Journal of Applied Psychology
2014, Vol. 99, No. 6, 1042–1058


0021-9010/14/$12.00 http://dx.doi.org/10.1037/a0037868

# Climate Uniformity: Its Influence on Team Communication Quality, Task Conflict, and Team Performance

Vicente González-Romá and Ana Hernández
University of Valencia

We investigated whether climate uniformity (the pattern of climate perceptions of organizational support within the team) is related to task conflict, team communication quality, and team performance. We used a sample composed of 141 bank branches and collected data at 3 time points. The results obtained showed that, after controlling for aggregate team climate, climate strength, and their interaction, a type of nonuniform climate pattern (weak dissimilarity) was directly related to task conflict and team communication quality. Teams with weak dissimilarity nonuniform patterns tended to show higher levels of task conflict and lower levels of team communication quality than teams with uniform climate patterns. The relationship between weak dissimilarity patterns and team performance was fully mediated by team communication quality.

*Keywords:* team climate, climate uniformity, team task conflict, team communication quality, team performance



Climate is a classic topic in organizational psychology. Climate research has shown that work-units' aggregate climate (i.e., unit perceptions shared by unit members) is related to work-unit processes such as communication (Cropanzano, Li, & Benson, 2011) and work-unit outcomes such as performance (González-Romá, Fortes-Ferreira, & Peiró, 2009; West, Smith, Feng, & Lawthom, 1998; see Kuenzi & Schminke, 2009, for a review). Recent research has demonstrated that within-unit dispersion in climate perceptions also influences work-unit outcomes. This research has focused on examining the role of climate strength (the degree of within-unit agreement among employees' climate perceptions), showing that it typically moderates the relationship between aggregate work-unit climate and work-unit outcomes (see González-Romá & Peiró, 2014, for a review). However, climate strength is only one of the two dimensions of within-unit dispersion in climate perceptions (Brown & Kozlowski, 1999; Kozlowski & Klein, 2000); the other one (climate uniformity) has not been empirically examined yet and, thus, will be investigated in the present study.

Before defining climate uniformity, it is important to note that climate strength (generally operationalized by means of within-unit variability statistics, such as the standard deviation; e.g., Schneider, Salvaggio, & Subirats, 2002) cannot convey all the information about the dispersion of climate perceptions within a work unit. To illustrate this, in Figure 1 we show the distribution of individual climate scores for two hypothetical work teams where the standard deviation of the climate scores is the same, equaling one. Despite this, the pattern of climate scores in the two teams is quite different. In one team there are two subgroups with dissimilar views on the climate dimension involved, reflected by the low and high scores presented by each subgroup. In the other team, there is only one grouping of scores that shows a clear tendency of convergence toward the group mode.

These kinds of differences between climate patterns have not been empirically addressed in the climate literature. This gap is important because, as we explain later, climates with different patterns of climate scores may have distinct consequences for work-unit functioning and outcomes. To begin to address this gap, a different climate-related concept (climate uniformity) is needed. As Kozlowski and his colleagues pointed out (Brown & Kozlowski, 1999; Kozlowski & Klein, 2000), uniformity is a dimension of dispersion in teams that refers to the pattern or form of distribution shown by an individual-level property (e.g., employee climate perceptions) within work-units. Thus, we define climate uniformity as the pattern or form of distribution of climate perceptions within a work-unit. Uniform climates show a single-modal pattern with a single grouping or cluster of climate perceptions comprising all the unit members. Nonuniform climates show multimodal or highly skewed patterns involving arrays that exceed a single grouping of climate perceptions (Brown & Kozlowski, 1999; Kozlowski & Klein, 2000).

Climate uniformity can affect team functioning and outcomes beyond the influence of aggregate work-unit climate and climate strength. We base this idea on two arguments. First, as we explain in detail later, climate uniformity represents differences among work-units on a distinct continuum: Whereas aggregate work-unit

This article was published Online First September 8, 2014.

Vicente González-Romá and Ana Hernández, IDOCAL, University of Valencia.

This investigation was supported in part by Spanish Ministry of Education and Science Research Grant BSO2000-1444 and Generalitat Valenciana Research Grant PROMETEO/2012/048.

An earlier version of this study was presented at the Symposium on Emerging Issues in Team Development and Effectiveness, chaired by S. W. J. Kozlowski and D. Ilgen, at the 26th International Congress of Applied Psychology, July 16–21, 2006, Athens, Greece.

Correspondence concerning this article should be addressed to Vicente González-Romá, IDOCAL, Facultat de Psicologia, Universitat de València, Av. Blasco Ibáñez, 21, 46010-Valencia, Spain. E-mail: vicente.glez-roma@uv.es

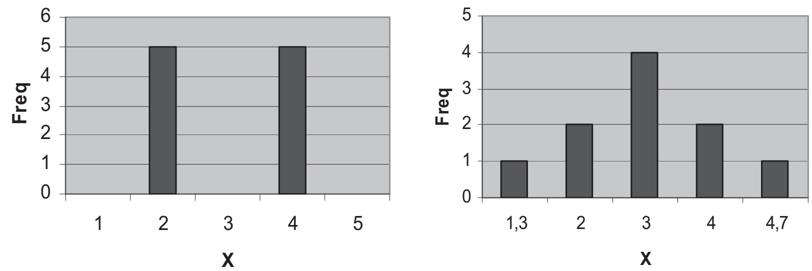


*Figure 1.* Two distinct hypothetical patterns of climate perceptions with the same within-team standard deviation in climate perceptions, $SD(X) = 1$. The $X$ axis represents team members' climate scores on a 1–5 scale. The $Y$ axis represents the frequency (freq) of observed scores.



climate represents differences in climate level or magnitude, and climate strength represents differences in within-unit agreement about unit climate perceptions, climate uniformity represents differences in within-unit *dis*agreement about these climate perceptions (Kozlowski & Klein, 2000). These latter differences cannot be captured by aggregate work-unit climate and climate strength. Therefore, we posit that climate uniformity can have a unique influence on team functioning and team outcomes that is not accounted for by aggregate work-unit climate and climate strength. Second, nonuniform climate patterns involve the formation of subgroups with distinct climate perceptions within teams (Brown & Kozlowski, 1999; Kozlowski & Klein, 2000); as we see later, this aspect is not covered by the concepts of aggregate work-unit climate and climate strength. Interestingly, recent theory and research on this issue (Carton & Cummings, 2012, 2013) have pointed out that the formation of subgroups within teams can have important implications for team functioning and outcomes.

Thus, in order to extend the knowledge about the role of climate in work-units, it is theoretically important to understand how and why climate uniformity is related to key criteria. Therefore, the goal of this study is to examine whether team climate uniformity is related to team communication quality, team task conflict, and team performance, once aggregate team climate, climate strength, and their interaction have been controlled for. To do so, using data collected at three time points, we test a number of hypotheses about the relationship between uniformity in perceptions of organizational support and the aforementioned criteria. Our general hypothesis posits that climate uniformity is indirectly related to team performance through its relationship with quality of team communication and team task conflict. Our research model is shown in Figure 2.

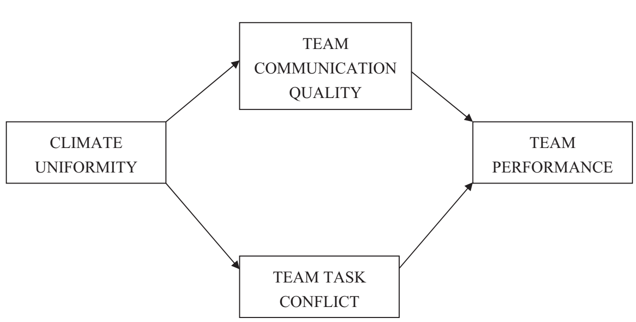


*Figure 2.* The research model.

Our study attempts to make a number of contributions to the climate literature. First, from a conceptual perspective, by extending the number of climate concepts, our study helps to refine how work-unit climate is represented as an emergent, higher level construct. Second, from a theoretical perspective, by moving climate research beyond climate strength, our study can help to fully understand the role of climate dispersion in the relationship between team climate and team functioning and outcomes, providing greater analytical precision in representing this relationship. Third, methodologically, we propose and implement a procedure for operationalizing climate uniformity that proves to be effective. Fourth, from an empirical perspective, we provide an initial evaluation of the predictive power of climate uniformity, beyond aggregate climate and climate strength, and we show the empirical viability of this climate concept. Finally, from an applied perspective, the present study can contribute to identifying dysfunctional climate patterns with undesirable consequences for real work-teams. Managers and team leaders have to be aware of these patterns if they want to promote proper functioning and high performance in their teams.

The following pages of this Introduction are structured as follows. First, we show how climate uniformity is distinct from other climate concepts (i.e., aggregate work-unit climate and climate strength). Second, we distinguish among different climate patterns. And finally, we elaborate specific hypotheses about the relationship between climate uniformity in perceptions of organizational support and quality of intrateam communication, team task conflict, and team performance.

## Climate Uniformity and Other Climate Concepts

In order to show how climate uniformity is distinct from aggregate work-unit climate and climate strength, it is useful to highlight that the three concepts represent emergent phenomena. *Emergent phenomena* originate in the cognition, affect, behavior, or other characteristics of individuals, but they manifest as higher level, collective phenomena (Kozlowski & Klein, 2000). The aforementioned individual properties (i.e., cognition, affect, behavior) represent the *elemental content* or raw material of emergence. Emergent phenomena can be characterized and distinguished by analyzing the *emergence processes* involved in each case; these processes "describe the manner in which lower-level properties emerge to form collective phenomena” (Kozlowski & Klein, 2000, p. 15). To analyze the emergence processes involved in the three aforementioned climate concepts, we used the typology of emergence proposed by Kozlowski and Klein (2000). Moreover, we also took into account the three elements that, according to these authors, can help distinguish among emergence processes, namely: the type and amount of elemental content involved, the form that the emergent phenomenon in question shows at a higher level, and the way the emergent phenomenon is represented.

Climate uniformity follows a *patterned type of emergence* (Kozlowski & Klein, 2000). According to this model, emergent phenomena can take different forms, including uniform and nonuniform patterns. Uniform patterns are single modal and show a single grouping of elemental content (e.g., climate perceptions). For instance, uniform climate patterns show a single grouping comprising the climate perceptions of all the unit members. Nonuniform patterns show more complex arrays of lower level units, and they can be multimodal or highly skewed (Kozlowski & Klein, 2000). For example, nonuniform climate patterns may be represented by two subgroups within a team with opposing views about the team, or by a team with one subgroup whose members share a common view, while a few members have distinct views about the team but do not form a coherent and distinct subgroup. An important difference between uniform and nonuniform patterns has to do with the meaning of dispersion. In uniform patterns, dispersion represents within-team variations in agreement (i.e., strong vs. weak agreement). Thus, teams with uniform patterns can be differentiated by the extent to which their members *agree* on the amount of a given individual-level property (e.g., perceptions of organizational support). However, in nonuniform patterns, dispersion represents within-team variation in disagreement (i.e., strong vs. weak disagreement; Kozlowski & Klein, 2000). Therefore, teams with nonuniform patterns can be differentiated by the extent to which their members disagree about the amount of a given individual-level property.

Regarding climate, factors such as demographic faultlines (Lau & Murnighan, 1998), the existence of groups of unit members who were socialized differently, and an in-group and an out-group composed of unit members with high- and low-quality relationships with the unit leader, respectively, might yield nonuniform patterns of climate perceptions. These patterns would reflect opposing views about the team (e.g., high vs. low perceived organizational support) or disagreement. In our specific case, although the *type of elemental content* involved is *similar* (e.g., perceptions of organizational support), the *amount* contributed by the unit members is essentially *dissimilar,* and this assumption is what makes it possible for the emergent phenomenon to show *a nonuniform distribution* at the unit level. A simple way to represent climate uniformity is by reporting the type of pattern observed, based on the number of groupings of climate perceptions within a work-unit.

