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Climate Perceptions Matter: A Meta-Analytic Path Analysis Relating Molar Climate, Cognitive and Affective States, and Individual Level Work Outcomes

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Although workplace climate has been extensively studied, the research has not led to firm conclusions as to its relationship with individual level work outcomes. The authors used C. Ostroff's (1993) taxonomy to organize dimensions labeled as workplace climate and then used meta-analytic techniques to test a path analytic model. The model posited that climate affects individual level outcomes through its impact on underlying cognitive and affective states. An extensive literature search yielded 51 empirical studies with 70 samples. The results suggest that the 3 higher order facets of climate (affective, cognitive, and instrumental) affected individual level outcomes of job performance, psychological well-being, and withdrawal through their impact on organizational commitment and job satisfaction.

Applied psychologists have invested a great deal of energy to articulate the components of environmental variation and to demonstrate the ways in which this variation influences important individual level outcomes. One example of this effort is the literature on *climate*, commonly defined as the shared perceptions of organizational policies, practices, and procedures, both formal and informal (Reichers & Schneider, 1990). Climate perceptions are seen as a critical determinant of individual behavior in organizations, mediating the relationship between objective characteristics of the work environment and individuals' responses (Campbell, Dunnette, Lawler, & Weick, 1970). That is, individuals do not respond to the work environment directly, but must first perceive and interpret their environment. Climate has typically been conceptualized as a molar concept indicative of the organization's goals and appropriate means to goal attainment (e.g., see Hershberger, Lichtenstein, & Knox, 1994). The climate construct has recently been expanded to include a more specific focus to a particular referent, as in the climate for service or the climate for safety (Schneider, 2000).

The distinction between molar and specific climate constructs is an important one because they highlight different research goals. In particular, the two foci of climate differ in *bandwidth*, which is the amount or complexity of information one tries to obtain in a given space of time, ranging from large or wide to small or narrow (Cronbach & Gleser, 1965). Thus, the two foci of climate differ in bandwidth such that the specific climate constructs examine a more narrow manifestation of the work environment than the molar climate constructs. The bandwidth-fidelity issue (Cronbach & Gleser, 1957) has been debated in the personnel selection literature (e.g., Hogan & Roberts, 1996; Ones & Viswesvaran, 1996), but one point of agreement is that the breadth of the criterion one is interested in predicting should dictate the appropriate breadth of the predictor construct. Thus, determining which manifestation of climate is appropriate depends on the bandwidth of the outcomes of interest. This means that individuals interested in predicting a specific outcome (e.g., safe behavior) are best served by focusing on measuring perceptions of a specific climate (e.g., climate for safety). Conversely, individuals interested in predicting broader outcomes (e.g., job performance and withdrawal) are best served by the broader taxonomy of molar climate constructs.

There is emerging evidence to suggest that specific climates (e.g., safety climate) are predictive of specific outcomes (e.g., safe behavior; Ostroff, Kinicki, & Tamkins, 2003; Schneider, 2000; Schneider & Bowen, 1985; Zohar, 1980). Almost 50 years of empirical research on molar climate constructs, however, has not led to firm conclusions as to the relationships between various molar climate dimensions and a variety of individual level outcomes (e.g., job performance, absenteeism). We contend that this lack of clarity is mainly due to the variety of climate dimensions that have been identified and used in climate studies. This condition makes cross-study comparisons difficult and calls for a taxonomy or framework to organize the literature. The purpose of the present research is to organize and integrate the empirical research on molar climate in order to draw more definitive conclusions as to the role of climate in work organizations.

To conduct this integrative review, we first identified a taxonomy of molar climate perceptions to organize the variety of dimensions that have been labeled as climate. We then examined the literature to develop a theoretically driven model of climate and to examine its impact on key cognitive and affective states and outcomes. We used the taxonomy to categorize the various climate dimensions into a common set of factors, and then used meta-analytic techniques to empirically test the theoretically driven model relating climate to key processes and outcomes. In this way, we strived to not only synthesize the literature on molar climate,

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but also to generate and test a model of its relationship to valued outcomes.

Empirical Research

Empirical research on climate-to-outcome relationships can be traced back to studies such as Fleishman (1953), who found that leadership climate was an important variable related to the behavior and attitudes of foremen in the work situation. Since then, a number of empirical studies have examined the relationship of climate perceptions and a variety of variables such as job satisfaction (Schnake, 1983), performance (Lawler, Hall, & Oldham, 1974), commitment (DeCotiis & Summers, 1987), psychological well-being (Cummings & DeCotiis, 1973), absenteeism and turnover (Steel, Shane, & Kennedy, 1990), and dysfunctional job behaviors, such as theft (Kamp & Brooks, 1991), harassment (Culbertson & Rodgers, 1997), and workplace violence (Cole, Grubb, Sauter, Swanson, & Lawless, 1997).

Throughout these empirical efforts, there have been continual attempts to identify the key components of climate. In an early review of climate, Campbell and his colleagues (1970) summarized the existing literature and contended that there were four major climate dimensions—individual autonomy, the degrees of structure imposed on the position, reward orientation, and consideration, warmth, and support. By the end of the 1970s, the number of dimensions identified as relevant for climate had grown quite large and, as noted by Ostroff et al. (2003), the number of dimensions labeled as climate has continued to proliferate.

The problem with this growth is that climate has come to mean so many different things that some researchers have suggested that molar climate has lost its meaningfulness as a construct (e.g., see Schneider, 2000). To illustrate the dilemmas inherent in synthesizing our understanding of climate effects, we describe three studies across 3 decades of empirical research. We then highlight how one can resolve discrepant dimension labels in order to reveal more definitive information about the relationship between climate dimensions and outcomes.

An early study by Pritchard and Karasick (1973) operationalized climate using the following 11 dimensions: autonomy, conflict versus cooperation, social relations, structure, level of rewards, performance–reward dependency, motivation to achieve, status polarization, flexibility and innovation, decision centralization, and supportiveness. They found that all dimensions except autonomy were related to job satisfaction. In contrast, they found that only two dimensions (level of rewards and achievement) were related to performance. Schnake (1983) examined five dimensions of climate—reward orientation, structure, warmth and support, standards, and responsibility. He found that all five dimensions were positively related to each measure of job satisfaction (intrinsic, extrinsic, and social) measured in the study. As a final example, Brown and Leigh (1996) examined the effects of climate dimensions of management support, clarity, self-expression, contribution, recognition, and challenge. The outcome measures included three measures of performance—sales volume, extent of technical knowledge, and administrative performance. The researchers found that climate perceptions of support and contribution were significantly related to the various work performance measures, whereas measures of self expression and recognition were not. Mixed support was found for clarity as it was found to be related to sales volume and not to knowledge or administrative skills.

These studies illustrate that there are a variety of dimensions examined in the climate literature (e.g., flexibility and innovation, responsibility, motivation to achieve, management support, clarity, self expression, and challenge) as well as a number of different criteria of interest. In addition, these studies illustrate the inconsistency in the use of labels. For example, Schnake's (1983) responsibility dimension was described as referring to "individual responsibility and autonomy" (p. 797) and thus actually overlaps with Pritchard and Karasick's (1973) autonomy dimension. This overlap is noteworthy because it reveals conflicting results. Namely, the Schnake study found the autonomy (responsibility) dimension to be significantly related to satisfaction, whereas the latter study did not. In addition, an examination of Brown and Leigh's (1996) recognition dimension shows a high degree of similarity to Pritchard and Karasick's level of rewards dimension. The Brown and Leigh study did not find this dimension to be significantly related to job performance, whereas Pritchard and Karasick did.

