been with the company less than five years. These peculiarities would tend to lower the generalizability of the results. Since most of the positions could be classified as white collar positions, these results could not be generalized to the manufacturing industry.

Another factor that could restrict the generalizability of the results is a self-selected sample. The sample frame was almost as large as the population of the organization. The subjects were not randomly selected. The subjects chose themselves to be part of the study by completing the survey. So, the generalizability of this study may be criticized on this account.

Several other factors would tend to enhance the generalizability of the results. These include the wide span of educational experience from less than high school to graduate work, the hierarchial level in the organization of the sample which reflects the standard pyramid from top to bottom, and the balance of experience from no previous work experience to greater than working for three previous

organizations. The large sample size would tend to increase the generalizability of the results. The fact that 77% of the workforce has worked for the company less than five years, also, may enhance generalizability. This group would need to be socialized rather quickly into the organizational norms in order to be able to assess the climate in the organization. This would be a more stringent test for the organizational level climate hypotheses than say an organization where 77% of the sample had been there for ten years or more. This may help account for the consistently lower organizational level correlations in this study.

Another area that may enhance the generalizability of these results is found in the physical setting of the organization. The organization is a national organization and thus geographically diverse. All major sections of the United States are represented. The physical settings of the different locations add diversity in culture, background, social levels, and economic levels. This organization's geographical locations produce a diversity that represents a rather heterogeneous population. This makes for a more stringent test of the hypotheses and greater generalizability of the results.

Self-Reports

One major criticism of this study is its reliance on the self-reports of the subjects via surveys about communication climate. However, remember that climate is defined

as a perception. Self-report survey is one way to measure climate as it is currently defined. Yet, another technique would be interviewing. Although this is self-reporting, interviewing can give the researcher another perspective on the data. The better approach would be to combine the different methods in the same study. This multi-method approach would provide more dependable knowledge (Farh, Hoffman, & Hegarty, 1984; Cook & Campbell, 1979). Job satisfaction and organizational climate are also perceptions and thus fall into the same category.

Demand Characteristics

The length of the survey may have affected who took time to complete the questionnaire. The four instruments used in this study and the background information section required respondents to reply to 166 questions. This may have eliminated some potential subjects. A few came back only partially completed. This may indicate that there was a slight task demand.

Response Bias

As the researcher entered the data, a subjective feeling came that two of the instruments could have built in response bias. The two are the FFI and the POC instruments. Both of these instruments have the negative aspects of the items on the left and the positive items on the right. It seemed that some respondents discovered this and

consistently marked one side or the other. Obviously, this is an unsubstantiated comment. When one uses the FFI and the POC instruments again, some of the positive items should be made negative and randomly dispersed throughout the instrument.

CONCLUSIONS

Several conclusions can be made based on this study. First, FFI is a highly reliable and validated instrument for measuring the communication climate construct. Secondly, FFI is far superior to the SAS instrument and should be used whenever there is a choice between the two. Thirdly, SAS should have limited use hereafter. Fourthly, if the studies using SAS were replicated with FFI, then the correlations should be higher. Fifthly, one can theorize and operationalize on consistent levels concerning communication climate and organizational climate. Sixthly, researchers should adhere to the three steps of construct validation (Nunnally, 1967). Obviously, ad hoc instruments should be developed, but the research plan should also include testing that instrument against others that purport to measure the same thing. Seventhly, SAS measures communication climate but does it poorly.

RECOMMENDATIONS FOR FUTURE RESEARCH

Several recommendations for future research come to mind. First, this study needs to be replicated in other organizations to verify the findings of this study. Secondly, other studies similar to this one need to be conducted using the FFI instrument and other communication climate instruments. This would help define further the domain of observables of the communication climate construct. Thirdly, the data of this study needs further analysis. Factor analysis of the FFI instrument would allow comparisons with Dennis' (1974) original five-factors. Comparisons between the different levels of climate might yield evidence for further validity of the separate constructs. Fourthly, greater effort is needed in survey research to interview some of the respondents to verify the descriptions of the climate and satisfaction of the subjects. Fifthly, research which would study causation among climate and certain output variables like job satisfaction, performance, and motivation would add greatly to our present knowledge.

