

## Validating justice climate and peer justice in a real work setting



Agustin Molina<sup>a,\*</sup>, Carolina Moliner<sup>b</sup>, Vicente Martínez-Tur<sup>b</sup>, Russell Cropanzano<sup>c</sup>, José María Peiró<sup>b,d</sup>

<sup>a</sup> Pontificia Universidad Católica de Chile, Santiago, Chile

<sup>b</sup> IDOCAL, University of Valencia, Spain

<sup>c</sup> University of Colorado at Boulder, USA

<sup>d</sup> Instituto Valenciano de Investigaciones Económicas (IVIE), Valencia, Spain

### ARTICLE INFO

#### Article history:

Received 31 January 2015

Accepted 20 September 2016

Available online 18 October 2016

#### Keywords:

Justice climate

Peer justice

Reciprocity with the supervisor

Reciprocity with coworkers

### ABSTRACT

In this study we tested the validity of justice climate and peer justice, measured as second-order constructs, in a real work setting. First, we investigated the appropriateness of aggregating first-order facets of justice climate and peer justice to work-unit level of analysis. Second, we examined the construct validity of justice climate and peer justice as two different factor structures. Third, we tested the hierarchical structure of justice climate and peer justice as second-order factors. Finally, we examined the predictive validity of second-order factors justice climate and peer justice within a nomological network composed of reciprocity with the supervisor and reciprocity with coworkers. We conducted these analyses in a sample of 532 employees nested in 79 organizations. Our results suggest the validity of justice climate and peer justice measured as second-order factors. We discuss these results and their implications for organizational justice research.

© 2016 Colegio Oficial de Psicólogos de Madrid. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### La validación del clima de justicia y de la justicia entre compañeros en un entorno real de trabajo

#### RESUMEN

Este estudio examina la validez del clima de justicia y clima de justicia entre compañeros como constructos de segundo orden en un contexto real de trabajo. Primero, se examinó la agregación al nivel grupal de las facetas de primer orden de cada clima. Segundo, se examinó la validez de constructo clima de justicia y clima de justicia entre compañeros por separado. Tercero, se analizó la estructura jerárquica de ambos climas como constructos de segundo orden. Finalmente, se calculó la validez predictiva de estos constructos de segundo orden en una red nomológica constituida por reciprocidad con el supervisor y con los compañeros de trabajo. Estos análisis fueron realizados con una muestra de 532 trabajadores agrupados en 79 organizaciones. Los resultados plantean la validez del clima de justicia y clima de justicia entre compañeros como factores de segundo orden. Se discuten los resultados y sus implicaciones para la justicia organizacional.

© 2016 Colegio Oficial de Psicólogos de Madrid. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

#### Palabras clave:

Clima de justicia

Clima de justicia entre compañeros

Reciprocidad con el supervisor

Reciprocidad con los compañeros de trabajo

As more and more organizations aim to achieve their goals through work groups and teams (e.g., Colquitt, Zapata-Phelan, & Roberson, 2005), the relationships among coworkers have become

crucial. The nature and complexity of tasks in modern organizations require well-articulated work units (Wit, Greer, & Jehn, 2012). Cooperation among members of work units allows organizations to better respond to societal and economic demands. Work units that fail to articulate their internal processes have to deal with negative consequences, such as social loafing or team conflict, which may reduce their effectiveness (Kidwell & Bennett, 1993; Shaw et al., 2011).

\* Corresponding author. Escuela de Psicología, Pontificia Universidad Católica de Chile, Av. Vicuña Mackenna 4860, 7820436 Macul, Santiago, Chile.  
E-mail address: [agustin.molina@uc.cl](mailto:agustin.molina@uc.cl) (A. Molina).