This abbreviated review shows the proliferation of dimensions labeled as climate. It also shows the need for an organizing taxonomy as well as an integrative review that allows more definitive conclusions to be reached regarding the relationship between climate and organizational outcomes. To reveal the nature of these relationships and to examine the pathways by which these outcomes are impacted by features of the environment, it is necessary to organize and synthesize the molar climate literature. In the next sections, we describe the taxonomy used to organize the literature and the theoretical basis for the conceptual model we tested.

Climate Taxonomy

To organize and synthesize the literature on molar climate, we used a comprehensive taxonomy developed by Ostroff (1993). Ostroff presented a large scale study of climate perceptions and their relationships to organizational outcomes. The main focus of the study was an examination of the influence of both environmental and personal variables, as well as their interaction, on job outcomes. A principal strength of the Ostroff study lies in the systematic development of a taxonomy of organizational climate. This organizing framework is comprised of 12 climate dimensions and three higher order facets. The three higher order facets are affective, cognitive, and instrumental climate perceptions (see Appendix A).

Ostroff's (1993) affective facet is concerned with interpersonal and social relations among workers. The four dimensions underlying this facet are participation, cooperation, warmth, and social rewards. The cognitive facet represents dimensions primarily related to the self or individuals' involvement in work activities. It consists of four dimensions including growth, innovation, autonomy, and intrinsic rewards. The final facet, instrumental, concerns task involvement or getting things done in the organization. The dimensions that fall under the instrumental facet include achievement, hierarchy, structure, and extrinsic rewards.

Ostroff's (1993) trichotomization of climate perceptions and the underlying 12 dimensions is based on key research from both the climate and personality literatures (Alderfer, 1972; Campbell et al., 1970; Elizur, 1984) and bears similarities to the dimensions iden-

tified in earlier work by Campbell et al. (1970). In short, Ostroff's taxonomy reflects the integration of the literature and is the most comprehensive taxonomy of climate perceptions. This taxonomy formed the basis for our categorization of climate dimensions for our integrative review. Studies were examined and categorized into one of the dimensions identified by Ostroff, and these categories were then aggregated into the three higher order factors when conducting our meta-analyses.

Model of Molar Climate

Throughout the history of the climate literature, researchers have not only been interested in how people arrive at general conclusions about the environment but also how these conclusions relate to behavioral criteria (e.g., Argyris, 1964; Likert, 1967; McGregor, 1960; Roethlisberger, 1959). James and Jones (1974, 1976) developed one of the first and most comprehensive models of climate. They reviewed the literature on the conceptual relationship between organizational structure and individual attitudes and behavior, and articulated the need for a more sophisticated model of this relationship. To this aim, they proposed a framework for climate that they described as a preliminary step in the development of integrating models. This open system model focuses on the relationship between climate perceptions and what they called end-result criteria, which include productivity indices and turnover rates. It is an elaborate model that laid important conceptual groundwork for future research. It is limited in value, however, for integrating empirical research due to its open system design, which renders it largely untestable.

Kopelman, Brief, and Guzzo (1990) refined James and Jones's (1974, 1976) model of climate to develop more testable hypotheses. They omitted the various feedback loops and reciprocal relationships and offered more detail about the sets of relationships between climate and various outcomes. They proposed that climate's impact on important individual- and organizational-level outcomes (e.g., performance and productivity) occurs through its effect on cognitive and affective states. They further suggested that different states are more relevant for different outcomes—more specifically, they proposed that climate's influence on performance occurs primarily through its effect on work motivation, whereas its impact on withdrawal behaviors is through work motivation and job satisfaction.

In addition, Kopelman and his colleagues (1990) suggested that different climate dimensions are related to different cognitive and affective states, but they noted that the current state of the literature makes it difficult to generate specific hypotheses. Specifically, the literature on the relationship between climate and work motivation is weak, and although there is considerable evidence to support the relationship between climate and job satisfaction (e.g., Friedlander & Margulies, 1969; Pritchard & Karasick, 1973; Litwin & Stringer, 1968), one cannot precisely identify the particular dimensions of climate that are related consistently to satisfaction because the operationalization of dimensions varies considerably across studies.

The model presented by Kopelman and his colleagues (1990) details how the impact of climate perceptions on important behaviors and attitudes might be mediated through cognitive and affective states. Kopelman et al. further specified how different cognitive and affective states are relevant for different outcomes and how different climate dimensions are related to different states. To date, no study has attempted to use the findings from the empirical literature to test the mediation hypothesis.

Figure 1 presents the conceptual model that is testable given the data available from the empirical research on climate perceptions. The model consists of the three higher order factors of climate (affective, cognitive, and instrumental) posited by Ostroff (1993), two process variables of job satisfaction and organizational commitment, and three outcomes of job performance, withdrawal, and psychological well-being. Conceptually, this model is consistent with the models previously forwarded in the literature (e.g., James & Jones, 1974; 1976; Kopelman et al., 1990) as we propose that

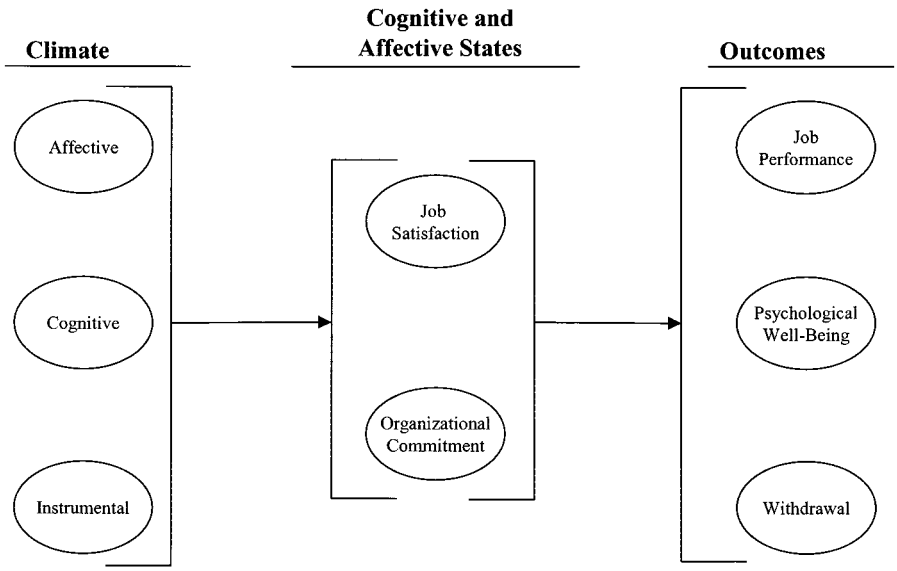

Figure 1. Conceptual model of the relationship between climate, cognitive and affective states, and outcomes.

the impact of organizational climate on outcomes of interest—withdrawal, performance, and psychological well-being—occurs through its impact on the cognitive and affective states.

Empirically, this model represents the consequences of climate that have been proposed and tested in the literature. For example, there are not enough studies investigating the relationship between climate and dysfunctional behaviors (e.g., theft, harassment, and workplace violence) to be included in a meta-analysis of the construct. In addition, Kopelman and his colleagues (1990) proposed that the cognitive state of work motivation mediates the relationship between climate and outcomes, but this construct was not explicitly measured by any of the studies in our sample and thus can not be included in our model. However, a broader motivational variable—organizational commitment—was frequently measured by studies in our sample and therefore does appear in the model. Commitment encompasses one's belief in and acceptance of organizational goals and values, one's willingness to exert considerable effort on behalf of the organization, and a strong desire to maintain membership in the organization (Mowday, Porter, & Steers, 1982, p. 27). Finally, very few studies (if any) examine climates' impact on organizational level outcomes (e.g., productivity), so our model relates climate only to individual level outcomes. In short, our proposed testable model strikes a balance between theoretical and empirical intentions and thus is similar but not identical to the one proposed by Kopelman and his colleagues.