Unlike climate uniformity, climate strength and aggregate work-unit climate assume a uniform, single modal pattern of lower level scores (Chan, 1998; Kozlowski & Klein, 2000). Climate strength (i.e., the degree of within-unit agreement among employees’ climate perceptions) follows a *variance form of emergence* (Kozlowski & Klein, 2000). In this type of emergence, the nature and meaning of the emergent construct reside in the variability among lower level units (e.g., subjects). In the specific case of climate, despite the fact that a number of factors foster perceptual agreement within work-units, there is still some room for variability among unit members’ climate perceptions (González-Romá, Peiró, & Tordera, 2002). This variability may be based on factors such as demographic diversity and unit size (Colquitt, Noe, & Jackson, 2002), and it reflects the within-unit level of agreement on climate perceptions. Thus, although the *type of elemental content* involved is *similar* (e.g., perceptions of organizational support), the *amount* contributed by the unit members (i.e., the degree of organizational support perceived by the unit members) is *variable*. Therefore, taking into account the assumption of uniformity, climate strength represents within-unit variability on agreement. Consequently, based on climate strength scores, teams can be discriminated according to the degree of within-team agreement on climate perceptions. Importantly, the assumption of a *uniform distribution* of climate scores at the unit level under the variance type of emergence is what makes it possible for *variability statistics*, such as the variance or the standard deviation, to be used to represent climate strength adequately.

Aggregate work-unit climate (i.e., unit perceptions shared by unit members) was the first climate concept proposed in the literature. In this case, the type of emergence involved is *convergent emergence* (Kozlowski & Klein, 2000), where a number of factors (e.g., unit members’ exposure to similar stimuli and interaction processes, to name a few) constrain emergence, so that unit members perceive a similar amount of the elemental content involved (e.g., perceptions of organizational support). Thus, under this type of emergence, *the type and amount of elemental content* provided by unit members are *similar*. Perceptual sharedness and convergence imply high within-unit agreement and a *uniform distribution* (i.e., a single grouping) of climate scores at the unit level. Therefore, *aggregation to the unit mean* can effectively represent the work-unit’s shared perception. According to aggregate work-unit climate scores, teams can be differentiated based on their climate level or magnitude: Teams with a given aggregate score (high or low) represent situations where team members agree on the level or magnitude (high or low) of the involved climate facet (e.g., organizational support).

In sum, in comparison with aggregate unit climate and climate strength, climate uniformity (a) follows a distinct emergence process; (b) is the only concept where subjects can contribute clearly dissimilar amounts of the elemental content involved, which reflects disagreement rather than varied levels of agreement (as in the case of climate strength); (c) is the only case where the emergent phenomenon can show a nonuniform distribution at the unit level; and, consequently, (d) is represented by using a procedure that is different from the procedures used to represent the other climate concepts. This multifaceted comparison (see Table 1) shows that climate uniformity is different from previous climate concepts. Moreover, this comparison and the conceptual analysis involved can be used as a guiding framework to distinguish among the three climate concepts involved.

Despite these important differences, the three climate concepts present noteworthy relationships. When aggregate unit climate is extreme (as shown by the highest or lowest average score on the response scale), work-units will show a uniform pattern and the highest climate strength. Moreover, low within-unit variability in climate perceptions (i.e., high climate strength) is indicative of uniform climate patterns, whereas high within-unit variability (one

Table 1
*Comparison of Three Climate Concepts*

| Climate concept | Emergence type | Type and amount of elemental content | Emergent phenomenon form | Emergent phenomenon representation |
|---|---|---|---|---|
| Climate uniformity | Patterned emergence | Similar type & dissimilar amount | Non-uniform distribution | Number of groupings within the unit with dissimilar views (showing the existence of disagreement) |
| Climate strength | Variance form of emergence | Similar type & variable amount | Uniform distribution | Within-unit variability statistics[a] (showing the extent of agreement) |
| Aggregate unit climate | Convergent emergence | Similar type & similar amount | Uniform distribution | Unit mean (showing shared perception) |

[a] Generally multiplied by (−1) so that a higher score indicates higher climate strength (see González-Romá et al., 2002).



that exceeds what would be expected from purely random responding) is indicative of nonuniform patterns (Kozlowski & Klein, 2000). In this latter case, maximum within-unit variance mirrors a nonuniform pattern with two polarized subgroups within the unit. Therefore, in uniform climate patterns, within-unit variability is expected to vary from very low to intermediate levels, whereas in nonuniform climate patterns, within-unit variability will tend to vary from intermediate to very high levels.

## Strong and Weak Dissimilarity Patterns

Climate patterns may take different forms or configurations. An initial distinction distinguishes between uniform versus nonuniform climates. As mentioned above, uniform climates show a single grouping comprising the climate perceptions of all the unit members, whereas nonuniform climates involve arrays that exceed a single grouping. In their dispersion theory, Brown and Kozlowski (1999) distinguished two referential types of nonuniform patterns: strong dissimilarity and weak dissimilarity. In *strong dissimilarity patterns*, distinct subgroupings within the team are observed. These subgroupings are located at different zones of the underlying continuum that reflects their distinct views. Moreover, in each subgrouping a high level of agreement is observed. An example of a strong dissimilarity pattern is observed when team members are split into two subgroups depending on the degree of support they perceive from the organization: one subgroup feels that this support is low, and the other thinks it is high. In *weak dissimilarity patterns*, "no more than one subgroup with high strength is found" (Brown & Kozlowski, 1999, p. 12), and the members excluded from this subgroup do not form a coherent cluster.

In a sample composed of small teams, as in the present study (the average team size was 4.5, $SD = 1.3$), these are the types of nonuniform climate patterns most likely to be observed. We do not expect to find "fragmented" patterns (DeRue, Hollenbeck, Ilgen, & Feltz, 2010), that is, patterns in which the probability of having a given score is equiprobable over the range of possible scores. To represent this pattern, imagine a team with four members who answered a team climate questionnaire where the averaged total scores vary between 1 and 4. A fragmented pattern would be represented by the following team members' scores: 1, 2, 3, and 4. In teams with certain tenure and experience working together, like those in our sample (the average team tenure with the current team composition was 22.1 months; $SD = 23.1$), several organizational factors, such as socialization processes, leader–member interaction, task interdependence and interaction among unit members (González-Romá et al., 2002; Klein, Conn, Smith, & Sorra, 2001; Kozlowski & Doherty, 1989), act to foster convergence in climate perceptions and should yield at least one subgroup with shared climate perceptions. Under these circumstances, fragmented patterns are highly unlikely. Therefore, in developing our hypotheses, we only took into account the uniform climate pattern and the nonuniform patterns of strong and weak dissimilarity described above. However, considering that empirical research on climate uniformity is in its infancy, we focused our hypotheses on the influence of nonuniform patterns compared to uniform ones.[1]

## Hypothesis Development: The Consequences of Climate Uniformity

To examine the relationships between climate uniformity and team functioning and performance, we focused on the climate facet of support from the organization (i.e., the extent to which team members believe the team is supported by the organization and their managers). We selected this facet for several reasons. First, it is one of the five facets of climate said to apply across various work environments (Kopelman, Brief, & Guzzo, 1990). Second, in the organizational context where this study was conducted (bank branches), support from the organization is a key factor in branches' effectiveness. Without appropriate support in the form of human and material resources, technical equipment, information about market trends and new products, and training to deal with a changing environment, bank branches could hardly achieve their goals. Congruent with this view, in Hackman's (1992) normative model of team design, support from the organization is a key element. Thus, due to the relevance of this climate facet, we expect that uniformity in perceptions of organizational support will affect team functioning and outcomes. Third, supporting the importance of this climate facet, recent research has shown that a team's perception of support from the organization is positively related to team functioning and performance (e.g., Kennedy, Loughry, Klammer, & Beyerlein, 2009).

In order to investigate whether climate uniformity is important for team functioning, we focused on two important team factors: team communication quality and task conflict. Team communication is a key team process (Kozlowski & Bell, 2003) because it serves as a support mechanism for other team processes, such as team members' coordination, decision making, problem solving,

[1] Because in our sample of work teams we were able to measure these two nonuniform patterns, in the analysis of data they were operationalized through two different variables, and we provided results for each of them.

and team monitoring (Gibson, 2001; Kozlowski & Ilgen, 2006). Specifically, we focus on team communication because nonuniform climate patterns involve the formation of subgroups within teams, and the theory of subgroups in work teams (Carton & Cummings, 2012) posits that subgroups have a profound influence on intrateam communication. Regarding team task conflict, it must be kept in mind that climate uniformity represents differences between teams in within-unit disagreement on climate perceptions. According to Kozlowski and Klein's (2000) theory of emergence, "disagreement . . . is indicative of conflict or of opposing perspectives within the collective unit" (p. 73). Thus, unlike uniform climates, nonuniform climates reflect opposing views on key team issues. Therefore, we focus on task conflict because it should be a direct outcome of the opposing views existing in nonuniform climates. Finally, as an additional test of climate uniformity's relevance, its influence on team performance should also (indirectly) be observed.

In the present study, team task conflict is conceptualized as a team state that refers to team members' shared perceptions about differences of opinion and viewpoints within the team regarding the content and goals of their work and the task-approaches to be implemented to perform the team tasks (De Dreu, 2008; DeChurch, Mesmer-Magnus, & Doty, 2013; Jehn, 1994, 1997). Team communication is defined as a team process that refers to the exchange of information among team members (e.g., Marks, Mathieu, & Zaccaro, 2001; Salas, Sims, & Burke, 2005). Team communication quality refers to the extent to which communication among team members is clear, effective, complete, fluent and on time. The rationale underlying the relationships between climate uniformity, on the one hand, and team task conflict and team communication quality, on the other, is based on the theory of subgroups in work teams (Carton & Cummings, 2012, 2013) and optimal distinctiveness theory (Brewer, 1991, 2003).

Carton and Cummings (2012) posited that team members form subgroups with other members who share similar enduring beliefs. Team climate perceptions can be conceptualized as enduring descriptive beliefs (Rousseau, 1988) about key features of the team environment (e.g., the amount of organizational support received by the team). Sharing a common belief provides members of a given subgroup with a sense of subgroup identity (Hogg & Terry, 2000) and a sense of distinctiveness from other subgroups or members within the team (Brewer, 1991). Therefore, nonuniform climate patterns where subgroups of team members share a given view about the team (which opposes other team members' views) signal the existence of identity-based subgroups within teams. Moreover, optimal distinctiveness theory (Brewer, 1991, 2003) posits that individuals wish to attain an optimal balance of inclusion and distinctiveness within and between social groups. In a team context, team members may try to meet these aims by having good relationships with their own identity-based subgroup members and distance themselves from members of other subgroups and other team members not included in their subgroup (Brewer, Manzi, & Shaw, 1993; Thatcher & Patel, 2011).