APPENDIX A

COVER LETTER

201 S. GRANT AVENUE
COLUMBUS, OHIO 43215-5399
TELEPHONE: 614/224-6237

Franklin UNIVERSITY

February 20, 1987

Dear Associate,

You have a great opportunity to provide your company with feedback about its current communication practices. You can do this by participating in an attitude survey that I am conducting for your organization. Your participation in this survey is strictly voluntary. However, I am sure you will want to assist us in this valuable research for your company. You can participate by completing the enclosed survey.

This survey is sanctioned and supported by . If you have any questions about the survey or about me, you may direct those questions to my liaison at the office. My liaison is

The survey itself takes between twenty and thirty minutes to complete. When you do fill it out, please try to do it at one time. Do not put your name on the questionnaire. After you complete the survey, please mail it directly to me in the enclosed return envelope. Please mail the completed survey by March 6, 1987.

You are guaranteed anonymity. AT NO TIME WILL ANYONE CONNECTED WITH YOUR ORGANIZATION EVER SEE AN INDIVIDUAL'S RESPONSE. Information gained from the survey will be released back to the organization in aggregated form only.

Again, I urge you to participate in this project to help your organization. Your cooperation will make this project a success. Your participation will be greatly appreciated. Thank you for your time and effort.

Sincerely,

Greg McGlone

Greg McGlone
Professor of Communication
Franklin University

APPENDIX B

SURVEY QUESTIONNAIRE

201 S GRANT AVENUE
COLUMBUS, OHIO 43215-5399
TELEPHONE: 614/224-6237

Franklin UNIVERSITY

COMMUNICATION CLIMATE AND

JOB SATISFACTION

ATTITUDE SURVEY

RESEARCHER

GREG McCLONE

PROFILE OF ORGANIZATIONAL CHARACTERISTICS

Directions: PLEASE READ. This instrument seeks information about organizational characteristics in the areas of leadership, motivation, communication, decision making, goals, and control.

For each question you are asked to fill out two responses, one which describes your organization as a whole and another which describes your relationship to your immediate supervisor.

You may use any type of pen or pencil for this part. If you make a mistake, please either erase it thoroughly or cross it out; then mark the best answer.

For each question, first circle the bracket on the "O" line which you feel describes your ORGANIZATION AS A WHOLE (O = Organization As a Whole). If, for example, on question 1 you feel that there is "quite a bit" of confidence, fill in 5 or 6. Fill in 5 if you think the situation is closer to "some", 6 if you think the situation is closer to "a very great deal."

Then fill in the circle on the "S" line which describes your RELATIONSHIP TO YOUR IMMEDIATE SUPERVISOR, (S = Supervisor). For example, in question 2, you would respond to how much confidence your immediate supervisor has in you.

LEADERSHIP

			Very little		Some		Quite a bit		A very great deal	
How much confidence and trust is shown in subordinates?	1	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	2	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

			Not very free		Somewhat free		Quite free		Very free	
How free do they feel to talk to superiors about their work?	3	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	4	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

			Rarely		Sometimes		Often		Very frequently	
How often are subordinates' ideas sought and used constructively?	5	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	6	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

MOTIVATION

			1,2,3 occassionally 4		4, with some 3		Mainly 4 with some 3 and 5		4 and 5, primarily based on group set goals	
Is predominant use made of 1) fear, 2) threats, 3) punishment, 4) rewards, 5) involvement?	7	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	8	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

			Mostly at top		Top and middle		Fairly widespread		At all levels	
Where is responsibility felt for achieving high performance?	9	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	10	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

			Very little		Some		Quite a bit		A very great deal	
How much cooperative teamwork exists?	11	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	12	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

COMMUNICATION

			Downward		Mostly downward		Down and up		Down, up and sideways	
What is the usual direction of information flow?	13	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	14	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

			With distrust		Often with suspicion		Usually with trust		A great deal of trust	
How is downward communication accepted?	15	O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	16	S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

		Usually inaccurate		Occasionally inaccurate		Often accurate		Almost always accurate	
How accurate is upward communication?	17 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	18 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

		Not well		Somewhat		Quite well		Very well	
How well do superiors know problems faced by subordinates?	19 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	20 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

DECISIONS

		Mostly at top		Policy at top, some delegation		General policy at top, more delegation		Widespread decision making	
At what level are decisions made?	21 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	22 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