This model implies three testable research propositions. First, we expected that the three higher order dimensions of climate perceptions could explain a meaningful amount of variance in individual level outcomes. Consistent with the conceptual work of James and Jones (1974, 1976), we believe that the higher order dimensions can provide a parsimonious picture of which perceptions of the environment influence various outcomes as well as the mechanisms by which they operate. Ostroff (1993) provided empirical support for this proposition. She found many significant links between the affective, cognitive, and instrumental components of climate and various outcome measures (e.g., stress, withdrawal, performance).

Second, we expected that the impact of climate perceptions on indvidual level outcomes would be mediated through cognitive and affective states. We derived this expectation from Ajzen and Fishbein's (1980) theory of planned behavior and from Mobley, Griffeth, Hand, and Meglino's (1979) framework of employee turnover. These two perspectives suggest that cognitive and affective states result from perceptions of the work environment, which, combined with opportunities to act and associated beliefs, become the immediate antecedents of behavior (Mathieu & Zajac, 1990). Although the precise mechanisms by which this process occurs have yet to be firmly established, it has been suggested that organizational environments act as normative influences by shaping belief systems (Wiener, 1982).

Although there have been no direct empirical tests of this specific hypothesis, there is certainly research to suggest that climate influences cognitive and affective states and that these states are predictive of important behavioral outcomes. For instance, the relationships between climate and job satisfaction and between climate and commitment are quite robust (e.g., DeCotiis & Summers, 1987; Hershberger et al., 1994; Kozlowski & Hults, 1987; Pritchard & Karasick, 1973; Parker, Dipboye, & Jackson, 1995; Schnake, 1983). In addition, there is evidence of the relationship between these cognitive and affective states and important behavioral outcomes. For example, research studies have revealed that these states are related to turnover intention–withdrawal cognitions (Mathieu & Zajac, 1990; Tett & Meyer, 1993), job performance (Judge, Thoresen, Bono, & Patton, 2001), and psychological well-being (Cropanzano & Wright, 2001). Finally, the notion that the relationship between climate and behavioral outcomes occurs through its influence on commitment and satisfaction is consistent with Bandura's social-cognitive theory of motivation (e.g., Wood & Bandura, 1989), which suggests that performance occurs through the cognitive–affective states of sustained interest and positive affective reactions.

Finally, we expected that there would be differential relationships between the three facets of organizational climate, the two cognitive and affective states, and the various outcomes. More specifically, we propose that the facets of organizational climate will have differential relationships with the cognitive and affective states and that certain states will be more relevant for the various climate–outcome relationships. This is consistent with Lee and Allen's (2002) contention that, whereas cognitions and affect are not completely independent of each other, they are sufficiently different to show a differential pattern of relations with other variables (e.g., Abelson, Kinder, Peters, & Fiske, 1982).

Method

Literature Search

We conducted an extensive search for empirical studies reporting a correlation or including information that would allow a correlation to be computed between the three facets of climate—affective, cognitive, and instrumental—and at least one of the following variables from the hypothesized model: job satisfaction, organizational commitment, psychological well-being, job performance, and withdrawal. Given our focus on individual climate perceptions and the conceptual and analytical ambiguities that arise from mixing levels of analyses (e.g., Kozlowski & Klein, 2000), studies that only reported relationships between aggregated climate perceptions (e.g., average group or organization climate perceptions, rather than individual perceptions) and outcomes were excluded. This search was conducted using both manual and computer-based methods. We began by obtaining all articles listed in Table 1.1 of Reichers and Schneider's (1990) climate review—although this review is not all inclusive, nor was it intended to be, it represents a critical review of the climate research literature up to that date. We then searched the American Psychological Association's PsycINFO database for empirical articles and book chapters on organizational climate published between 1886 and 2000. This search allowed us to identify climate studies not cited in Reichers and Schneider's review, as well as those published after the review. In addition, we manually searched the following journals, representing a principal source of published research relevant to industrial–organizational psychology, for articles published between 1990 and 2000: *Journal of Applied Psychology*, *Personnel Psychology*, *Academy of Management Journal*, and *Organizational Behavior and Human Decision Processes*. This search process yielded a total of 51 studies with 70 samples for inclusion in the meta-analysis.

Two raters examined all articles, and the necessary information was recorded for each. This included classifying all climate measures and outcomes into the appropriate category. With respect to the climate measures, studies were examined and categorized into one of the 12 dimensions identified by Ostroff (1993). Climate variables were classified as affective if the definition was consistent with interpersonal and social relations among workers. Examples of climate variables consistent with this defi-

nition are participation, warmth, social rewards, and communication. Climate variables were classified as cognitive if the definition was consistent with the notion of self-involvement in work activities. Examples of this facet are growth, innovation, and autonomy. Finally, climate variables were classified as instrumental if the definition was consistent with the idea of task-involvement and getting things done, which included dimensions such as hierarchy, structure, and extrinsic rewards. Initial agreement between the two raters on the appropriate classification for each variable was .88. The two coders then jointly investigated and came to consensus regarding any discrepancies in coding; thus, the interrater reliability above is an underestimate of the final reliability. Statistical information was then recorded for each relationship, including the effect size for the relationship and sample size.

The results of the coding showed that the climate variables from the studies in our sample could be reliably categorized into the three higher order facet model. In addition, almost all the studies could be categorized into the original 12 dimensions provided by Ostroff (1993). Nevertheless, on the basis of our review, we added one dimension to the affective facet (*communication*) and two dimensions to the instrumental facet (*job variety* and *facilitation*) because the concepts described in the article fit well with the definition of the specific higher order facet. It should also be noted that Ostroff provided three types of reward dimensions—one for each facet. We were able to find support in the climate literature for the measurement of social rewards (affective facet) and extrinsic rewards (instrumental facet) but not for intrinsic rewards (cognitive facet).

Appendix B presents a list of the primary climate variables that were classified into each of the three facets as well as the studies from which these variables originated.[1] This list helps to illustrate the proliferation and inconsistency in the use of labels for the various dimensions of climate that was discussed in the introduction. Variables were classified on the basis of the conceptual definition provided for the construct the variable represents rather than on the label assigned to it by the primary study authors. This classification results in what may appear, at first glance, as counterintuitive classifications or the classification of variables with the same label into different facets. For example, as indicated in Appendix B, some reward variables were classified into the affective climate facet, whereas others were classified into the instrumental facet. Although the labels provided by the original authors suggest that they belong in the same facet, examination of the conceptual definitions provided for those constructs indicate that they represent different aspects of climate; reward variables that were defined in terms of social recognition and praise were classified under the affective facet, whereas reward variables defined in terms of, for example, monetary bonuses and promotions, were classified under the instrumental facet. Thus, by classifying the climate variables on the basis of conceptual definitions rather than labels, a more coherent picture of the taxonomy and the relationships between climate and outcomes can be examined

Meta-Analytic Procedures

We used Hedges and Olkin's (1985) fixed effects meta-analysis method to determine the average effect size for each of the pairwise relationships included in this meta-analysis. In the first step of this meta-analysis, we transformed all effect size estimates by using the Fisher's *Z* transformation (Fisher, 1921) to reduce the effects of nonnormality of the sampling distribution. When more than one effect size was available from a single sample, we averaged these effect sizes. To correct for sampling error, we weighted the Fisher's *Z* transformed correlations by sample size such that correlations resulting from studies with larger sample sizes were given greater weight in determining the meta-analytic correlation.[2] Next, we computed the average sample-size weighted Fisher's *Z* transformed correlation. We examined variation among effect sizes through Hedges's *Q* test of homogeneity (Hedges & Olkin, 1985). We used this test to determine whether the effect size estimates were relatively consistent for each pairwise relationship, with lack of consistency suggesting the presence of moderators. Finally, we transformed the average Fisher's *Z* transformed correlations back into the original correlation metric to ease interpretation. These procedures represent standard practice in meta-analysis and are detailed in Hedges and Olkin (1985).