According to these theories, members of a subgroup with one identity feel great personal attachment to, and have good relationships with, other members of their subgroup, but they probably feel little personal attachment to, and try to distance themselves from, other team members who do not share their subgroup's identity (Carton & Cummings, 2012). Consequently, when identity-based subgroups exist within a team, communication quality at the team level suffers due to low levels of personal attachment and high levels of interpersonal distance across subgroup boundaries. Moreover, subgroup members may develop an "us versus them" mindset that will hamper their communication with other team members (Crawford & Lepine, 2013). Thus, in teams with nonuniform climate patterns, subgroups with one identity based on their shared beliefs about a key team aspect (i.e., the amount of organizational support received by the team) may feel little personal attachment to, and higher interpersonal distance from, other team members who do not share their team view. Therefore, in these cases the quality of communication at the team level should be lower than in teams with uniform climate patterns showing a single grouping of climate perceptions and no subgroups. Taking all of these arguments into account, we hypothesize the following:

> *Hypothesis 1:* Climate uniformity is related to team communication quality, so that the level of communication quality in teams with nonuniform climate patterns is lower than the level shown by teams with uniform patterns.

The distinctiveness motive that leads individuals to differentiate themselves also leads identity-based subgroup members to oppose and disagree with ideas about the team's work and goals that are proposed by other team members (Brewer, 1991; Thatcher & Patel, 2011). This opposition and disagreement are enhanced by the "us versus them" mindset that identity-based subgroup members develop (Crawford & Lepine, 2013), and they eventually yield a higher level of task conflict within the team. Therefore, in teams with nonuniform climate patterns where identity-based subgroups hold opposing views about a key team aspect (i.e., the amount of organizational support received by the team), the level of team task conflict should be higher than in teams with uniform climate patterns showing a single grouping of climate perceptions and no subgroups. For instance, imagine a team with a nonuniform climate pattern where one subgroup thinks the team is not supported by the organization, and another subgroup thinks the team receives a high level of support from the organization. When they talk about implementing plans or actions that require some kind of resources from the organization (e.g., information, training), different opinions about the strategy to follow are likely to emerge. Those team members who perceive a high level of support may think that a fruitful strategy would be to ask the organization for the needed resources using the established formal channels. However, the team members who perceive a low level of support from the organization may think that a better strategy would be to ask other teams for the required resources using informal channels. These differences in the strategy to follow are useful for satisfying the distinctiveness motive, but they will also contribute to increasing task conflict. Thus, we hypothesize the following:

> *Hypothesis 2:* Climate uniformity is related to team task conflict, so that the level of task conflict in teams with nonuniform climate patterns is higher than the level shown by teams with uniform patterns.

## Team Performance

Our general hypothesis posits that climate uniformity is indirectly related to team performance through its relationship with task conflict and team communication quality. The relationship between the latter two variables and team performance is well-documented in the literature. From an information processing perspective (Carnevale & Probst, 1998; De Dreu & Weingart, 2003), task conflict is expected to be negatively related to team performance. As task conflict increases, cognitive load increases, and key cognitive capabilities (e.g., attention) have to be used to deal with the conflict situation rather than to process task-relevant information. Thus, task conflict hinders information processing, which in turn hampers team performance (De Dreu & Weingart, 2003). Meta-analytical findings support the negative relationship between team task conflict and team performance (De Dreu & Weingart, 2003).

Communication is a key process in work-teams (Kozlowski & Bell, 2003; Kozlowski & Ilgen, 2006). In order to perform properly and complete their tasks, team members must effectively communicate with each other for multiple purposes, such as coordinating action, providing and receiving feedback, and solving team problems, to name a few. Salas et al. (2005) proposed that intrateam communication is one of the three coordinating mechanisms for effective teamwork. Empirical research supports the relationship between intrateam communication and team performance (Campion, Medsker, & Higgs, 1993; Campion, Papper, & Medsker, 1996).

Taking into account all the arguments presented above, we expect that climate uniformity will have an indirect "effect" on team performance through team task conflict and team communication quality. Moreover, we posit that the expected mediation will be full because there are no theoretical reasons to expect climate uniformity to relate directly to team performance, except through its impact on team functioning. In addition, there is no empirical research suggesting a direct link between climate uniformity and team performance. Only when distinct climate patterns facilitate or hinder team processes and states can we expect these mediators to transmit the influence of climate uniformity on team performance. Moreover, full mediation is congruent with the input-processes-output (I-P-O) model (McGrath, 1984) and the input-mediator-output-input (IMOI) model (Ilgen, Hollenbeck, Johnson, & Jundt, 2005), in which processes and states (e.g., team communication quality and team task conflict) are posited to transmit the influence of team inputs (climate uniformity) on team outcomes (team performance). Finally, full mediation is congruent with previous empirical studies where the relationship between unit climate and unit outcomes was expected and found to be completely indirect via distinct mediator variables (Cropanzano et al., 2011; Kennedy et al., 2009; Naumann & Bennett, 2000; Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005). Therefore, we hypothesize the following:

> *Hypothesis 3:* The relationship between climate uniformity and team performance is fully mediated by team task conflict and team communication quality, so that the level of team performance in teams with nonuniform climate patterns is lower than the level shown by teams with uniform patterns.

## Method

### Participants and Procedure

The sample of work teams used in the present study was composed of bank branches from three different banks that operated in the metropolitan area of the city of Valencia (Spain). The data analyzed were part of a larger data set that has been used in a previous study with different goals and research questions (Bashshur, Hernández, & González-Romá, 2011). In the three banks, the branches had similar structures and sizes, and they performed the same functions. All the participating branches were composed of a branch manager, one or two internal controllers (depending on branch size), and a small number of administrative personnel who performed administrative and teller tasks. The members of each bank branch shared common goals, and they had to interact with each other in order to achieve these goals. Every branch had a specific identity within the broader organizational system in which they were embedded (i.e., they had a specific name, code, and location and were spatially separated from other branches). Taking into account that branch managers had more power and responsibility than the other branch members, that they played a linking role between the larger organization and the branch members, and that all these factors could affect their perceptions of organizational support, we decided to focus our investigation on the climate perceptions of the remaining branch members, whose jobs were hierarchically more homogeneous. The fact that every branch had objectives set at the branch level, rather than at the individual level, should foster interdependence among branch members, a typical characteristic of work teams. In order to test this assumption, at Time 1 we measured the perceived level of functional interdependence among the branch members by means of three items (e.g., "To what extent the team members have to coordinate in order to do their job"; Klein et al., 2001). The response scale ranged from 1 (*not at all*) to 5 (*a lot*). Cronbach's alpha of the aggregated scores equaled .76. The reported levels of functional interdependence were medium, with a mean value of 3.12 ($SD$ = 0.43; slightly over the intermediate value of the response scale, 3, "middle level"). Therefore, the bank branches studied could be considered work teams (Kozlowski & Bell, 2003; West, 1996).

Prior to data collection, personnel managers from the three banks were contacted by the researchers and asked for their collaboration in the study. Once they had agreed to collaborate, the personnel managers informed the branch managers that a study on team climate carried out by a university research team was going to take place in their organization, and they were asked to collaborate in the data gathering phase. Once branch managers had been informed about the investigation, a group of trained questionnaire administrators hired by the research team contacted every branch manager involved in order to arrange for the administration of questionnaires in his or her branch. Generally, participants filled out the questionnaires during collective administration sessions held in their own bank branch during working hours. In every collective administration session, a questionnaire administrator explained how to fill out the questionnaires and guaranteed the confidentiality and anonymity of the responses. When a branch member could not participate in a collective session, the set of questionnaires was personally delivered to him or her and collected a few days later by the corresponding questionnaire administrator.

Data were collected at three different time points. Time 2 was separated from Time 1 by a lag of 6 months, and Time 3 was separated from Time 2 by a lag of 12 months. We used time lags that were long enough (several months) to observe significant relationships among the study variables over time, but they were mainly determined by the participating organizations' availability.

At Time 1, team members' perceptions of the organizational support received by the team were measured. From these individual scores, we obtained the indicators of team climate, climate strength, and uniformity in climate perceptions of organizational support. At Time 2, we measured team communication quality and task conflict. Finally, at Time 3, an indicator of team performance provided by team managers was collected. The specific measures used in the study are presented below.

At Time 1, we collected data from 178 teams. Then we selected those teams that were composed of at least three members (i.e., the team size was larger than 2) and all the team members had responded to the team climate questionnaire (i.e., teams with a response rate at Time 1 equal to 100%). This last condition was established in order to have a precise representation of the teams' climate patterns. In small work teams, such as those investigated here, not having the climate score of only one team member can have an important effect on the representation and operationalization of a team's climate pattern. Imagine a team composed of four members where only three of them responded to the team climate questionnaire. Suppose that the three members who responded obtained the following scores on perceived organizational support (using a 1–6 Likert-type response scale): 4.7, 4.8, and 4.9. Based on these three scores, anyone would say that this team shows a uniform climate pattern. However, imagine that the fourth missing team member perceived that the organizational support received by his or her team was very low (as indicated by a score of 1.5). Had this team member responded to the questionnaire, it would have been clear that the team really shows a nonuniform pattern of weak dissimilarity. In our study, at Time 1, the average response rate within teams was 95.4% ($SD = 0.11$). After applying the two conditions mentioned above, 141 teams were selected from the initial sample. We compared the selected teams with those deleted from the initial sample on the study variables (support from the organization, team task conflict, team communication quality, and team performance) by means of a series of *t* tests. No significant differences were found in any case.

The average team size at Time 1 was 4.5 ($SD = 1.3$), and the number of participants (team members) was 635. Among these participants, 52.5% were male, and most were between 25 and 35 (46.6%) or 36 and 45 (21.4%) years old. Most of them had worked in the bank for more than 10 years (53.1%) or between 5 and 10 years (17%) and had belonged to the team for between 1 and 5 (45.8%) or between 5 and 10 (20.8%) years. Specifically, average team tenure was 22.1 months ($SD = 23.1$). At Time 2, the number of participating teams remained constant, whereas at Time 3 the number of teams whose managers provided ratings of their performance was reduced to 115. Ninety percent of the managers who reported team performance at Time 3 were male, most were between 36 and 45 (47.0%) or 46 and 55 (32.2%) years old, and they had belonged to the team for 5 to 10 years (25.2%) or more than 10 years (24.3%).

## Measures

**Team climate of support from the organization.** Previous research has shown that aggregate team climate and its interaction with climate strength are related to several team criteria. Therefore, to investigate the relationship between climate uniformity and the criterion variables considered, we controlled for aggregate team climate, climate strength, and their interaction. We were aware that under the standard approach to studying team climate, the use of the team mean as a measure of team climate only makes sense for uniform patterns that show a certain degree of within-team agreement in climate perceptions. We were also aware that the dispersion statistics frequently used to operationalize climate strength only make sense for within-team climate distributions that show one mode (Chan, 1998). This means that under the standard conditions that have guided team climate research, the computation of the team mean and a dispersion statistic would not be justified for some teams in our sample. However, we thought that controlling for aggregate team climate, climate strength, and their interaction would provide us with a more conservative test of the role played by climate uniformity in team functioning. This type of test is appropriate when a scientific concept is empirically tested for the first time, as in the present case.

Individual perceptions of organizational support received by the team were measured with a five-item scale. Four out of the five items came from González-Romá et al.'s (2009) four-item scale (i.e., "In my work team, team members feel supported by the organization"), while we added a fifth item specifically for this study ("The team manager supports the team's members"). Items were answered on a 6-point scale (1 = *Strongly disagree*, 6 = *Strongly agree*). These individual scores were used to operationalize aggregate team climate, climate strength, and uniformity in climate perceptions.

Aggregate team climate was obtained by computing the team's average score on the scale of organizational support described above. Cronbach's $\alpha$ for the aggregated scores was .87. Climate strength was operationalized by means of the Average Deviation Index (ADI; Burke, Finkelstein, & Dusig, 1999) multiplied by –1.