		Almost never		Occasionally consulted		Generally consulted		Fully involved	
How often are subordinates involved in decisions related to their work?	23 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	24 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

		Orders issued		Orders, some comments invited		After discussion, by orders		Generally by group discussion	
How is goal setting usually done?	25 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	26 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

		Very little		Some		Quite a bit		A very great deal	
How much do subordinates strive to achieve the organization's goals?	27 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	28 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

CONTROL

		Very concentrated at top		Quite concentrated at top		Moderately delegated at lower levels		Widely shared	
How concentrated are review and control functions?	29 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	30 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

		Policing, punishment		Reward and punishment		Reward, some self-guidance		Group guidance and problem solving	
What are cost, productivity, and other control data used for?	31 O	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	32 S	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

ORGANIZATIONAL COMMUNICATION CLIMATE INSTRUMENT

Directions: PLEASE READ. This instrument seeks information about the communication behaviors of supervisors in general in your organization. When answering this section, please think of SUPERVISORS IN GENERAL in your organization. Circle the number that represents the extent to which the statements happen concerning supervisors in general in your organization.

The scale is VLE - "to a very little extent"
LE - "to a little extent"
SE - "to some extent"
GE - "to a great extent"
VGE - "to a very great extent."

		VLE	LE	SE	GE	VGE
For example:	Supervisors buy lunches for very important clients.	1	2	3	4	5

		VLE	LE	SE	GE	VGE
1.	You think people in this organization say what they mean and mean what they say.	1	2	3	4	5
2.	People in this organization can exchange information and opinions freely.	1	2	3	4	5
3.	You think information received from your subordinates is really reliable.	1	2	3	4	5
4.	Your superior lets you participate in the planning of your own work.	1	2	3	4	5
5.	You are pleased with management's efforts to keep associates up-to-date on recent developments that relate to the organization's welfare--such as success in competition, profitability, future growth plans, etc.	1	2	3	4	5
6.	You are kept informed about how well organizational goals or objectives are being met.	1	2	3	4	5
7.	You believe that your subordinates think that you really understand their problems.	1	2	3	4	5
8.	You are receiving information from top management (for example, from superiors, department meetings, co-workers, newsletters) that you prefer.	1	2	3	4	5
9.	Your opinions make a difference in the day-to-day decisions that affect your job.	1	2	3	4	5

		VLE	LE	SE	GE	VGE
10.	People in top management say what they mean and mean what they say.	1	2	3	4	5
11.	You are satisfied with explanations you get from top management about why things are done as they are.	1	2	3	4	5
12.	Top management is providing you with the kinds of information you really want and need.	1	2	3	4	5
13.	Members of your work group are able to establish their own goals and objectives.	1	2	3	4	5
14.	People in this organization are encouraged to be really open and candid with each other.	1	2	3	4	5
15.	You believe your views have real influence in your organization.	1	2	3	4	5
16.	You can expect that recommendations you make will be heard and seriously considered.	1	2	3	4	5
17.	You are notified in advance of changes that affect your job.	1	2	3	4	5
18.	Your organization succeeds in rewarding and praising good performance.	1	2	3	4	5
19.	Your job requirements are specified in clear language.	1	2	3	4	5
20.	You think that information received from your colleagues (or coworkers) is reliable.	1	2	3	4	5
21.	You believe you really understand your subordinates' problems.	1	2	3	4	5
22.	You believe your subordinates are really frank and candid with you.	1	2	3	4	5
23.	You believe your colleagues (co-workers) are really frank and candid with you.	1	2	3	4	5
24.	You think your subordinates feel free to "sound off" to you about things that bother them.	1	2	3	4	5

SUPERVISOR COMMUNICATION CLIMATE INSTRUMENT

Directions: PLEASE READ. This instrument seeks information about the communication behavior of your immediate supervisor. When answering this section, please think of YOUR IMMEDIATE SUPERVISOR. Circle the number that represents the extent to which the statements happen concerning your immediate supervisor. The scale is

VLE - "to a very little extent"
LE - "to a little extent"
SE - "to some extent"
GE - "to a great extent"
VGE - "to a very great extent."