Analysis of Structural Relations—Path Analysis

Combining meta-analytic techniques with confirmatory model testing provides a powerful means of testing broad theories that are unlikely to be feasibly tested by any single study (Becker & Schram, 1994; Hunter & Schmidt, 1990). Such meta-analytic path analyses have been fruitfully applied to employee turnover (Hom, Caranikas-Walker, Prussia, & Griffeth, 1992), training motivation (Colquitt, LePine, & Noe, 2000), and postdivorce adjustment in young children (Whiteside & Becker, 2000), among others. We examined a causal model relating climate, cognitive and affective states, and outcomes in the current study by constructing a matrix of the meta-analyzed correlations consisting of the pairwise relationships among the variables studied in this research. We performed path analyses on the resulting correlation matrix by using AMOS (Arbuckle & Wothke, 1999). On the basis of recommendations by Hu and Bentler (1999), we evaluated model fit using the Tucker-Lewis index (TLI), the standardized root mean residual (SRMR), the root-mean-square error of approximation (RMSEA), along with the standard chi-square statistic. Hu and Bentler (1999) recommend that values of .95 for the TLI, .06 for the RMSEA, and .08 for the SRMR be used as cutoffs representing a good fit of the data to the model.

A complication that arises in this method of analysis is that structural equation modeling assumes a constant sample size for all of the observed correlations. Because our correlations represent meta-analytic correlations, the sample size for each correlation is likely to differ—often substantially. Given the large sample sizes typically found in meta-analyses, this is not a major problem—the focus of this analysis is on model fitting and theory testing, not statistical significance testing. Two reasonable alternatives for handling this problem are to use the harmonic mean of the sample sizes or the lowest sample size. In the analyses that follow, we used the conservative strategy of adopting the smallest sample size for the path analyses.

Results

Table 1 presents the meta-analyzed correlations, along with the number of studies, the total sample size contributing to each of the correlations, the standard deviation of the correlations, as well as asterisks indicating the results of the *Q* test of effect size homogeneity. Ninety-five percent confidence intervals indicated that nearly all of the correlations in Table 1 are significantly different from zero in the population, with the lone exception of the relationship between satisfaction and performance. The correlation between well-being and performance is the least precise correlation in Table 1 and is based on one effect size with 530 subjects. This lack of precision is not problematic because the two constructs are both outcome variables in our model. The most precise correlation, based on 27,123 subjects, is between the affective facet of climate and satisfaction.

[1] For a comprehensive summary of each article classification, please contact Jennifer Z. Carr.

[2] Beyond the sample-size weighting, no other corrections were applied to the meta-analyzed correlations. This decision was made because artifact corrections (e.g., measurement error or range restriction) used in meta-analysis often result in misleading inferences about the magnitude of the population effect size and the homogeneity of effect sizes in the meta-analysis (DeShon, 2001, 2002; Murphy & DeShon, 2000).

Table 1
Descriptive Statistics for the Meta-Analytic Results

Variable	Affective	Cognitive	Instrumental	Satisfaction	Commitment	Well-being	Performance	Withdrawal
Affective	—							
Cognitive	*.41* (.38–.43) (23, 6875, .16[a])	—						
Instrumental	*.47* (.45, .48) (28, 9033, .16[a])	*.36* (.34, .38) (22, 6668, .13[a])	—					
Satisfaction	*.46* (.45, .47) (41, 27123, .12[a])	*.33* (.32, .34) (29, 23394, .24[a])	*.44* (.43, .45) (30, 24628, .13[a])	—				
Commitment	*.34* (.31, .36) (18, 6240, .12[a])	*.28* (.25, .31) (10, 3856, .09[a])	*.26* (.23, .29) (10, 3891, .13[a])	*.49* (.47, .51) (13, 5318, .17[a])	—			
Well-being	*.17* (.13, .22) (13, 2084.5, .12[a])	*.07* (.02, .12) (9, 1593, .09)	*.11* (.06, .16) (9, 1593, .14[a])	*.22* (.17, .27) (6, 1376, .10[a])	*.08* (.01, .15) (2, 796, .10[a])	—		
Performance	*.09* (.05, .12) (15, 3136, .09[a])	*.05* (.02, .09) (16, 3306, .13[a])	*.05* (.01, .09) (13, 2787, .09[a])	*.05*† (−.02, .12) (3, 786, .03)	*.14* (.09, .20) (5, 1187, .03)	*.12* (.03, .20) (1, 530, n.a.)	—	
Withdrawal	*−.28* (−.24–−.32) (7, 1957, 14[a])	*−.07* (−.01, −.14) (3, 884, .03)	*−.33* (−.28, −.37) (6, 1762, 19[a])	*−.46* (−.43, −.50) (7, 1823, 23[a])	*−.31* (−.27, .34) (7, 2087, .17[a])	*−.12* (−.05, −.20) (2, 630, .14[a])	*−08* (−.01, −.16) (2, 596, .00)	—

Note. Mean correlations are italicized. Values in parentheses following correlations indicate the lower and upper bound of 95% confidence interval. Values in parentheses below correlations indicate *k* (number of studies), *N* (sample size), and *SDr* (standard deviation of observed correlations). All correlations are significant at $p < .05$ (95% confidence interval does not include 0) except that marked by a dagger. n.a. = not applicable.
[a] Significant *Q* test for the observed correlations.

The results of the *Q* test show that many of the relationships demonstrated significant variability in effect sizes across studies, suggesting that moderators may be present. This variability is not surprising given the macro nature of the constructs examined, as the relationships are likely to vary as a function of numerous factors that differ across studies, such as industry characteristics. Identifying and examining the moderator variables responsible for this variation was beyond the scope of this article, but this finding suggests fruitful directions for future investigation.

Climate to Cognitive and Affective States

The results of the meta-analyses showed the three facets of climate were moderately correlated, with the strongest relationship between the affective and instrumental facets ($r = .47$). The relationship between affective and cognitive facets was .41, whereas the correlation between cognitive and instrumental facets was .36. Consistent with the proposed model, moderate to large relationships were found among all three facets of climate and job satisfaction, ranging from $r = .33$ for the cognitive facet to $r = .46$ for the affective facet ($r = .46$). In support of the model also, the three facets of climate were positively related to organizational commitment, although these relationships were somewhat weaker than those observed for job satisfaction ($r = .34$ for affective, $r = .28$ for cognitive, $r = .26$ for instrumental).

Climate to Cognitive and Affective States and Outcomes

All three climate facets had significant relationships with all three outcomes in the model, although these relationships were generally considerably smaller than those observed with job satisfaction and organizational commitment. Affective climate had a modest positive relationship with psychological well-being ($r = .17$) and performance ($r = .09$) and a stronger negative relationship with withdrawal ($r = –.28$). The cognitive facet exhibited smaller but significant relationships with well-being ($r = .07$), performance ($r = .05$), and withdrawal ($r = –.07$). The instrumental facet had a small positive relationship with well-being ($r = .11$) and performance ($r = .05$) and a moderate negative relationship with withdrawal ($r = –.33$).

Cognitive and Affective States to Outcomes

Organizational commitment exhibited a small positive relationship with well-being ($r = .08$) and performance ($r = .14$) and a moderate negative relationship with withdrawal ($r = –.31$). Job satisfaction had a small to moderate positive relationship with well-being ($r = .22$) and a large negative relationship with withdrawal ($r = –.46$). The relationship between job satisfaction and performance represented the lone nonsignificant correlation in this matrix ($r = .05$), with a 95% confidence interval containing zero.