Organizational justice research has a lot to offer in this domain. To capture the importance that organizations assign to work units, organizational justice scholars have developed a line of research called justice climate (e.g., Naumann & Bennett, 2000). This research has focused on the way coworkers are treated by an individual or entity outside the group, usually an authority figure (e.g., Colquitt et al., 2005; Ehrhart, 2004; Zhang & Jia, 2013). Despite predicting important organizational outcomes—see Whitman, Caleo, Carpenter, Horner, and Bernerth's (2012) meta-analysis—, justice climate neglects the interaction processes that take place among members of the same work unit. To capture this internal phenomenon, Cropanzano, Li, and James (2007) referred to what goes on inside a work unit as intra-unit justice. Cropanzano, Li, and Benson (2011) later relabeled this construct as peer justice.

Due to the importance attributed to justice climate (Whitman et al., 2012) and the novelty and potential of peer justice (Li & Cropanzano, 2009), Li, Cropanzano, and Bagger (2013) recently conducted an empirical examination of the factorial structure of these constructs. Consistent with the tendency toward an overall approach to justice (e.g., Ambrose & Arnaud, 2005; Ambrose & Schminke, 2009; Hauenstein, McGonigle, & Flinder, 2001; Lind & Van den Bos, 2002; Törnblom & Vermunt, 1999), Li et al. (2013) observed that justice climate and peer justice were best represented through a hierarchical—second-order—structure that combined the first-order facets of these constructs—i.e., distributive, procedural, and interactional justice. It is important to point out that Li and colleagues tested these hierarchical models with a sample of undergraduate students.

In the present study, we contribute to the justice literature by reexamining the factorial structure of justice climate and peer justice reported by Li et al. (2013) using data collected in a formal work environment in the service industry. Specifically, we test our model with a sample of employees working in health care services who have direct contact with customers. The main purpose of these organizations is to improve the quality of life of their customers. Therefore, cooperation among coworkers is necessary because attending to each customer requires the simultaneous involvement of different sets of skills and knowledge. Hence, work-unit members are compelled to work closely together to fully meet their customers' needs. In other words, the ongoing social interactions that take place in this context provide an ideal setting in which to examine justice climate and peer justice within a formal work environment.

In the following sections, we first describe the conceptual basis underlying the difference between justice climate and peer justice. We then describe the benefits that have motivated scholars to study organizational justice using an overall approach. Finally, we describe the specific steps followed to analyze the data.

### Unit-Level Fairness: Justice Climate and Peer Justice

Justice scholars have identified several sources or foci of fairness from which employees can potentially make differential justice perceptions. This line of inquiry focusing on the perpetrator of an (in)just act has been referred to as *multifoci* research (Liao & Rupp, 2005). In addition to upper management, multifoci research has identified further sources of fairness, such as coworkers and customers (Branscombe, Spears, Ellemers, & Doosje, 2002; Lavelle et al., 2009; Lavelle, Rupp, & Brockner, 2007). Unit-level research has built on these findings and distinguished justice climate from peer justice.

Justice climate has been defined as a shared perception of the fairness with which the unit is collectively treated by an authority figure (Li & Cropanzano, 2009). However, some scholars have noted that, during their daily activities, employees not only

perceive the treatment they receive from outside the group (i.e., justice climate) (e.g., Cropanzano et al., 2007), but they are also capable of perceiving the treatment they receive from within the group (i.e., coworkers) (e.g., Lavelle et al., 2007). Peer justice refers to the shared perception of the fairness with which coworkers generally treat one another (Li et al., 2013).

Research on justice climate has been very fruitful, showing that justice climate is related not only to individual-level attitudes and behaviors, such as satisfaction, commitment, and helping behaviors (Liao & Rupp, 2005; Mayer, Nishii, Schneider, & Goldstein, 2007; Mossholder, Bennett, & Martin, 1998; Naumann & Bennett, 2000; Walumbwa, Hartnell, & Oke, 2010), but also to unit-level behavior, such as team performance, team absenteeism, unit-level organizational commitment, turnover intentions, and customer service orientation (Colquitt, Noe, & Jackson, 2002; Simons & Roberson, 2003; for a meta-analysis see Whitman et al., 2012).