**Climate uniformity.** As we explained in the introduction, we were interested in examining the influence of nonuniform patterns, compared to uniform ones, on a number of criterion variables. Moreover, we also explained why we only distinguished between two types of nonuniform climate patterns (strong and weak dissimilarity) in the present study. Thus, in order to operationalize climate uniformity, first, two researchers with publications in the areas of organizational psychology and research methods independently examined the within-team distributions of the individual climate scores obtained for every team in the sample. They then classified each team in one of the three aforementioned categories (1 = uniform pattern, 2 = nonuniform pattern: weak dissimilarity, and 3 = nonuniform pattern: strong dissimilarity). The distributions were shown in frequency tables. We decided to use frequency tables instead of graphs (e.g., histograms) because the former provide a more precise representation of the within-team distributions, whereas different aspects of graphical displays (e.g., the axes' scale and the bars' width) may affect the distribution interpretation. In order to facilitate the classification task, we elaborated some guidelines. These guidelines did not cover all possible situations but were intended to be helpful in performing the classification task. According to these guidelines, a team should be classified as showing a strong dissimilarity pattern when (a) two subgroups composed of at least two members were identified in the within-team distribution; (b) the minimum distance between the means of the two groups was equal to or greater than one. This second criterion was based on LeBreton, James, and Lindell's (2005) assertion that multimodal distributions refer to distributions with two or more distinct humps, where "distinct" means that the humps should be at least one scale point apart. And, (c) complementing the previous guideline, and in order to make it clear that the two identified subgroups assigned a different psychological meaning to their environment, we specified that the subgroups' means had to be located in different halves of the response scale, which ranged from 1 to 6. A team should be classified as showing a weak dissimilarity pattern when (a) a subgroup and one or a few subjects who were separated from the subgroup and did not form a coherent cluster were identified in the within-team distribution, (b) the subgroup mean and the deviant subjects' scores were located in different halves of the response scale (as mentioned above, the purpose of this guideline was to make it clear that the identified subgroup and the deviant team members assigned a different psychological meaning to their environment), and (c) the minimum distance between any of the deviant subjects' scores and the score of the boundary subject belonging to the identified subgroup was equal to one. Finally, a team should be classified as showing a uniform pattern when only one group forming a coherent cluster was identified in the within-team distribution. In Figure 3 we show some examples of observed team climate patterns that mirror the three patterns mentioned above.

Once the two raters had classified all the teams in the sample, we estimated the classification reliability by using Cohen's kappa coefficient, which equaled .82. This value meant that the reliability of the initial classifications was satisfactory. Then, the two raters discussed the observed disagreements in their initial classifications and reached an agreement about them. In order to cross-validate these classifications, we repeated the procedure using two distinct raters with the same characteristics as the previous ones. In this case, the corresponding kappa coefficient equaled .98. This second pair of raters also discussed the observed disagreements in their initial classifications and reached an agreement about them. The final classifications yielded by the two pairs of raters were identical, which rendered empirical support to them. According to these classifications, 93 teams (66%) showed a uniform pattern of climate perceptions, 38 (26.9%) teams showed a weak dissimilarity pattern, and only 10 (7.1%) showed a strong dissimilarity pattern.

Finally, as we considered three different climate patterns (uniform, nonuniform: weak dissimilarity, and nonuniform: strong dissimilarity), we created two dummy variables to estimate the relationship between climate uniformity and the study criterion variables. In both cases, the uniform pattern was the reference category, and it was coded with 0. The first dummy variable (Dummy 1) compared the weak dissimilarity pattern (coded with 1) with the uniform one. The second dummy variable (Dummy 2) compared the strong dissimilarity pattern (coded with 1) with the uniform one.

**Team communication quality and team task conflict.** At Time 2, team communication quality and team task conflict were measured. Team communication quality was measured with a five-item scale ("To what extent is the communication among the members of your team clear/effective/complete/fluent/on time?") developed by the authors of the present study. Items were responded to using a 5-point Likert-type response scale (1 = *Not at all*, 5 = *Very much*). Team task conflict was measured with the six-item scale used by Gamero, González-Romá, and Peiró (2008). According to these authors, three of these items were selected from Shah and Jehn's (1993) scale: "How frequently do members of your work team disagree about who should do what?" "How frequently do members of your work team disagree about the way to complete a team task?" and "How frequently are there conflicts about the delegation of tasks within your work team?" One item was taken from Jehn's (1995) scale ("How frequently do people in your work team disagree about opinions regarding the work being done?"), and the other two were elaborated by Gamero et al. (2008) ("How frequently are there conflicts because of different points of view about work content in your work team?" "How frequently do members of your work team disagree about the tasks that your team has to carry out?"). Items were responded to on a 5-point Likert-type response scale (1 = *Never*, 5 = *Quite frequently*).

To test whether aggregation of task conflict and communication quality individual scores was justified, a number of coefficients and indices were obtained. First, we carried out a one-way analysis of variance (ANOVA) for each variable to see if there was significant variation among the study teams. Second, based on the ANOVA results, we obtained the intraclass correlation coefficients, ICC(1) and ICC(2). The ICC(1) is a measure of interrater reliability (consistency), and the ICC(2) provides an estimate of the reliability of the team mean (Bliese 2000). Finally, we estimated within-team agreement by means of the traditionally reported $r_{wg}$ index (James, Demaree, & Wolf, 1984) and the recently

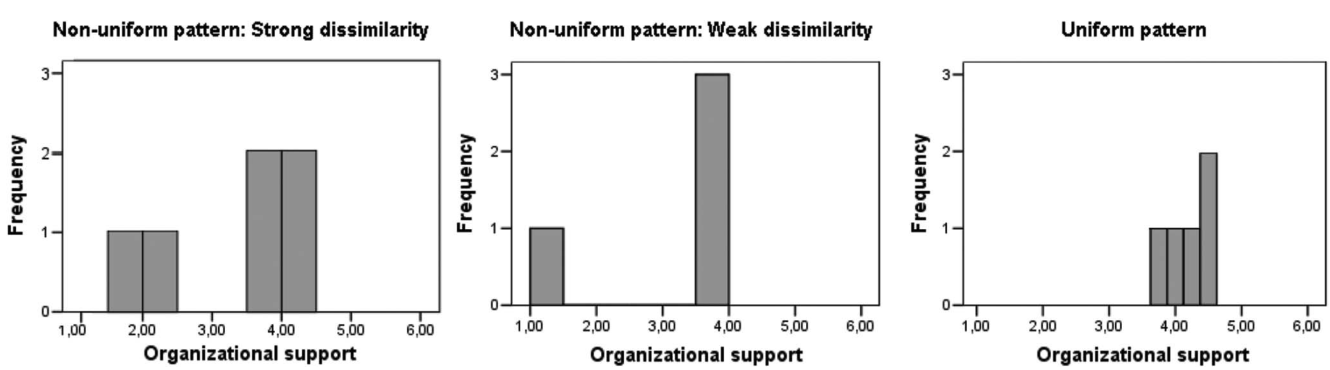


*Figure 3.* Examples of within-team patterns of perceptions of organizational support provided to the team observed in the study sample.

proposed Average Deviation Index (ADI; Burke et al., 1999). Regarding $r_{wg}$, we computed the index under two null distributions: the equiprobable (i.e., uniform) distribution and a slightly skewed distribution (in the latter case, to consider possible leniency biases common in organizational research; see LeBreton & Senter, 2008). Regarding the ADI, this index has been recommended because it is a pragmatic index of interrater agreement that does not require the explicit modeling of a null or random response variance. Moreover, it can be interpreted in terms of the metric of the original scale. Consequently, the number of scale options can help researchers select the range for acceptable interrater agreement (Burke & Dunlap, 2002). Burke and Dunlap (2002) derived and justified a practical upper limit criterion of c/6 (where c is the number of response categories in the response scale) for interpreting AD values. In the present case, for both team communication and team task conflict, c = 5, and the upper limit criterion is c/6 = .83.

The values obtained for the aforementioned coefficients and indices are shown in Table 2. These values can generally be considered satisfactory based on standard cutoff points (Bliese, 2000; Burke & Dunlap, 2002; LeBreton & Senter, 2008). Therefore, we aggregated individual scores of team communication quality and team task conflict. The Cronbach's αs for the aggregated scores were .96 and .95, respectively.

**Team performance.** At Time 3, team managers' ratings of team performance were obtained by using a two-item scale. The first item was selected and adapted from Jehn et al.'s "group performance scale" (Jehn, Northcraft, & Neale, 1999): "How well do you think the work team you manage performs?" It was responded to on a 5-point scale (1 = *Very badly*, 5 = *Very well*). The second item ("What is the quality of the work carried out by the team you manage?") was also responded to on a 5-point scale (1 = *Very bad*, 5 = *Very good*). Cronbach's α for the scores obtained was .86, and the correlation between the two items was .76.

To evaluate the quality of the scales used, we conducted a team-level confirmatory factor analysis, followed by an average variance extracted (AVE) analysis (Fornell & Larcker, 1981). First, we computed the team scores on the scale items. Then, we obtained the item covariance matrix. Finally, we fitted a four-factor model (team climate of support from the organization, team communication quality, team task conflict and team performance) that was compared with a one-factor model. Analyses were carried out by means of LISREL 8.80 using the robust maximum-likelihood estimation method. The results obtained showed that the goodness of fit of the four-factor model was acceptable (Satorra-Bentler scaled $\chi^2 = 233.95$, $df = 129$, $p < .01$; $\chi^2/df = 1.81$; non-normed fit index [NNFI] = .97, comparative fit index [CFI] = .97 and root-mean-square error of approximation [RMSEA] = .086), whereas the goodness of fit of the one-factor model was not (Satorra-Bentler scaled $\chi^2 = 840.93$, $df = 135$, $p < .01$; $\chi^2/df = 6.23$; NNFI = .80, CFI = .82 and RMSEA = .218). For the four-factor model, all the items showed completely standardized factor loadings that were larger than .43 and statistically significant. In addition, the correlations among the latent variables ranged from –.68 for team communication quality and team task conflict to .60 for team climate of support from the organization and team communication quality. From the obtained factor loadings and factor correlations we conducted an AVE analysis in order to assess the convergent and discriminant validity of our core variables. The results obtained showed that our measures of team climate for organizational support, team communication quality, team task conflict and team performance had adequate convergent and discriminant validity. Specifically, the average proportion of item variance extracted by the corresponding factor was equal to or higher than .50, providing evidence for convergent validity. In addition, for every factor, these values were larger than the proportion of variance shared with other factors, providing evidence for discriminant validity (see Fornell & Larcker, 1981).

**Controls.** In addition to controlling for aggregate team climate, climate strength, and their interaction, in the regression analyses conducted we also controlled for the organization to which branches belonged, team size, and team tenure. The organization to which branches belonged was operationalized by means of two dummy variables. Previous research has shown that team size may influence group dynamics and performance because it determines the availability of human resources and the number of interpersonal contacts within the team (Brewer & Kramer, 1986; Smith et al., 1994; Wallmark, 1973). Team tenure may affect team processes and outcomes because greater tenure facilitates learning, coordination and control (Pfeffer, 1983; Smith et al., 1994). Team tenure data were obtained by asking team managers how long their team members had been working together in their present branch.