The relationships among the various outcomes examined in this meta-analysis are consistent with the zero-order correlations found in prior meta-analyses on organizational commitment and job satisfaction (Cohen, 1993; Kinicki et al., 2002; Lee & Ashforth, 1996; Mathieu & Zajac, 1990; Tett & Meyer, 1993). However, the relationship between job satisfaction and performance is a notable exception—whereas a nonsignificant zero-order relationship of .05 was observed in the present analysis, meta-analyses by Iaffaldano

and Muchinsky (1985) and Judge et al. (2001) found the uncorrected relationship to be .15 and .18, respectively. This discrepancy is likely due to the sizable difference in number of studies contributing to the effect size—whereas the relationship in the Judge et al. meta-analysis was based on 312 studies, we only found three studies in the climate literature that examined this link. Although the results of our meta-analysis reflect the relationship observed in the climate literature, the small number of studies contributing to this relationship leads us to conclude that our estimate is likely less accurate than that obtained by Judge et al. Given this inconsistency, we used the uncorrected population correlation of .18 observed in the Judge et al. meta-analysis to represent the relationship between job satisfaction and performance in the subsequent path analyses described below.

Path Analysis

Although the meta-analytic results discussed above provide support for all but one link in the model, they fail to provide an overall test of the model in its entirety. In addition, the meta-analysis results do not provide information regarding unique or incremental relationships above and beyond the variance explained by other variables in the model. To test the complete hypothesized model, including examination of the unique variance explained by each link in the model, we evaluated the meta-analytic correlation matrix by using structural equations modeling (SEM). The first model tested, indicated in Figure 2, was a fully mediated model in which the three dimensions of climate were hypothesized to effect satisfaction and commitment. Satisfaction and commitment were then expected to affect well-being, performance, and withdrawal. In addition, although not of substantive interest, the well-established relationship between job satisfaction and organizational commitment (e.g., Farkas & Tetrick, 1989; Mathieu, 1991; Mathieu & Zajac, 1990) had to be modeled to obtain a reasonable fit to the data. Although this relationship has been well-established, the direction of causality has not, with many suggesting that the relationship may be reciprocal (e.g., Curry, Wakefield, Price, & Mueller, 1986; Farkas & Tetrick, 1989; Mathieu, 1991). Thus, given the lack of consensus regarding causal priority, as well its lack of substantive import in the model of interest in this study, this known relationship was accounted for by allowing the residuals of these two constructs to freely covary. The smallest sample size of 530 was used as the common sample size for estimating the model. Larger sample sizes were also examined when fitting the models with no substantial changes in conclusions or model fit. The chi-square test for this model was significant, $\chi^2(12, N = 530) = 37.83$, $p < .01$, but the fit indices indicated moderate to good model fit (TLI = .92; RMSEA = .06; SRMR = .03), meeting Hu and Bentler's (1999) recommended cutoff for SRMR and RMSEA.

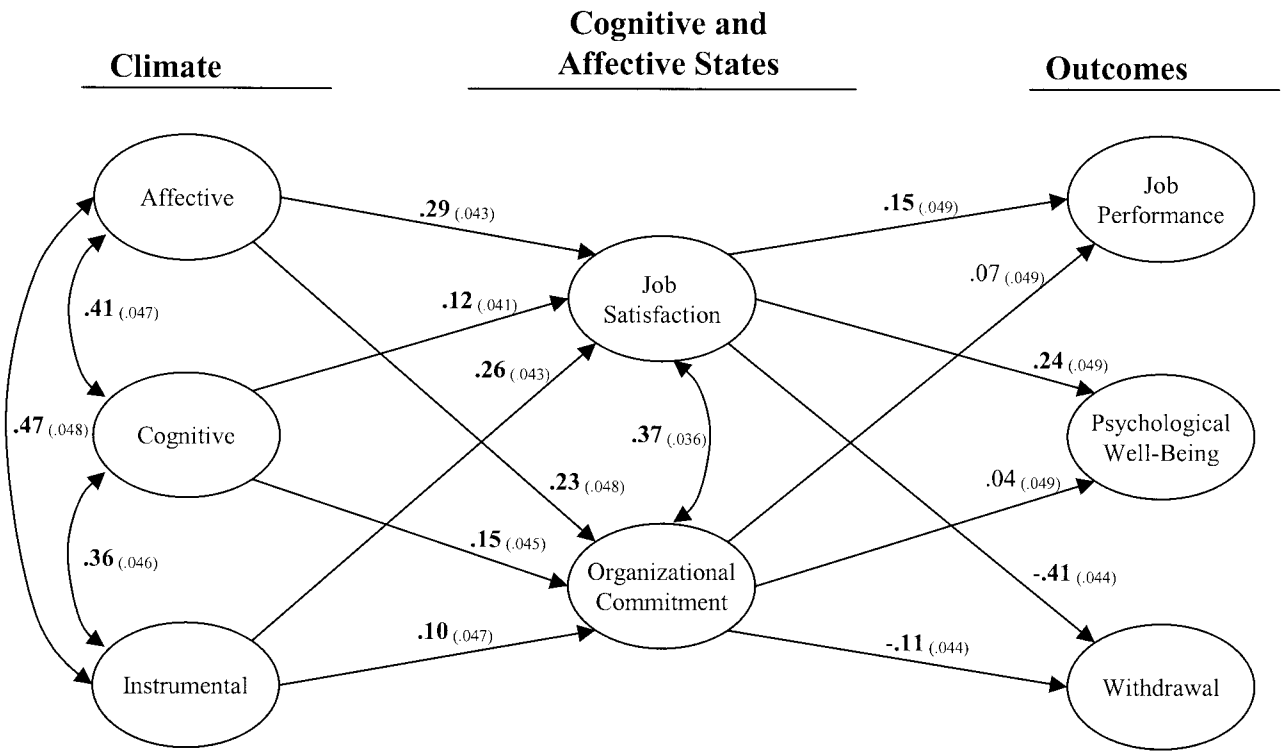

Figure 2. Initial path model with standardized regression weights. $\chi^2(12, N = 530) = 37.83$, $p < .01$; Tucker-Lewis index = .92; root-mean-square error of approximation = .06; standardized root mean residual = .03. Standardized regression coefficients in bold are significant at $p < .05$. Subscript values in parentheses are standard errors for the regression coefficient.

We tested a revised model in which we added a direct path between the instrumental facet of climate and withdrawal. Allowing the direct path between instrumental climate and withdrawal to be freely estimated resulted in a significant increase in model fit, as indicated by a significant reduction in chi-square, $\Delta\chi^2(1, N = 530) = 12.87, p < .01$. Although the chi-square test for the revised model was significant, $\chi^2(11, N = 530) = 25.00, p < .01$, the model demonstrated a good fit to the data (TLI = .94; RMSEA = .05; SRMR = .03), meeting two of Hu and Bentler's (1999) three criteria for model fit and falling just short of the recommended cutoff for TLI. Finally, we tested a third revised model in which paths with trivial standardized regression coefficients (less than .10 and nonsignificant) were removed. This results in a more parsimonious model of the relationship between climate and outcomes, which is presented in Figure 3. The chi-square test for this model was also significant, $\chi^2(13, N = 530) = 27.50, p < .01$, whereas the fit indices indicated moderate to good model fit (TLI = .95; RMSEA = .05; SRMR = .03), meeting all three of Hu and Bentler's (1999) criteria for model fit. Although there is no significant difference in model fit between the two revised models, $\Delta\chi^2(2, N = 530) = 2.50, p > .05$, and examination of the fit indices suggests that both revised models fit the data equally well, the reduced model has the benefit of greater parsimony. On the basis of this information we conclude that the reduced mediated model in Figure 3 is a reasonable representation of the population path model relating the climate dimensions to important job attitudes and outcomes.