For example: My supervisor buys me lunch.	VLE 1	LE 2	SE 3	GE 4	VGE 5

		VLE	LE	SE	GE	VGE
1.	Your superior listens to you when you tell her/him about things that are bothering you.	1	2	3	4	5
2.	Your superior is willing to tolerate arguments and to give a fair hearing to all points of view.	1	2	3	4	5
3.	You are safe in communicating "bad news" to your superior without fear of any retaliation on her/his part.	1	2	3	4	5
4.	You can "sound off" about job frustrations to your superior.	1	2	3	4	5
5.	Your superior makes you feel that things you tell her/him are really important.	1	2	3	4	5
6.	Your superior has your best interest in mind when s/he talks to her/his bosses.	1	2	3	4	5
7.	Your superior expresses her/his confidence with your ability to perform the job.	1	2	3	4	5
8.	Your superior encourages you to let her/him know when things are going wrong on the job.	1	2	3	4	5
9.	Your superior makes you feel free to talk with her/him.	1	2	3	4	5
10.	You can tell your superior about the way (in your opinion) s/he manages your work group.	1	2	3	4	5
11.	You really do understand your superior.	1	2	3	4	5

	VLE	LE	SE	GE	VGE
12. You are free to tell your superior that you disagree with her/him.	1	2	3	4	5
13. You believe that your superior thinks that you understand her/him.	1	2	3	4	5
14. Your superior is frank and candid with you.	1	2	3	4	5
15. Your superior is a really competent and expert manager.	1	2	3	4	5
16. You think that your superior believes that s/he really understands you.	1	2	3	4	5
17. Your superior really understands your job problems.	1	2	3	4	5
18. It is safe to say what you are really thinking to your superior.	1	2	3	4	5
19. Your superior encourages you to bring new information to her/his attention, even when that new information may be "bad news."	1	2	3	4	5
20. Your superior makes it easy for you to do your best work.	1	2	3	4	5
21. Your superior really does understand you.	1	2	3	4	5

SUPERVISORY ACCESSIBILITY SCALE

Normative Accessibility Scale

Directions: PLEASE READ. This instrument seeks information about supervisors in general in your organization. When answering this section please think of SUPERVISORS IN GENERAL in your organization, not anyone particular supervisor. Circle the number that represents how truthful each statement is about your organization. For example: All supervisors have green eyes.

Very True 1 2 3 4 5 Very Untrue

---

1. On work related matters, supervisors in my company are rarely, if ever, consulted.

   Very True 1 2 3 4 5 Very Untrue

2. Other workers in the company frequently bring work related problems to the attention of their supervisors.

   Very True 1 2 3 4 5 Very Untrue

3. Superiors in my company rarely have time to deal with any but the most serious problems.

   Very True 1 2 3 4 5 Very Untrue

4. Most supervisors in my company are willing to take the time to help with even minor problems on the job.

   Very True 1 2 3 4 5 Very Untrue

5. Supervisors in my company are usually available when on the job problems arise.

   Very True 1 2 3 4 5 Very Untrue

6. It is standard operating procedure at my company for individuals to ask their supervisors for help if they encounter problems on the job.

   Very True 1 2 3 4 5 Very Untrue

7. I would be surprised if any supervisor in my company refused to help with any on-the-job problem.

   Very True 1 2 3 4 5 Very Untrue

8. Management personnel in my company are expected to answer any questions which the workers might have about their jobs.

   Very True 1 2 3 4 5 Very Untrue

SUPERVISORY ACCESSIBILITY SCALE

Dyadic Accessibility Scale

Directions: PLEASE READ. This instrument seeks information about your immediate supervisor. When answering this section, please think of YOUR IMMEDIATE SUPERVISOR in your organization. If you have more than one person who delegates work to you, please think of the supervisor who delegates work to you most often. Note that the term boss and supervisor refer to the same person. Circle the number that represents how truthful each statement is about your immediate supervisor in your organization. For example: My supervisor likes to eat pasta.