## Analysis

To test our hypotheses, two sets of regression analyses were carried out using SPSS 17.0. In the first, three hierarchical regression analyses were performed to test the relationships between uniformity in climate perceptions of organizational support and

Table 2
*ANOVA Results, Intraclass Correlation Coefficients, and Within-Team Agreement Indices for Team Communication Quality and Task Conflict*

| Variable | ANOVA | ICC(1) | ICC(2) | Average $r_{wg}$ (uniform) | Average $r_{wg}$ (slightly skewed)[a] | Average ADI |
|---|---|---|---|---|---|---|
| Team communication quality | $F(140, 414) = 2.96^{**}$ | .33 | .66 | .81 (.20)[b] | .46 (.31)[b] | .40 (.21)[b] |
| Team task conflict | $F(140, 414) = 2.50^{**}$ | .27 | .59 | .85 (.16)[b] | .53 (.24)[b] | .37 (.19)[b] |

*Note.* ANOVA = analysis of variance; ICC = intraclass correlation coefficient; ADI = Average Deviation Index (Burke, Finkelstein, & Dusig, 1999).
[a] The slightly negatively skewed distribution was computed using the following response probabilities for each of the five response options: p1 = .05, p2 = .15, p3 = .20, p4 = .35 and p5 = .25 (see LeBreton & Senter, 2008). [b] These values are standard deviations for the average values shown.
$^{**}$ $p < .01$.

team communication quality and team task conflict (Hypotheses 1 and 2, respectively). In Step 1, three control variables were entered: the organization to which branches belonged, team size, and team tenure. As mentioned above, in the present study we controlled for the influence of aggregate team climate, climate strength and their interaction on the criterion variables. Therefore, in the next steps these variables were sequentially entered into the regression equation. Aggregate team climate and climate strength were standardized before computing the interaction term. Finally, the two dummy variables representing climate uniformity were entered.

The second set of regression analyses was conducted to test Hypothesis 3 (the mediation hypothesis). Taking into account all the problems associated with Baron and Kenny's (1986) procedure for testing mediation (James, Mulaik, & Brett, 2006; LeBreton, Wu, & Bing, 2009; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Zhao, Lynch, & Chen, 2010), in the present study we used the product of coefficients method ($P = z_{\alpha} \cdot z_{\beta}$) proposed by MacKinnon et al. (MacKinnon, Lockwood, & Hoffman, 1998; MacKinnon, Lockwood, et al., 2002). We chose this method because (a) it does not assume that the product of the regression coefficients that estimate the indirect effect is normally distributed, and (b) in a comparative simulation study in which 14 mediation tests were analyzed, it was one of the four best–performing methods "in terms of the most accurate Type I error rates and the greatest statistical power" (MacKinnon, Lockwood, et al., 2002, p. 95). In addition, in order to cross-validate our findings, we also tested the statistical significance of the indirect effect by computing the bias-corrected confidence interval around the indirect effect obtained from a bootstrapping analysis conducted with PROCESS for SPSS v2.11 (Hayes, 2013).

Mediation involves a causal relationship in which an independent variable (X) impacts on a mediator (M), which in turn impacts on a dependent variable (Y; Sobel, 1990). To estimate these relationships in a simple regression model (X → M → Y), two regression models are needed. First, the mediator (M) is regressed onto the independent variable (X): $M = \beta_{0(1)} + \alpha X + \varepsilon_1$ (Equation 1; where $\beta_{0(1)}$ and $\varepsilon_1$ are the intercept and error term, respectively). Second, the dependent variable (Y) is regressed onto the mediator (M), controlling for the independent variable (X): $Y = \beta_{0(2)} + \tau X + \beta M + \varepsilon_{2}$ (Equation 2). The product $\alpha\beta$ is the mediated or indirect effect, whereas ($\tau$) is the nonmediated or direct effect. One can say that a relationship is mediated if (a) X is significantly related to M (testing for $\alpha$), (b) M is significantly related to Y after controlling for X (testing for $\beta$), and (c) the mediated effect is statistically significant (testing for $\alpha\beta$; MacKinnon, 2008).

When the mediation model involves multiple mediators, the procedure mentioned above can easily be generalized (see MacKinnon, Taborga, & Morgan-Lopez, 2002). An estimation of $\alpha_i$, the coefficient estimating the relationship between uniformity in climate perceptions (X) and each mediator ($M_i$; i.e., $M_1$: team communication quality [$\alpha_1$], and $M_2$: team task conflict [$\alpha_2$]) was obtained from the first set of regression analyses, in which a form of Equation 1 with controls was estimated. An estimation of $\beta_i$ ($\beta_1$, $\beta_2$), the coefficients estimating the relationships between each mediator ($M_i$) and the criterion variable (Y), while controlling for uniformity in climate perceptions (X), was obtained from the following extension of Equation 2 (with controls): $Y = \beta_0 + \tau X + \beta_1 M_1 + \beta_2 M_2 + \varepsilon$.

Testing the mediated effect ($\alpha\beta$) using the product of coefficients method ($P = z_{\alpha} \cdot z_{\beta}$) proposed by MacKinnon, Lockwood, et al. (2002) involves the calculation of two statistics: $z_{\alpha} = \alpha/\sigma_{\alpha}$ and $z_{\beta} = \beta/\sigma_{\beta}$, where $\sigma$ is the respective standard error of $\alpha$ and $\beta$. Then the product $P = z_{\alpha} \cdot z_{\beta}$ is obtained. Finally, assuming that $\alpha$ and $\beta$ follow a normal distribution, the statistical significance of the product $P$ can be tested using a critical value based on the distribution of the product of random variables, $P = z_{\alpha} \cdot z_{\beta}$, to determine significance (Craig, 1936).

## Results

The correlations among the study variables are displayed in Table 3. The dummy variable comparing the nonuniform pattern of weak dissimilarity with uniform climate patterns (Dummy 1) was, as expected, negatively related to team communication quality at Time 2 ($r = -.29$, $p < .01$) and positively correlated with team task conflict at Time 2 ($r = .19$, $p < .05$). However, the dummy variable comparing the nonuniform pattern of strong dissimilarity with uniform climate patterns (Dummy 2) did not show statistically significant correlations with team communication quality and task conflict at Time 2 ($rs = -.07$ and $.06$, respectively, $p > .05$).

Table 3
*Descriptive Statistics and Correlations Among the Study Variables*

| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Team size Time 1 (T1) | 4.48 | 1.26 | 1 | | | | | | | | |
| 2. Team tenure T1 | 22.10 | 23.10 | .11 | 1 | | | | | | | |
| 3. Team climate T1 | 4.16 | 0.72 | −.23** | .10 | 1 | | | | | | |
| 4. Climate strength T1 | −0.66 | 0.24 | −.43** | .13 | .50** | 1 | | | | | |
| 5. Climate uniformity T1-Dummy 1 (weak dissimilarity vs. uniform patterns)[a] | 0.27 | 0.45 | .06 | −.19* | −.26** | −.41** | 1 | | | | |
| 6. Climate uniformity T1-Dummy 2 (strong dissimilarity vs. uniform patterns)[b] | 0.07 | 0.26 | .23** | .04 | −.27** | −.38** | −.17* | 1 | | | |
| 7. Team communication quality T2 | 3.71 | 0.58 | −.13 | −.02 | .56** | .29** | −.29** | −.07 | 1 | | |
| 8. Team task conflict T2 | 2.22 | 0.54 | .17* | .08 | −.48** | −.13 | .19* | .06 | −.68** | 1 | |
| 9. Team performance (managers' ratings) T3 | 4.09 | 0.47 | .03 | .06 | .03 | .02 | −.10 | .09 | .27** | −.17* | 1 |

[a] Dummy 1 coding: 1 = weak dissimilarity pattern, 0 = uniform pattern. [b] Dummy 2 coding: 1 = strong dissimilarity pattern, 0 = uniform pattern.
* $p \leq .05$. ** $p \leq .01$ (one-tailed).

These two variables showed a significant correlation with team managers' ratings of team performance at Time 3 ($r$s = .27, –.17, respectively; $p < .01$, $p < .05$, respectively).

Table 4 shows the results of the regression analyses carried out to test whether climate uniformity was related to team communication quality (Hypothesis 1). The inclusion of the two dummy variables used to operationalize climate uniformity accounted for an additional 4% of the explained variance in the criterion variable. This increase in $R^2$ was statistically significant, $\Delta F(2, 127) = 3.6$, $p < .05$. We estimated the corresponding effect size by computing the Cohen (1988) $\mathbf{f}^2$ index. The value obtained was .06, which represents a small effect size. The inspection of the regression coefficients associated with the two dummy variables revealed that only the one comparing weak dissimilarity patterns with uniform patterns showed a statistically significant regression coefficient (Climate uniformity T1-Dummy 1, $\beta = -.21$, $p < .05$). Congruent with Hypothesis 1, this result pointed out that in teams with weak dissimilarity (nonuniform) climate patterns, the level of communication quality was lower than the level shown by teams with uniform climate patterns. Therefore, Hypothesis 1 was supported for weak dissimilarity patterns, but not for strong dissimilarity patterns.

Table 5 shows the results of the regression analyses carried out to test whether climate uniformity was related to team task conflict (Hypothesis 2). The inclusion of the two dummy variables used to operationalize climate uniformity in the regression equation in Step 5 accounted for an additional 2% of the explained variance in task conflict. Although this increase in $R^2$ was not statistically significant, $F(2, 127) = 2.0$, $p > .05$, the inspection of the regression coefficients associated with the two dummy variables revealed that one of them (the one comparing weak dissimilarity patterns with uniform ones) had a statistically significant regression coefficient (Climate uniformity T1-Dummy 1, $\beta = .18$, $p < .05$). The co-occurrence of (a) a nonsignificant increase in $R^2$ associated with a set of predictor variables and (b) a significant regression coefficient for one of the individual predictors included in the aforementioned set can occur when the other predictors included in the set are not related to the criterion variable (Geary & Leser, 1968; Duchan, 1969). In the present case, whereas the dummy variable comparing weak dissimilarity patterns vs. uniform ones (Dummy 1) was correlated with task conflict ($r = .19$, $p < .01$), the dummy variable comparing strong dissimilarity patterns versus uniform ones (Dummy 2) was not ($r = .06$, $p > .05$). We estimated the percentage of variance in task conflict uniquely accounted for by the dummy variable comparing weak dissimilarity patterns vs. uniform ones (Dummy 1). This percentage equaled 2% and was statistically significant, $\Delta F(1, 128) = 3.83$, $p \leq .05$; effect size: $\mathbf{f}^2$ index = .03. This result, together with the corresponding statistically significant regression coefficient found, indicated that, in teams with weak dissimilarity (nonuniform) climate patterns, there were higher levels of task conflict than in teams with uniform climate patterns. Thus, Hypothesis 2 was supported for weak dissimilarity patterns but not for strong dissimilarity patterns.