Discussion

Our study addressed a need to better understand climate's effects. We applied a well-developed taxonomy by Ostroff (1993) in order to organize the literature in a way that would allow for a meta-analytic review. We then tested a conceptual model based on the work of Kopelman et al. (1990) to draw conclusions as to the impact of workplace climate on affective and cognitive states and individual level outcomes. In conducting this study, we argue for the need to consider climate research from a bandwidth perspective. Individuals interested in predicting specific outcomes (e.g., safe behavior) are well served by the narrow taxonomy of specific climates (e.g., climate for safety; Ostroff et al., 2003; Schneider, 2000). Our study, however, demonstrates that individuals interested in predicting broader individual level outcomes (e.g., performance and withdrawal) can also be well served by a taxonomy of more molar climate perceptions.

Study Contributions

In particular, our study contributes to the climate literature in at least four ways. First, it shows that climate dimensions can be categorized into the taxonomy proposed by Ostroff (1993). In support of our first hypothesis, these three higher order facets of climate explain a meaningful amount of variance in individual level work outcomes (through their effect on cognitive–affective states). This limited number of higher order dimensions bears the

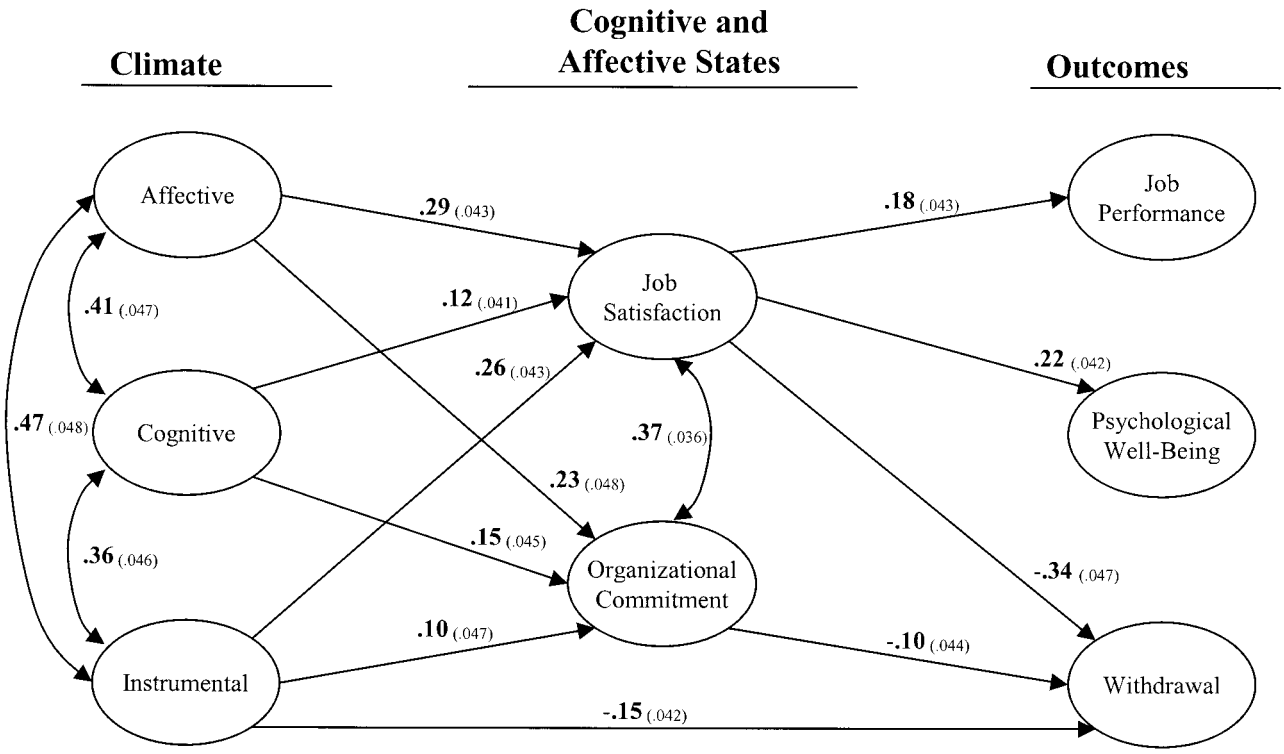

Figure 3. Final path model with standardized regression weights. $\chi^2(13, N = 530) = 27.50, p < .01$; Tucker-Lewis index = .95; root-mean-square error of approximation = .05; standardized root mean residual = .03. Standardized regression coefficients in bold are significant at $p < .05$. Subscript values in parentheses are standard errors for the regression coefficient.

benefits of parsimony and ease of interpretation while retaining explanatory power. This finding has important practical implications in that salient organizational behaviors, such as performance, ultimately result in greater organizational productivity, such as increased physical output and decreased total labor costs.

Second, this study empirically tested and found general support for the mediation model of climate suggested by Kopelman and his colleagues (1990). It is important to note that our findings support the previously untested proposition that climate's impact on organizational outcomes is mediated by its effect on cognitive and affective states. Moreover, these findings provide further support for the notion that attitudes can play an important role in the relationship between the work environment and individual level outcomes (e.g., Ajzen & Fishbein, 1980; Mobley et al., 1979).

Third, the study results showed some differential relationships between the three facets of organizational climate and the cognitive and affective states. This contribution is important in that the literature has not previously identified which specific features of the work environment might be associated with specific cognitive or affective states (Brief & Weiss, 2002). We found that the affective facet had a slightly stronger relationship with commitment than did the cognitive and instrumental facets and that the affective and instrumental facets had a stronger influence on job satisfaction relative to the cognitive facet. Organizational commitment represents a bond or linking of the individual to the organization (Matheiu & Zajac, 1990), which might explain why the interpersonal aspects of the environment had a greater influence on commitment than those aspects involving psychological and task involvement. Job satisfaction, in contrast, represents affective responses to the evaluation of the job (Mobley et al., 1979), which are influenced by both people involvement and task involvement factors (e.g., Kinicki, McKee-Ryan, Schriesheim, & Carson, 2002; Spector, 1997). This might explain why the affective and instrumental facets were found to have a stronger influence on job satisfaction relative to the cognitive facet. Although the cognitive facet showed relatively weaker relationships with the two states than the other facets, this does not necessarily indicate that the psychological involvement elements of the environment are unimportant. Job satisfaction and organizational commitment are states that are specific to the job and to the organization, whereas the cognitive facet involves self-knowledge and development. Thus, it is possible that this facet of the environment is related to more self-relevant cognitive and affective states, such as work motivation.

Further, these results suggest that some states are more relevant for different types of outcomes, providing partial support for Kopelman et al.'s (1990) differential mediation hypotheses. Although Kopelman et al. (1990) proposed that the relationship between climate and performance is mediated through cognitive states such as organizational commitment, the results of our study suggest that this relationship occurs primarily through the affective state of job satisfaction. However, it is possible that other cognitive states that were not examined in the studies comprising the meta-analysis, such as work motivation, may play an important role in the relationship between climate and performance.

Fourth, our results speak to the relative contribution of organizational commitment and job satisfaction in explaining various work behaviors. Our results (depicted in Figure 3) suggest that job satisfaction explains an incremental amount of variance in individual level outcomes (above and beyond organizational commitment), whereas organizational commitment only explains an incremental amount of variance in withdrawal. Our finding that organizational commitment and satisfaction uniquely contribute to the turnover process is consistent with the previous meta-analytic review of this relationship (Tett & Meyer, 1993). However, the finding that job satisfaction is positively related to other outcomes even after controlling for the effects of commitment has not been examined or demonstrated in previous meta-analyses.