Very True 1 2 3 4 5 Very Untrue

---

1. My boss is willing to give my suggestions a fair hearing.

   Very True 1 2 3 4 5 Very Untrue

2. My supervisor is often too busy with his own job to answer my questions.

   Very True 1 2 3 4 5 Very Untrue

3. My supervisor is always willing to listen when I have a job-related problem.

   Very True 1 2 3 4 5 Very Untrue

4. My supervisor discourages me from asking a lot of questions about my job.

   Very True 1 2 3 4 5 Very Untrue

5. I find it very easy to ask my supervisor about my job.

   Very True 1 2 3 4 5 Very Untrue

6. My boss is frequently too busy to discuss problems I have completing the tasks s/he assigned to me.

   Very True 1 2 3 4 5 Very Untrue

7. My supervisor frequently asks me how I am doing on the job.

   Very True 1 2 3 4 5 Very Untrue

8. My boss is willing to discuss work-related problems only if I press him/her.

   Very True 1 2 3 4 5 Very Untrue

9. My boss almost never inquires about my work progress.

   Very True 1 2 3 4 5 Very Untrue

JOB DESCRIPTIVE INDEX

Directions: PLEASE READ. This instrument seeks descriptive information about your job in the areas of work, supervision, pay, promotions, and co-workers. Each part of the instrument will be presented on a separate page, however the directions for all five parts are the same. The directions follow:

Put Y beside an item if the item describes a particular aspect of your job.
Put N beside an item if the item does <u>not</u> describe a particular aspect of your job.
Put ? beside an item if you cannot decide.

For example: For WORK: <u>N</u> Lonely; <u>?</u> Green; <u>Y</u> Daily.

WORK

____ Fascinating

____ Routine

____ Satisfying

____ Boring

____ Good

____ Creative

____ Respected

____ Hot

____ Pleasant

____ Useful

____ Tiresome

____ Healthful

____ Challenging

____ On your feet

____ Frustrating

____ Simple

____ Endless

____ Gives sense of accomplishment

SUPERVISION

_____ Asks my advice

_____ Hard to please

_____ Impolite

_____ Praises good work

_____ Tactful

_____ Influential

_____ Up-to-date

_____ Doesn't supervise enough

_____ Quick tempered

_____ Tells me where I stand

_____ Annoying

_____ Stubborn

_____ Knows job well

_____ Bad

_____ Intelligent

_____ Leaves me on my own

_____ Lazy

_____ Around when needed

PAY

_____ Income adequate for normal expenses

_____ Satisfactory profit sharing

_____ Barely live on income

_____ Bad

_____ Income provides luxuries

_____ Insecure

_____ Less than I deserve

_____ Highly paid

_____ Underpaid

PROMOTIONS

_____ Good opportunity for advancement

_____ Opportunity somewhat limited

_____ Promotion on ability

_____ Dead-end job

_____ Good chance for promotion

_____ Unfair promotion policy

_____ Infrequent promotions

_____ Regular promotions

_____ Fairly good chance for promotion

CO-WORKERS

_____ Stimulating

_____ Boring

_____ Slow

_____ Ambitious

_____ Stupid

_____ Responsible

_____ Fast

_____ Intelligent

_____ Easy to make enemies

_____ Talk too much

_____ Smart

_____ Lazy

_____ Unpleasant

_____ No privacy

_____ Active

_____ Narrow interests

_____ Loyal

_____ Hard to meet

9. What was the last level you completed in school?
   1. Less than high school graduate
   2. High school graduate
   3. Some college or technical school
   4. Completed college or technical school
   5. Graduate work

10. What is your age?
   1. Under 20 years of age
   2. 21 to 30 years of age
   3. 31 to 40 years of age
   4. 41 to 50 years of age
   5. Over 50 years of age

11. How much training to improve your communicative skills have you had?
   1. No training at all
   2. Little training (attended 1 seminar, workshop, training activity or course)
   3. Some training (attended a few seminars, workshops, training activities, or courses)
   4. Extensive training (attended a great number of seminars, workshops, training activities, or courses)

12. How much money did you receive from this organization last year?
   1. Less than $11,999
   2. $12,000 to $17,999
   3. $18,000 to $23,999
   4. $24,000 to $29,999
   5. $30,000 to $35,999
   6. $36,000 to $41,999
   7. $42,000 to $47,999
   8. $48,000 to $53,999
   9. $54,000 to $59,999
   10. Over $60,000

13. During the past ten years, in how many other organizations have you been employed?
   1. No other organizations
   2. One other organization
   3. Two other organizations
   4. Three other organizations
   5. More than three others

14. Are you presently looking for a job in a different organization?

   ____ Yes

   ____ No

Thank you very much for completing this survey! Please briefly glance back through the survey to see if you have left any questions blank prior to turning it in to the researcher. Again, you are guaranteed complete anonymity. The results of this survey will be released only in aggregate form.