In order to test the mediation hypothesis (Hypothesis 3), we estimated the relationships between team task conflict and team communication quality measured at Time 2 and team managers' ratings of team performance measured at Time 3, after controlling for climate uniformity in perceptions of organizational support at Time 1 and all the control variables. The results obtained are displayed in Table 6. They show that, of the two mediators considered, only team communication quality at Time 2 had a significant relationship with team performance at Time 3 ($\beta = .26$, $p < .05$). These outcomes, together with the regression results presented above, revealed that the relationship between climate uniformity and team performance was only mediated by team communication quality. Then, we estimated this mediated relationship (i.e., climate uniformity at Time 1-Dummy 1 $\rightarrow$ team communication quality at Time 2 $\rightarrow$ team performance at Time 3; $\alpha\beta = -.06$), and we tested it by using the product of coefficients

Table 4
*Regression Analyses to Estimate the Relationship Between Climate Uniformity at Time 1 (T1) and Team Communication Quality at Time 2 (T2)*

| Predictors | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 |
|---|---|---|---|---|---|
| Organization: dummy 1 | .08 | .04 | .05 | .05 | .088 |
| Organization: dummy 2 | .09 | −.06 | −.05 | −.06 | −.02 |
| Team size T1 | −.14 | −.01 | .01 | .01 | −.02 |
| Team tenure T1 | −.02 | −.06 | −.07 | −.07 | −.10 |
| Team climate T1 | | .56** | .54** | .54** | .53** |
| Climate strength T1 | | | .05 | .05 | −.03 |
| Team Climate × Climate Strength T1 | | | | .04 | .02 |
| Climate uniformity T1-Dummy 1 (weak dissimilarity vs. uniform pattern)[a] | | | | | −.21** |
| Climate uniformity T1-Dummy 2 (strong dissimilarity vs. uniform pattern)[b] | | | | | .02 |
| $R^2$ | .03 | .31** | .31** | .31** | .35** |
| $F$ | 0.84 | 11.5** | 9.6** | 8.2** | 7.4** |
| $\Delta R^2$ | | .28** | .00 | .00 | .04* |
| $\Delta F$ | | 52.7** | 0.31 | 0.25 | 3.6* |

*Note*. The regression coefficients shown are standardized.
[a] Dummy 1 coding: 1 = weak dissimilarity pattern, 0 = uniform pattern. [b] Dummy 2 coding: 1 = strong dissimilarity pattern, 0 = uniform pattern.
* $p \leq .05$. ** $p \leq .01$ (one-tailed).

Table 5
*Regression Analyses to Estimate the Relationship Between Climate Uniformity at Time 1 (T1) and Team Task Conflict at Time 2 (T2)*

| Predictors | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 |
|---|---|---|---|---|---|
| Organization: dummy 1 | .10 | .12 | .16 | .15 | .12 |
| Organization: dummy 2 | .01 | .13 | .15 | .16 | .12 |
| Team size T1 | .18* | .07 | .14 | .13 | .15 |
| Team tenure T1 | .06 | .09 | .06 | .05 | .08 |
| Team climate T1 | | −.46** | −.54** | −.54** | −.51** |
| Climate strength T1 | | | .20* | .19* | .28** |
| Team Climate × Climate Strength T1 | | | | −.08 | −.09 |
| Climate uniformity T1-Dummy 1 (weak dissimilarity vs. uniform pattern)[a] | | | | | .18* |
| Climate uniformity T1-Dummy 2 (strong dissimilarity vs. uniform pattern)[b] | | | | | .04 |
| $R^2$ | .05 | .23** | .26** | .27** | .29** |
| $F$ | 1.6 | 8.2** | 7.5** | 6.6** | 5.7** |
| $\Delta R^2$ | | .18** | .03** | .01 | .02 |
| $\Delta F$ | | 32.0** | 4.2* | 1.2 | 2.0 |

*Note*. The regression coefficients shown are standardized.
[a] Dummy 1 coding: 1 = weak dissimilarity pattern, 0 = uniform pattern. [b] Dummy 2 coding: 1 = strong dissimilarity pattern, 0 = uniform pattern.
* $p \leq .05$. ** $p \leq .01$ (one-tailed).

method described above (MacKinnon, Lockwood, et al., 2002). The mediated effect was statistically significant ($P = z_\alpha \cdot z_\beta = -6.30$, $p < .01$). Additionally, we estimated the 90% confidence interval for the indirect effect from a bootstrapping analysis [−.1612; −.0119], which did not include zero.[2] The direct or nonmediated effect (climate uniformity at Time 1-Dummy 1 → team performance at Time 3) was not statistically significant ($\tau = -.03$, *ns*). Therefore, we concluded that the relationship between weak dissimilarity (nonuniform) climate patterns at Time 1 and team managers' ratings of team performance at Time 3 was fully mediated by team communication quality at Time 2. The negative sign of the indirect effect indicated that teams with weak dissimilarity climate patterns tended to receive lower performance ratings from their managers than teams with uniform climate patterns. These results support Hypothesis 3 only for weak dissimilarity patterns and when team communication quality was the mediator involved.

Table 6
*Regression Analyses to Estimate the Relationship Between Team Task Conflict and Team Communication Quality at Time 2 (T2) and Team Performance at Time 3 (T3)*

| Predictors | Step 1 | Step 2 |
|---|---|---|
| Organization: dummy 1 | .37** | .34** |
| Organization: dummy 2 | .13 | .16 |
| Team size Time 1 (T1) | .05 | .04 |
| Team tenure T1 | −.02 | .01 |
| Team climate T1 | .01 | −.18 |
| Climate strength T1 | .05 | .08 |
| Team Climate × Climate Strength T1 | −.01 | −.03 |
| Climate uniformity T1-Dummy 1 (weak dissimilarity vs. uniform pattern)[a] | −.10 | −.03 |
| Climate uniformity T1-Dummy 2 (strong dissimilarity vs. uniform pattern)[b] | .06 | .06 |
| Team communication quality T2 | | .26* |
| Team task conflict T2 | | −.08 |
| $R^2$ | .11 | .17† |
| $F$ | 1.3 | 1.8† |
| $\Delta R^2$ | | .06* |
| $\Delta F$ | | 3.7* |

*Note*. The regression coefficients shown are standardized.
[a] Dummy 1 coding: 1 = weak dissimilarity pattern, 0 = uniform pattern. [b] Dummy 2 coding: 1 = strong dissimilarity pattern, 0 = uniform pattern.
† $p \leq .10$. * $p \leq .05$. ** $p \leq .01$ (one-tailed).

## Discussion

The goal of this study was to examine whether climate uniformity (i.e., the pattern of climate perceptions of organizational support within the team) was related to intrateam communication quality, team task conflict and team performance, once aggregate team climate, climate strength, and their interaction were controlled for. The results obtained showed that teams with weak dissimilarity (nonuniform) climate patterns had lower levels of communication quality and higher levels of task conflict than teams with uniform climate patterns. Moreover, we found that the relationship between weak dissimilarity climate patterns and team performance was fully mediated by communication quality. These results supported the first two study hypotheses for the weak dissimilarity pattern, but not for the strong dissimilarity one. The fact that the dummy variable comparing the nonuniform pattern of strong dissimilarity with the uniform pattern was not related to task conflict and team communication quality might be explained by the low number of teams that showed a strong dissimilarity pattern (only 10 teams, 7.1% of the sample of teams), which made this

[2] To evaluate the statistical significance of the regression results, we used one-tailed tests, which are suitable for directional hypotheses (Erickson & Nosanchuk, 1977; Wonnacott & Wonnacott, 1984). For the sake of consistency, we report the 90% confidence interval for the indirect effect, which is the equivalent of a one-tailed test. Moreover, we also computed the 95% confidence interval [–.1970; –.0006], which did not include zero.

dummy variable have a very low variance ($p \cdot q = .071 \cdot .929 = .066$). These conditions of severe restriction of range made it very difficult to find substantive relationships involving this dummy variable.

## Contributions and Implications for Theory and Research

Our study makes a number of contributions to the climate literature. First, from a conceptual perspective, we have applied the content-free concept of uniformity elaborated by Kozlowski and colleagues (Brown & Kozlowski, 1999; Kozlowski & Klein, 2000) to the climate field and tested a distinct climate concept (climate uniformity). As far as we know, this is the first empirical study to investigate climate uniformity. We have shown that weak dissimilarity (nonuniform) climate patterns account for a relevant percentage of the variance in team communication quality and team task conflict beyond aggregate team climate and climate strength and that this climate pattern is indirectly related to team performance. These findings support the empirical viability of the climate uniformity concept.

We have also characterized climate uniformity as an emergent concept. Our conceptual analysis revealed that climate uniformity captures a phenomenon (i.e., that climate may manifest at a higher level following a patterned model of emergence) that was not covered by previous climate concepts. Moreover, this conceptual analysis may be useful as a guiding framework for distinguishing among different higher level climate concepts (i.e., aggregate work-unit climate, climate strength, and climate uniformity). As a distinct climate concept, climate uniformity may contribute to developing climate research by opening up new lines of inquiry. In order to stimulate this research, a broader, complementary definition of work-unit climate is needed. The dominant definition conceptualizes climate as unit perceptions *shared* by unit members. According to this view, climate emerges at higher levels as a shared unit property through a convergent process of emergence (Kozlowski & Klein, 2000). From this perspective, a sufficient level of within-unit agreement is a necessary condition to claim that a work unit has a climate. Therefore, nonuniform patterns showing more than one subgrouping of climate perceptions within a unit, with dissimilar views about the unit, are incompatible with this conceptualization of climate. Consequently, units showing these patterns are said to not have a climate, and they are left out of further investigation, with the subsequent loss of potential relevant knowledge.

In order to prevent this, we propose defining unit climate as the distribution of unit members' perceptions of their unit. This conceptualization assumes that climate may emerge following distinct emergence models: a convergent form of emergence, showing a uniform distribution (i.e., a single grouping) at the higher level with high levels of agreement; a variance form of emergence, also showing a uniform distribution at the higher level with variable levels of agreement; and a patterned emergence model, showing nonuniform patterns involving distinct subgroupings with dissimilar views about the unit. This definition has a number of important implications. First, work-units with nonuniform patterns of climate perceptions should not be excluded from further inquiry because these units also have a climate. Second, taking into account that climate uniformity may exert an important influence on work-unit functioning, in order to describe and characterize a unit's climate we should consider three properties: climate uniformity (the pattern of climate perceptions within the team), climate strength (of the identified coherent subgroupings of climate perceptions), and climate level (operationalized as the aggregated climate score for the aforementioned subgroupings). And third, the uniform pattern is only one of the possible observable patterns, which means that unit climate may emerge following different emergence forms. This idea is congruent with Kozlowski and Klein's (2000) assertion that "A given phenomenon or construct domain does not necessarily have to exhibit a universal form of emergence" (p. 59). Other scholars have expressed similar ideas. For instance, in the field of climate research, Lindell and Brandt (2000) argued that dissensus within teams on climate perceptions does not necessarily imply that climate does not exist. Similarly, Ostroff, Kinicki, and Tamkins (2003) suggested that within-team variability in fundamental elements (e.g., climate perceptions) may not necessarily lead to the lack of emergence of a higher level property (e.g., team climate).

From a theoretical perspective, a contribution of our study is the identification of team communication quality as one of the mechanisms linking climate uniformity to team performance. Compared to uniform climate patterns, teams with weak dissimilarity patterns had lower team communication quality. Because they share a common view of their team, members of the only subgroup that exists in weak dissimilarity climate patterns have a sense of subgroup identity and a sense of distinctiveness from other team members who do not share their view (Brewer, 1991, 2003; Carton & Cummings, 2012). Consequently, members of these unique subgroups feel little attachment to, and more interpersonal distance from, other team members. This low attachment and high interpersonal distance across subgroup boundaries hinders communication at the team level. Because communication serves as a support mechanism for other team processes that are crucial for team performance (e.g., coordination, problem solving), low communication quality leads to low team performance.

Current theoretical models of organizational climate (e.g., Ostroff & Bowen, 2000: Ostroff et al., 2003) acknowledge the role that aggregated work-unit climate and climate strength play in work-units. An important empirical contribution of our study is having shown for the first time that a particular form of nonuniform climate patterns (weak dissimilarity) is directly related to task conflict and team communication quality, and indirectly to team performance. These findings suggest that climate uniformity could be incorporated into those theoretical models in an effort to fully understand the role of within-team dispersion in climate perceptions. As we described in the introduction, climate strength cannot convey all the information about the dispersion of climate perceptions within a work unit. Including climate uniformity in theoretical models of work-unit climate will foster research on this climate concept.