In sum, this integrative review has helped to reconcile inconsistencies in the findings across climate studies. Meta-analytic and path analysis techniques have helped to synthesize and clarify the literature on the relationship between climate and broader outcomes. In doing so, we have demonstrated the utility of a three-facet taxonomy of molar climate and provided support for the idea that climate's impact on these outcomes occurs through its effect on cognitive and affective states (James & Jones, 1974, 1976; Kopelman et al., 1990).

Study Limitations

Although the present study has contributed to the literature on climate, there are three issues that limit the contributions of this study. First, we were surprised to find only 51 studies and 70 samples that provided the level of detail needed to be included in this meta-analysis. Climate research has a long history in industrial and organizational psychology. Yet, as we examined the much larger number of empirical investigations of the construct, we found that many studies did not contain any outcomes or did not report the statistical information necessary to obtain an effect size. One implication of this smaller than expected sample size was that we could not conduct meaningful analyses for each of the 12 climate dimensions embedded in the three higher order climate factors.

A second limitation concerns the constructs that could not be included in this integrative review. In particular, Kopelman and his colleagues (1990) contended that work motivation mediates the climate–outcome relationship. Surprisingly, we could not find any studies explicitly investigating the impact of climate on work motivation, and thus, this proposition remains untested. Other gaps concern organizational outcomes such as organizational citizenship behaviors and dysfunctional behaviors. These constructs are relatively new to psychology and did not provide the number of studies needed to examine the pathways to these outcomes.

A third limitation that might be raised about this study is the potential inflation of relationships due to method variance. Measures in the model were mainly gathered from self reports by employees including many of the outcome measures. Supervisors, peer ratings, or objective indicators of performance and well-being (e.g., stress indicators) would provide a more comprehensive understanding of the relationships tested in our model. Nevertheless, if the findings of this study were solely attributable to method variance, one would expect to see similar relationships across various linkages in the model. This pattern of relationships was not present in the data; climate facets had differential relationships to the cognitive and affective states studies and these states of commitment and satisfaction had different relationships to individual level outcomes.

Future Directions

One of the recently identified gaps in the climate literature is research concerning the mediating linkages between climate and outcomes (Ostroff et al., 2003). In identifying the cognitive and affective states that mediate the relationship between climate facets and organizational outcomes, this model serves to begin filling this gap. This understanding of what environmental characteristics influence individual's perceptions of shared experiences and how these characteristics translate into important outcomes is clearly valuable. For example, this information can help determine what are the levers of change in an organization. Knowing what aspects of the environment are most related to a particular outcome of interest can help determine where to focus an intervention effort and where to measure its effects. Individuals interested in improving performance, for instance, might want to focus more on improving job satisfaction than organizational commitment. Similarly, the climate facet most relevant for improving organizational commitment is the affective facet, which represents people involvement and social relations.

From a research perspective, we stress the value in researchers using the taxonomy of climate based on Ostroff (1993) to identify the key components of climate to include in future studies. In this way, the organizing framework can minimize inconsistencies in labeling and definitions that make comparisons across studies more difficult. In addition, we are proposing three broad research questions that we believe are worthy of future attention. One research question is, What are some additional cognitive and affective states that play a role in the climate–outcome relationship? For example, it is quite possible that the fact that work motivation is not represented in our model as a mediating variable has left important relationships unrepresented. Thus, we suggest that the motivational constructs of direction, intensity, and persistence be included in future research on molar climate issues. For example, instrumental elements of climate might be very important for affecting direction, whereas the cognitive elements of innovation and autonomy may have important impacts on motivational intensity.

A second research question is, What are potential moderators of the climate–outcome relationship? Possible moderators of the relationship between climate and cognitive and affective states include objective characteristics of the organization (e.g., size and demographic make-up) as well as individual differences variables (e.g., cognitive ability, conscientiousness, and core self-evaluative traits). For example, one might argue that the relationship between the affective facet of climate and organizational commitment is stronger for individuals who are less conscientious. Another possible moderator of the climate–state relationship is *climate strength*, a group- or organizational-level variable that represents the degree of consensus in climate perceptions. Research by Schneider, Salvaggio, and Subirats (2002) suggests that climate strength is associated with a stronger relationship between a positive climate and positive organizational outcomes, but it is worthwhile to examine the mechanisms by which this occurs.

A third research question is, What is the relationship between climate and additional work outcomes? Given organizations' current interest in a broader scope of work outcomes, we believe the literature would benefit from molar climate research that examines how components of environmental variation impact on behaviors such as organizational citizenship, workplace deviance, harassment, aggression, proactivity, and openness to change. In addition, future climate research might differentiate between contextual and task performance (Borman & Motowidlo, 1997) and between functional and dysfunctional turnover.

More generally, future research should focus on the bandwidth issue within climate research. For example, the Kopelman et al. (1990) model might be relevant for the more specific climate focus of recent studies. That is, research could begin to examine mediation hypotheses such as the extent to which specific climate perceptions impact specific outcomes through their impact on specific cognitive and affective states. For example, one might posit that climate for safety impacts safe behavior through its impact on commitment to safety work practices. Finally, we agree with Ostroff and her colleagues (Ostroff et al., 2003) that much could be gained by simultaneously examining multiple climates such that different configurations of climate are likely to be related to effectiveness outcomes in different domains.

To develop a more complex understanding of the psychological life of organizations, it is also necessary to better understand the relationship between climate and culture (Ostroff et al., 2003; Schneider, 2000). Both constructs describe the ways organizational participants experience and make sense of organizations (Schneider, 2000), but they are unique conceptualizations of the environment in that climate refers to what happens in an organization and culture refers to why it happens (Ostroff et al., 2003). Thus, these are not competing ideas but rather complementary constructs that reveal overlapping yet distinguishing nuances in the psychological life of organizations (Schneider, 2000). Returning to the bandwidth perspective, one might say that these two constructs differ in bandwidth such that culture is a broader manifestation of the environment than climate. Thus, in addition to generating mediation hypotheses for specific climates, it might also be fruitful to specify a hierarchy of environmental variation models that specify how culture impacts important organizational outcomes as well as developing composition models (e.g., Kozlowski & Klein, 2000) on how these manifestations of the environment (culture, molar climate, specific climate) relate to each other. This hierarchy of environmental variation models may include emerging developments in the literature, such as climate strength and group-level conceptualizations of the environment (e.g., Zohar, 2000).

In conclusion, this research effort has attempted to organize our knowledge about the components of environmental variation and to demonstrate the ways in which this variation influences important process and individual level outcome variables. The research compliments recent efforts to examine more specific types of climate. Although the research on molar and specific climates have somewhat different goals, together they provide a more comprehensive perspective as to how perceptions about work matter.