Background Information

This section is for statistical purposes only and will be used to study how different groups of people view your organization. We do not want your name, but would appreciate the following information. Please circle the appropriate response or fill in blank.

1. How do you receive most of your income from this organization?
   1. Salaried
   2. Hourly
   3. Piece-work
   4. Commission
   5. Other

2. What is your sex?
   1. Male
   2. Female

3. Do you work:
   1. Fulltime
   2. Parttime
   3. Temporary Fulltime
   4. Temporary Parttime

4. How long have you worked in this organization?
   1. Less than 1 year
   2. 1 to 5 years
   3. 6 to 10 years
   4. 11 to 15 years
   5. More than 15 years

5. How long have you held your present position?
   1. Less than 1 year
   2. 1 to 5 years
   3. 6 to 10 years
   4. 11 to 15 years
   5. More than 15 years

6. What is your position in this organization?
   1. I don't supervise anybody
   2. First-line supervisor
   3. Middle management
   4. Top management
   5. Other (Please specify: _____)

7. What division or part of the organization do you work for?

   _____

8. What is your general job title (branch manager, secretary, data entry, accountant)?

   _____

APPENDIX C

TABLE 2.
Demographics

1. How do you receive most of your income from this organization?

1.	Salaried	38.4%
2.	Hourly	59.2
3.	Piece-work	.6
4.	Commission	0.0
5.	Other	.6
9.	Missing	1.2 N = 510

2. What is your sex?

1.	Male	36.1%
2.	Female	62.2
9.	Missing	1.8 N = 510

3. Do you work:

1.	Fulltime	75.7%
2.	Parttime	21.8
3.	Temporary Fulltime	.4
4.	Temporary Parttime	1.4
9.	Missing	.8 N = 510

4. How long have you worked in this organization?

1.	Less than 1 year	37.8%
2.	1 to 5 years	38.4
3.	6 to 10 years	15.1
4.	11 to 15 years	3.7
5.	More than 15 years	3.5
9.	Missing	1.4 N = 510

5. How long have you held your present position?

1.	Less than 1 year	46.3%
2.	1 to 5 years	42.0
3.	6 to 10 years	7.1
4.	11 to 15 years	1.8
5.	More than 15 years	1.8
9.	Missing	1.2 N = 510

TABLE 1 (continued),

6. What is your position in this organization?

1.	I don't supervise anybody	50.0%
2.	First-line supervisor	25.3
3.	Middle management	13.5
4.	Top management	2.7
5.	Other	5.7
9.	Missing	2.7 N = 510

Questions 7 and 8 were not coded.

9. What was the last level you completed in school?

1.	Less than high school graduate	6.9%
2.	High school graduate	32.0
3.	Some college or technical school	26.7
4.	Completed college or technical school	25.5
5.	Graduate work	2.7
9.	Missing	6.3 N = 510

10. What is your age?

1.	Under 20 years of age	18.6%
2.	21 to 30 years of age	46.5
3.	31 to 40 years of age	15.7
4.	41 to 50 years of age	7.6
5.	Over 50 years of age	5.1
9.	Missing	6.5 N = 510

11. How much training to improve your communication skills have you had?

1.	No training at all	44.1%
2.	Little training	17.1
3.	Some training	25.3
4.	Extensive training	6.9
9.	Missing	6.7 N = 510

12. How much money did you receive from this organization last year?

1.	Less than $11,999	51.8%
2.	$12,000 to $17,999	18.6
3.	$18,000 to $23,999	9.8
4.	$24,000 to $29,999	3.1
5.	$30,000 to $35,999	2.2
6.	$36,000 to $41,999	.4
7.	$42,000 to $47,999	1.2
8.	$48,000 to $53,999	1.0
9.	$54,000 to $59,999	0.0
10.	Over $60,000	2.9
99.	Missing	9.0 N = 510

TABLE 1 (continued),

13. During the past ten years, in how many other organizations have you been employeed?

1.	No other organizations	22.0%
2.	One other organization	21.6
3.	Two other organizations	22.7
4.	Three other organizations	10.2
5.	More than three others	16.9
9.	Missing	6.7 N = 510

14. Are you presently looking for a job in a different organization?

1.	Yes	27.3%
2.	No	65.1
9.	Missing	7.6 N = 510

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