In this regard, future studies should pay attention to the antecedents of climate uniformity. Among the hypothetical antecedents, we suggest the following: leader–member exchange (LMX) quality, demographic diversity and organizational socialization. Previous research has shown that LMX quality is related to employees' climate perceptions (Kozlowski & Doherty, 1989). Thus, team leaders who relate differently with distinct subgroups of team members, or have differentiated relationships with specific individual team members, may contribute to fostering nonuniform team climate patterns. According to social categorization theory (Tajfel, 1981; Turner, 1987) and group faultline theory (Lau & Murnighan, 1998), differences in salient demographic characteristics can create different subgroupings of individuals within a work-unit. Because of the distinct role models they have been exposed to, the different types of education they have received, and the desire to maintain their group's identity, employees belonging to different subgroupings may have certain beliefs and values that impact their perception of the work environment (Klein et al., 2001; Williams & O'Reilly, 1998), which in turn may lead to nonuniform patterns of team climate perceptions within the work-unit. Finally, subjects who entered a given organization at different times may have been socialized in different ways. These socialization differences can produce some differences in their organizational values and beliefs, which, in turn, influence their perceptions of the work environment (Ashforth, 1985; Schneider & Reichers, 1983). Therefore, in a work-unit whose members can be clustered in different subgroups according to their socialization experiences, nonuniform patterns of climate are likely to emerge. Future studies should investigate the relationships suggested above.

Finally, from a methodological perspective, a contribution of our study resides in the procedure we proposed for operationalizing climate uniformity based on raters' judgments. This procedure showed a satisfactory interrater reliability and some initial empirical evidence supporting its validity. Other researchers could use and test this procedure in similar conditions to those established in the present investigation.

## Practical Implications

Our results have important practical implications. First, when conducting climate surveys in organizations, researchers and practitioners should consider whether computing an aggregate score for every work-unit under study "by default," implicitly assuming that their climate fits a uniform pattern, is the most appropriate option. In the study sample used here, one third of the teams showed a nonuniform pattern of team climate perceptions. More specifically, 26.9% of the teams showed a weak dissimilarity pattern, and 7.1% showed a strong dissimilarity pattern. These results suggest that nonuniform patterns might not be rare in other organizational settings. Taking into account that weak dissimilarity patterns are associated with dysfunctional team functioning and outcomes, researchers and practitioners conducting climate surveys in organizations should, in the initial stages of their analysis, identify work-units with such patterns in order to investigate the factors that foster them in the specific contexts where they appear, and design interventions to modify them. In doing so, they will contribute to preventing the consolidation of dysfunctional team climate patterns. Second, team managers should be aware of the disruptive consequences associated with some nonuniform patterns of climate perceptions of organizational support. Considering the functional consequences of perceptions of organizational support in teams (Kennedy et al., 2009), if team managers detect weak dissimilarity patterns in their teams, they should try to change the climate perceptions of those teams members with lower perceptions. This can be done in different ways, for instance, by providing information about the different kinds of resources available to the team (e.g., technical equipment, technical counseling about the team tasks) and about market trends and new products, giving assistance and help when it is required and facilitating training.

## Limitations and Strengths

Our study presents a number of limitations that must be kept in mind. First, we only investigated one type of work team (bank branches), and we only considered one climate facet (support from the organization). These characteristics of our study limit the generalizability of our findings. However, we think that the relationships observed here can also appear when other climate facets are involved, provided that these facets are crucial for team functioning. Future studies should analyze the relationships between climate uniformity and team processes and outcomes using different types of teams and considering distinct climate facets. Second, we found a small percentage of teams that showed a strong dissimilarity pattern. This fact seriously restricted the variance of the corresponding dummy variable and, consequently, limited the chance of observing substantive relationships. This problem may be difficult to overcome in intact small work teams like those investigated here because several factors (e.g., attraction-selection-attrition processes, social interaction) foster climate patterns with a single grouping. A couple of alternative ways to study the consequences of strong dissimilarity patterns would be, (a) given that we found that team size was positively related to our second dummy variable (the one comparing strong dissimilarity patterns vs. uniform ones; $r = .23$, $p < .05$), researchers could sample teams showing substantive differences in size, and (b) they could artificially create strong dissimilarity patterns in a controlled environment and examine their influence by implementing an experimental design. Third, our operationalization of climate uniformity was based on raters' judgments, which means that it involved a high degree of subjectivity. In order to facilitate the raters' classification task and reduce subjectivity, we elaborated a number of guidelines. The high degree of agreement observed in the two pairs of raters in the classification of team climate patterns, the facts that the final classifications provided by the two pairs of raters were identical, and the empirical findings obtained, which supported the study hypotheses for weak dissimilarity patterns, suggest that our operationalization of climate uniformity was reliable and valid. However, as research on climate uniformity is a new area of inquiry, methodological studies are also needed to ascertain the best methods for operationalizing uniformity. The sparse empirical research carried out up until now suggests that there is no optimal test to identity groups with patterns containing two or more modes (Eisenkraft, 2010). Future research in this area should consider and test DeRue et al.'s (2010) ideas for operationalizing efficacy dispersion in teams. Fourth, the average $r_{wg}$ values for communication quality and task conflict under the slightly skewed null distribution (.46 and .53, respectively) did not meet the standard cutoff point of .70. However, taking into account that the level of agreement under this distribution could still be considered about "moderate," according to LeBreton and Senter's (2008) agreement graduation, and that all the other coefficients and indices reported met the standard criteria for aggregation, we concluded that the level of interrater agreement and consistency was sufficient to justify aggregation. Fifth, the scale we used to measure team performance was only composed of two items. Although short scales have been used before in the literature (e.g., Baer & Frese, 2003; Dess & Robinson, 1984; Jehn et al., 1999; Lim & Ployhart, 2004; van Dyck, Frese, Baer, & Sonnentag, 2005; Wall et al., 2004), it is clear that these scales may be problematic because the small number of items limits their content validity. Future studies should replicate the findings reported here using larger team performance scales. And sixth, climate uniformity accounted for additional percentages of explained variance in team task conflict and team communication quality of 2% and 4%, respectively. Using common standards, the effect sizes associated with these values were low (the respective $\mathbf{f}^2$ indexes were .03 and .06, respectively). However, given the high percentage of explained variance accounted for by aggregate team climate (18% and 28%) and the fact that the relationships investigated were among variables measured at different time points, these values are not negligible. Moreover, the conceptual, theoretical and practical implications associated with the climate uniformity concept, discussed above, are relevant enough to deserve attention (Cortina & Landis, 2009). For instance, as we showed in Figure 1, climate uniformity allows researchers and practitioners to distinguish between two team climates with the same aggregate score and variability but distinct climate patterns. In the present study, we learned that differences in climate patterns in perceptions of organizational support are related to differences in team communication quality, team task conflict and team performance.

Despite these limitations, our study also shows several strengths. First, the variables included in our research model were measured at three different time points, so that there was congruence between their causal ordering in the model and the time point at which they were measured. This characteristic of our study design allowed us to overcome some limitations of cross-sectional research. Second, we collected data from different informants. Specifically, our measure of team performance was based on branch managers' ratings, whereas the remaining variables were collected from branch members, allowing us to reduce concern about common-method variance.

In sum, in the present study we have investigated a distinct climate concept (climate uniformity), showing that it can have important implications for team functioning. Our study opens up a new line of investigation in climate research that will help to better understand the influence of climate on team functioning and outcomes.

## References

Ashforth, B. E. (1985). Climate formation: Issues and extension. *The Academy of Management Review, 4,* 837–847.

Baer, M., & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance. *Journal of Organizational Behavior, 24,* 45–68. doi:10.1002/job.179

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173–1182. doi:10.1037/0022-3514.51.6.1173

Bashshur, M. R., Hernández, A., & González-Romá, V. (2011). When managers and their teams disagree: A longitudinal look at the consequences of differences in perceptions of organizational support. *Journal of Applied Psychology, 96,* 558–573. doi:10.1037/a0022675

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349–381). San Francisco, CA: Jossey-Bass.

Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin, 17,* 475–482. doi:10.1177/0146167291175001

Brewer, M. B. (2003). Optimal distinctiveness, social identity, and the self. In M. Leary & J. Tangney (Eds.), *Handbook of self and identity* (pp. 480–491). New York, NY: Guilford Press.

Brewer, M. B., & Kramer, R. M. (1986). Choice behavior in social dilemmas: Effects of social identity, group size, and decision framing. *Journal of Personality and Social Psychology, 50,* 543–549. doi:10.1037/0022-3514.50.3.543

Brewer, M. B., Manzi, J., & Shaw, J. (1993). Ingroup identification as a function of depersonalisation, distinctiveness and status. *Psychological Science, 4,* 88–92. doi:10.1111/j.1467-9280.1993.tb00466.x

Brown, K. G., & Kozlowski, S. W. J. (1999). *Dispersion theory: Moving beyond a dichotomous conceptualization of emergent organizational phenomena*. Paper presented at the Fourteenth Annual Meeting of the Society of Industrial and Organizational Psychology, Atlanta, GA.

Burke, M. J., & Dunlap, W. P. (2002). Estimating interrater agreement with the average deviation index: A user's guide. *Organizational Research Methods, 5,* 159–172. doi:10.1177/1094428102005002002

Burke, N. J., Finkelstein, L. M., & Dusig, M. S. (1999). On average deviation indices for estimating interrater agreement. *Organizational Research Methods, 2,* 49–68. doi:10.1177/109442819921004

Campion, M., Medsker, G., & Higgs, C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology, 46,* 823–847. doi:10.1111/j.1744-6570.1993.tb01571.x

Campion, M. A., Papper, E. M., & Medsker, G. J. (1996). Relations between work team characteristics and effectiveness: A replication and extension. *Personnel Psychology, 49,* 429–452. doi:10.1111/j.1744-6570.1996.tb01806.x

Carnevale, P. J., & Probst, T. M. (1998). Social values and social conflict in creative problem solving and categorization. *Journal of Personality and Social Psychology, 74,* 1300–1309. doi:10.1037/0022-3514.74.5.1300

Carton, A. M., & Cummings, J. N. (2012). A theory of subgroups in work teams. *The Academy of Management Review, 37,* 441–470. doi:10.5465/amr.2009.0322

Carton, A. M., & Cummings, J. N. (2013). The impact of subgroup type and subgroup configurational properties on work team performance. *Journal of Applied Psychology, 98,* 732–758. doi:10.1037/a0033593

Chan, D. (1998). Functional relationships among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83,* 234–246. doi:10.1037/0021-9010.83.2.234

Cohen, J. (1988). *Statistical power analysis for the behavioral science* (2nd ed.). Hillsdale, NJ: LEA.

Colquitt, J. A., Noe, R. A., & Jackson, C. L. (2002). Justice in teams: Antecedents and consequences of procedural justice climate in teams. *Personnel Psychology, 55,* 83–109. doi:10.1111/j.1744-6570.2002.tb00104.x

Cortina, J. M., & Landis, R. S. (2009). When small effect sizes tell a big story, and when large effect sizes don't. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Doctrine, verity, and fable in the organizational and social sciences* (pp. 287–308). New York, NY: Routledge.