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Appendix A

Ostroff's (1993) Climate Taxonomy

Affective facet—people involvement; interpersonal or social relations
- Participation: Perceived influence in a process of joint decision making; participation in setting goals and policies
- Warmth: Perceived feelings of good fellowship in workgroup; prevalence on friendly, informal social groups; perceived helpfulness of supervisors and coworkers; emphasis on mutual support
- Social rewards: Praise from others used to reward work, rewards based on effort and time spent on work; formal recognition and awards based on ability and effort
- Cooperation: Perceived helpfulness of supervisors and coworkers; emphasis on mutual support

Cognitive facet—psychological involvement; self-knowledge and development
- Growth: Perceived emphasis on personal growth and development on job; emphasis on skill improvement; perception of challenge, demand for work, and continuous improvement of performance
- Innovation: Perceived emphasis on innovation and creativity in work; acceptance of
- Autonomy: Perceived freedom to be own boss; plan and control over work
- Intrinsic rewards: Formal recognition and awards based on ability and effort

Instrumental facet—task involvement and work processes
- Hierarchy: Perceived emphasis on going through channels; locus of authority in supervisory personnel
- Structure: Perception of formality and constraint in the organization; orderly environment; emphasis on rules, regulations, and procedures
- Extrinsic rewards: Extrinsic rewards of pay, assignments, advancement based on ability and time spent on work
- Achievement: Perception of challenge, demand for work, and continuous improvement of performance

(*Appendixes continue*)

Appendix B

Primary Study Variable Labels Included in Each Facet of Climate

Variable labels		Primary studies	
Affective facet (Dimensions: Participation, warmth, social rewards, cooperation)			
Accomodation	Management involve staff	Ansari, Baumgartel, & Sullivan (1982)	Rosen (1998)
Amount of communication	MBO orientation	Awal & Stumpf (1981)	Schnake (1983)
Cohesiveness	Morale	Batlis (1980)	Schneider & Snyder (1975)
Communication (6)	New worker treatment	Bedeian, Armenakis, & Curran (1981)	Shadur, Kienzle, & Rodell (1999)
Cooperation (2)	Affect	Bluen & Donald (1991)	Steel, Shane, & Kennedy (1990)
Conflict	Openness of upward communication	Brown & Leigh (1996)	Timmerman & Bajema (2000)
Conflict vs. cooperation (2)	Participation (2)	Churchill, Ford, & Walker (1976)	Tyagi & Wotruba (1993)
Contribution	Participation and reward orientation	Day & Bedeian (1991)	Waters, Roach, & Batlis (1973)
Coworker support (2)	Participative decision management	DeCotiis & Summers (1987)	Welsch & LaVan (1981)
Decision centralization	Peer cohesion (3)	Dillard, Wigand, & Boster (1986)	West et al. (1998)
Decision making (3)	Recognition (2)	Dorr, Honea, & Pozner (1980)	Witt (1989)
Departmental participation	Relations	Friedlander & Greenberg (1971)	
Different people get on well	Rewards and recognition	Gavin & Howe (1975)	
Effectiveness of formal communication	Rewards-criticism	Gunter & Furnham (1996)	
Esprit	Social climate organization	Hemingway & Smith (1999)	
Friendly team spirit	Social relations (2)	Hershberger, Licktenstein, & Knox (1994)	
General affect tone toward others	Social rewards	Johannesson (1973)	
Global (2)	Staff relations	Johnson & McIntye (1998)	
Group cohesiveness	Staff support	Joyce, Slocum, & Von Glinow (1982)	
Harmony	Supervision (leader behavior)	Kline & Boyd (1991)	
Horizontal cohesion	Supervisor support (6)	Kozlowski & Hults (1987)	
Human resources	Supervisory interaction facilitation	LaFollette & Sims (1975)	
Influence over standards	Support (10)	Leigh & Futrell (1985)	
Information adequacy	Support from peer workers	Luthans, Wahl, & Steinhaus (1992)	
Information exchange	Support from supervisor	Mastrangelo & Popovich (2000)	
Intergroup cooperation	Teamwork (2)	McGinnis & Morrow (1990)	
Intimacy (2)	Trust	Ostroff (1993)	
Involvement (3)	Trust in co-workers	Parker, Dipboye, & Jackson (1995)	
Involvement in decision making	Upward openness	Peiro et al. (1996)	
Know what is going on	Verticle cohesion	Pretty, McCarthy, & Catano (1992)	
Knowledge of results	Warmth (5)	Pritchard & Karasick (1973)	
Leader trust and support	Warmth & support (2)	Repetti (1987)	
Management & peer support	Work group interaction	Repetti & Cosmas (1991)	
Cognitive facet (Dimensions: Growth, innovation, autonomy, intrinsic rewards)			
Achievement (2)	Motivation to achieve (2)	Ansari, Baumgartel, & Sullivan (1982)	LaFollette & Sims (1975)
Autonomy (7)	Risk-taking (2)	Awal & Stumpf (1981)	Ostroff (1993)
Challenge (2)	Open challenging environment	Batlis (1980)	Parker, Dipboye, & Jackson (1995)
Control (2)	Organization expectation	Brown & Leigh (1996)	Peiro et al. (1996)
Creativity and innovation (2)	Pressure (2)	Day & Bedeian (1991)	Pretty, McCarthy, & Catano (1992)
Decision making	Reflexivity	DeCotiis & Summers (1987)	Pritchard & Karasick (1973)
Encouragement to work hard	Responsibility (4)	Dorr, Honea, & Pozner (1980)	Schnake (1983)
Flexibility & innovation (3)	Self-expression	Gavin & Howe (1975)	Schneider & Snyder (1975)
Growth	Standards	Gunter & Furnham (1996)	Scott & Bruce (1994)
Independence	Support for innovation	Hemingway & Smith (1999)	Shadur, Kienzle, & Rodwell (1999)
Influence over job	Task orientation (3)	Hershberger, Licktenstein, & Knox (1994)	Waters, Roach, & Batlis (1973)
Innovation (9)	Trust/consideration	Johnson & McIntye (1998)	Welsch & LaVan (1981)
Job assignments	Updating support (2)	Jones (1996)	West et al. (1998)
Job importance/challenge	Work autonomy	Joyce, Slocum, & Von Glinow (1982)	Witt (1989)
Job pressure and standards		Kline & Boyd (1991)	Witt & Beorkrem (1989)
Managerial structure		Kozlowski & Hults (1987)	

Appendix B (*continued*)

Variable labels		Primary studies	
Instrumental facet (Dimensions: Hierarchy, structure, extrinsic rewards, achievement)			
Bureaucratic (3)	Management support	Ansari, Baumgartel, & Sullivan (1982)	Pretty, McCarthy, & Catano (1992)
Career development	Order and organization	Batlis (1980)	Pritchard & Karasick (1973)
Clarity (5)	Organizational identification	Brown & Leigh (1996)	Schnake (1983)
Closeness of supervision	Pay	Churchill, Ford, & Walker (1976)	Schneider & Snyder (1975)
Concern	Performance reward dependency (3)	Day & Bedeian (1991)	Schneider, White, & Paul (1998)
Constraints	Policy and promotion clarity	Dorr, Honea, & Pozner (1980)	Scott & Bruce (1994)
Degree of organization	Positive behavior	Gunter & Furnham (1996)	Shadur, Kienzle, & Rodwell (1999)
Effective organizational structure	Program clarity	Hershberger, Licktenstein, & Knox (1994)	Timmerman & Bajema (2000)
Extinsic rewards	Resource supply	Johannesson (1973)	Tyagi & Wotruba (1993)
Formalization and bureaucracy	Respect for rules	Johnson & McIntye (1998)	Waters, Roach, & Batlis (1973)
Hierarchy	Reward (6)	Jones (1996)	West et al. (1998)
Hindrance	Rewards–promotions	Joyce, Slocum, & Von Glinow (1982)	Witt (1989)
Inadequate compliance	Senior management support	LaFollette & Sims (1975)	
Inadequate effort	Status polorization	Leigh & Futrell (1985)	
Intrinsic rewards	Structure (8)	McGinnis & Morrow (1990)	
Job variety	Training (2)	Ostroff (1993)	
Leader goal emphasis	Work facilitation	Parker, Dipboye, & Jackson (1995)	
Level of rewards (2)		Peiro et al. (1996)	

Note. Values in parentheses indicate the number of primary studies using the variable label (if greater than one). MBO = management buy-out.

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