Craig, C. C. (1936). On the frequency function of xy. *Annals of Mathematical Statistics, 7,* 1–15. doi:10.1214/aoms/1177732541

Crawford, E. R., & Lepine, J. A. (2013). A configural theory of team processes: Accounting for the structure of taskwork and teamwork. *The Academy of Management Review, 38,* 32–48. doi:10.5465/amr.2011.0206

Cropanzano, R., Li, A., & Benson, L. (2011). Peer justice and teamwork process. *Group & Organization Management, 36,* 567–596. doi:10.1177/1059601111414561

DeChurch, L. A., Mesmer-Magnus, J. R., & Doty, D. (2013). Moving beyond relationship and task conflict: Toward a process-state perspective. *Journal of Applied Psychology, 98,* 559–578. doi:10.1037/a0032896

De Dreu, C. K. W. (2008). The virtue and vice of workplace conflict: Food for (pessimistic) thought. *Journal of Organizational Behavior, 29,* 5–18. doi:10.1002/job.474

De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team performance and team members' satisfaction: A meta-analysis. *Journal of Applied Psychology, 88,* 741–749. doi:10.1037/0021-9010.88.4.741

DeRue, D. S., Hollenbeck, J. R., Ilgen, D. R., & Feltz, D. (2010). Efficacy dispersion in teams: Moving beyond agreement and aggregation. *Personnel Psychology, 63,* 1–40. doi:10.1111/j.1744-6570.2009.01161.x

Dess, G. G., & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures: The case of the privately held firm and conglomerate business unit. *Strategic Management Journal, 5,* 265–273. doi:10.1002/smj.4250050306

Duchan, A. I. (1969). A relationship between the *F* and *t* statistics and the simple correlation coefficients in classical least squares regression. *The American Statistician, 23,* 27–28.

Eisenkraft, N. (2010). *$r_{WG}$ is not enough: Detecting subgroup disagreement*. Paper presented at the Academy of Management annual meeting, Montréal, Québec, Canada.

Erickson, B. H., & Nosanchuk, T. A. (1977). *Understanding data*. Toronto, Ontario, Canada: McGraw-Hill Ryerson.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18,* 39–50. doi:10.2307/3151312

Gamero, N., González-Romá, V., & Peiró, J. M. (2008). The influence of intra-team conflict on work teams' affective climate: A longitudinal study. *Journal of Occupational and Organizational Psychology, 81,* 47–69. doi:10.1348/096317907X180441

Geary, R. C., & Leser, C. E. V. (1968). Significance tests in multiple regression. *The American Statistician, 22,* 20–21.

Gibson, C. (2001). From knowledge accumulation to accommodation: Cycles of collective cognition in work groups. *Journal of Organizational Behavior, 22,* 121–134. doi:10.1002/job.84

González-Romá, V., Fortes-Ferreira, L., & Peiró, J. M. (2009). Team climate, climate strength and team performance. A longitudinal study. *Journal of Occupational and Organizational Psychology, 82,* 511–536. doi:10.1348/096317908X370025

González-Romá, V., Peiró, J. M., & Tordera, N. (2002). An examination of the antecedents and moderator influences of climate strength. *Journal of Applied Psychology, 87,* 465–473. doi:10.1037/0021-9010.87.3.465

González-Romá, V., & Peiró, J. M. (2014). Climate and culture strength. In B. Schneider & K. Barbera (Eds.), *The Oxford handbook of organizational climate and culture* (pp. 496–531). New York, NY: Oxford University Press.

Hackman, J. R. (1992). Group influences in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., pp. 199–267). Palo Alto, CA: Consulting Psychologists Press.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hogg, M. A., & Terry, D. I. (2000). Social identity and self-categorization processes in organizational contexts. *The Academy of Management Review, 25,* 121–140.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From input-process-output models to IMOI models. *Annual Review of Psychology, 56,* 517–543. doi:10.1146/annurev.psych.56.091103.070250

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology, 69,* 85–98. doi:10.1037/0021-9010.69.1.85

James, L. R., Mulaik, S. A., & Brett, J. M. (2006). A tale of two methods. *Organizational Research Methods, 9,* 233–244. doi:10.1177/1094428105285144

Jehn, K. A. (1994). Enhancing effectiveness: An investigation of advantages and disadvantages of value based intragroup conflict. *International Journal of Conflict Management, 5,* 223–238. doi:10.1108/eb022744

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly, 40,* 256–282. doi:10.2307/2393638

Jehn, K. A. (1997). A qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly, 42,* 530–557. doi:10.2307/2393737

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A filed study of diversity, conflict, and performance in workgroups. *Administrative Science Quarterly, 44,* 741–763. doi:10.2307/2667054

Kennedy, F. A., Loughry, M. L., Klammer, T. P., & Beyerlein, M. M. (2009). Effects of organizational support on potency in work teams: The mediating role of team processes. *Small Group Research, 40,* 72–93. doi:10.1177/1046496408326744

Klein, K. J., Conn, A. B., Smith, D. B., & Sorra, J. S. (2001). Is everyone in agreement? An exploration of within-group agreement in employee perceptions of the work environment. *Journal of Applied Psychology, 86,* 3–16. doi:10.1037/0021-9010.86.1.3

Kopelman, R. E., Brief, A. P., & Guzzo, R. A. (1990). The role of climate and culture in productivity. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 282–318). San Francisco, CA: Jossey-Bass.

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. I. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology, Vol. 12*: *Industrial and organizational psychology* (pp. 333–376). Hoboken, NJ: Wiley.

Kozlowski, S. W. J., & Doherty, M. L. (1989). Integration of climate and leadership: Examination of a neglected issue. *Journal of Applied Psychology, 74,* 546–553. doi:10.1037/0021-9010.74.4.546

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest, 7,* 77–124.

Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 3–90). San Francisco, CA: Jossey-Bass.

Kuenzi, M., & Schminke, M. (2009). A fragmented literature? A review, critique, and proposed research agenda of the work climate literature. *Journal of Management, 35,* 634–717. doi:10.1177/0149206308330559

Lau, D., & Murnighan, K. (1998). Demographic diversity and faultlines: The compositional dynamics of organizational groups. *Academy of Management Review, 23,* 325–340. doi:10.5465/AMR.1998.533229

LeBreton, J. M., James, L. R., & Lindell, M. K. (2005). Recent issues regarding $r_{WG}$, $r^*_{WG}$, $r_{WG(J)}$, and $r^*_{WG(J)}$. *Organizational Research Methods, 8,* 128–138. doi:10.1177/1094428104272181

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11,* 815–852. doi:10.1177/1094428106296642

LeBreton, J. M., Wu, J., & Bing, M. N. (2009). The truth(s) on testing for mediation in the social and organizational sciences. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends* (pp. 109–144). New York, NY: Routledge.

Lim, B. C., & Ployhart, R. E. (2004). Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology, 89,* 610–621. doi:10.1037/0021-9010.89.4.610

Lindell, M. K., & Brandt, C. J. (2000). Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes. *Journal of Applied Psychology, 85,* 331–348. doi:10.1037/0021-9010.85.3.331

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. Mahwah, NJ: Erlbaum.

MacKinnon, D. P., Lockwood, C., & Hoffman, J. (1998). *A new method to test for mediation*. Paper presented at the annual meeting of the Society for Prevention Research, Park City, UT.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7,* 83–104. doi:10.1037/1082-989X.7.1.83

MacKinnon, D. P., Taborga, M. P., & Morgan-Lopez, A. A. (2002). Mediation designs for tobacco prevention research. *Drug and Alcohol Dependence, 68,* S69–S83. doi:10.1016/S0376-8716(02)00216-8

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26,* 356–376.

McGrath, J. E. (1984). *Groups: Interaction and performance*. Englewood Cliffs, NJ: Prentice-Hall.

Naumann, S. E., & Bennett, N. (2000). A case for procedural justice: Development and test of a multilevel model. *Academy of Management Journal, 43,* 881–889. doi:10.2307/1556416

Ostroff, C., & Bowen, D. E. (2000). Moving HR to a higher level: Human resource practices and organizational effectiveness. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 211–266). San Francisco, CA: Jossey-Bass.

Ostroff, C., Kinicki, A. J., & Tamkins, M. M. (2003). Organizational culture and climate. In W. C. Borman, D. I. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology, Vol. 12*: *Industrial and organizational psychology* (pp. 565–594). Hoboken, NJ: Wiley.

Pfeffer, J. (1983). Organizational demography: Implications for management. In B. Staw & L. Cummings (Eds.), *Research in organizational behavior* (Vol. 5, pp. 299–357). Greenwich, CT: JAI Press.

Rousseau, D. M. (1988). The construction of climate in organizational research. In C. L. Cooper & I. T. Robinson (Eds.), *International review of industrial and organizational psychology* (pp. 137–158). Chichester, England: Wiley.

Salas, E., Sims, D. E., & Burke, C. S. (2005). Is there a "Big Five" in teamwork? *Small Group Research, 36,* 555–599. doi:10.1177/1046496405277134

Schneider, B., & Reichers, A. (1983). On the etiology of climates. *Personnel Psychology, 36,* 19–39. doi:10.1111/j.1744-6570.1983.tb00500.x

Schneider, B., Salvaggio, A. M., & Subirats, M. (2002). Climate strength: A new direction for climate research. *Journal of Applied Psychology, 87,* 220–229. doi:10.1037/0021-9010.87.2.220

Schneider, B., Ehrhart, M. G., Mayer, D. M., Saltz, J. L., & Niles-Jolly, K. (2005). Understanding organization-customer links in service settings. *Academy of Management Journal, 48,* 1017–1032.

Shah, P. P., & Jehn, K. A. (1993). Do friends perform better than acquaintances: The interaction of friendship, conflict, and task. *Group Decision and Negotiation, 2,* 149–165. doi:10.1007/BF01884769

Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., O'Bannon, D. P., & Scully, J. A. (1994). Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly, 39,* 412–438. doi:10.2307/2393297

Sobel, M. E. (1990). Effect analysis and causation in linear structural equation models. *Psychometrika, 55,* 495–515. doi:10.1007/BF02294763

Tajfel, H. (1981). *Human groups and social categories: Studies in social psychology*. Cambridge, England: Cambridge University Press.

Thatcher, S. M. B., & Patel, P. C. (2011). Demographic faultlines: A meta-analysis of the literature. *Journal of Applied Psychology, 96,* 1119–1139. doi:10.1037/a0024167

Turner, J. (1987). *Rediscovering the social group: A social categorization theory*. Oxford, England: Blackwell

van Dyck, C., Frese, M., Baer, M., & Sonnentag, S. (2005). Organizational error management culture and its impact on performance: A two study replication. *Journal of Applied Psychology, 90,* 1228–1240. doi:10.1037/0021-9010.90.6.1228

Wall, T. D., Michie, J., Patterson, M., Wood, S. J., Sheehan, M., Clegg, C. W., & West, M. (2004). On the validity of subjective measures of company performance. *Personnel Psychology, 57,* 95–118. doi:10.1111/j.1744-6570.2004.tb02485.x

Wallmark, J. T. (1973). The increase in efficiency with the size of research teams. *Transaction on Engineering Management, EM-20,* 80–86. doi:10.1109/TEM.1973.6448434

West, M. A. (1996). Fundamental considerations about work groups. In M. A. West (Ed.), *Handbook of work group psychology* (pp. 3–21). Chichester, England: Wiley.

West, M. A., Smith, H., Feng, W. L., & Lawthom, R. (1998). Research excellence and departmental climate in British universities. *Journal of Occupational and Organizational Psychology, 71,* 261–281. doi:10.1111/j.2044-8325.1998.tb00676.x

Williams, K. Y., & O'Reilly, C. A. (1998). Demography and diversity in organizations: A review of 40 years of research. In B. Staw & L. Cummings (Eds.), *Research in organizational behavior* (Vol. 20, pp. 77–140). Greenwich, CT: JAI Press.

Wonnacott, T. H., & Wonnacott, R. J. (1984). *Introductory statistics for business and economics*. New York, NY: Wiley.

Zhao, X., Lynch, J. G.Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37,* 197–206. doi:10.1086/651257

Received January 15, 2012
Revision received June 30, 2014
Accepted July 31, 2014 ■