Peer justice, in contrast, is still a novel construct within the organizational justice literature. Despite its novelty, the facets of peer justice have been related to team processes and outcomes such as task performance, team citizenship behaviors (Cropanzano et al., 2011), and team satisfaction (Li et al., 2013). These studies have been conducted using data collected from undergraduate students.

### Overall Approach to Justice in the Workplace

Research has shown that employees develop fairness perceptions from as many as four justice events (Colquitt, 2001). Employees judge fairness based on their experiences with resource distribution (*distributive justice*), with the processes through which those resources are allocated (*procedural justice*), and with the quality of social interactions that take place during the allocation of resources (*interactional justice*). Research has further divided interactional justice into *interpersonal justice*—i.e., the extent to which employees are treated with dignity and respect—and *informational justice*—i.e., the extent to which the explanations provided to employees convey information about procedures and outcomes (Bies & Moag, 1986). Even though these facets are conceptually distinct (see Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001), justice scholars have begun to consider an overall approach to justice as an alternative to the more traditional facets perspective (e.g., Ambrose & Schminke, 2009; Choi, 2008; Greenberg, 2001; Hauenstein et al., 2001; Holtz & Harold, 2009; Jones & Martens, 2009; Kim & Leung, 2007; Lind, 2001).

According to Ambrose and Schminke (2007), the overall approach to organizational justice has several benefits for the fairness literature. These benefits include a more precise representation of individuals' and groups' justice experiences, in contrast to solely focusing on the discrete justice facets. The overall approach also allows scholars to examine the total impact of justice, rather than the separate effects of its facets. Moreover, an overall approach to justice provides a more parsimonious way to theorize about the effects of justice. Ambrose and Schminke further suggested that these benefits should not be restricted to individual-level research, and they made a call for research at the unit-level of analysis to examine the overall approach to justice. These observations are of great importance to the emerging literature on multifoci climates, since they allow justice researchers to focus more clearly on the source of justice (e.g., coworkers). As we describe in the following paragraphs, the overall approach to unit-level fairness is consistent with both empirical evidence and theoretical arguments.

We first focus on the empirical evidence. In the case of justice climate, research has been accumulating for more than a decade (e.g., Colquitt et al., 2002; Ehrhart, 2004; Liao & Rupp, 2005; Lipponen & Wisse, 2010; Naumann & Bennett, 2000). Whitman et al. (2012) recently conducted a meta-analysis to further examine justice

climate. In spite of showing the value of studying the different facets of justice, Whitman et al. reported an average correlation among the facets of justice climate of .55. Cohen, Cohen, West, and Aiken's (2003) typology of effect sizes suggests that a correlation of .10 is weak, .30 is moderate, and .50 is strong. Based on this typology, Whitman et al. defended the appropriateness of an overall approach to justice climate. In fact, Whitman and colleagues examined the importance of an overall approach to justice climate through a composite of the facets of justice climate. The results showed that overall justice climate was significantly related to unit-level effectiveness, attitudes, processes, and performance, providing important support for the total impact of this construct. Research on peer justice has been much scarcer. Whereas Cropanzano et al. (2011) measured procedural and interpersonal peer justice and reported a correlation of .74, Li et al. (2013) measured distributive, procedural, and interpersonal peer justice and reported an average correlation of .58. Based on Cohen et al.'s (2003) typology of effect sizes, and as in the case of justice climate, both studies on peer justice reported strong correlations, which is not surprising to justice scholars. Strong correlations among justice facets have already been reported (see Colquitt et al., 2001; Colquitt et al., 2013) and repeatedly discussed at the individual-level of analysis (e.g., Ambrose & Arnaud, 2005; Bies, 2005; Colquitt & Shaw, 2005). The extensive research on organizational justice, the large amount of research on justice climate, and the preliminary research on peer justice suggest the appropriateness of extending the overall approach to peer justice.

We now turn our attention to the theoretical arguments underlying an overall approach to justice climate and peer justice. Fairness Heuristic Theory (FHT; Lind, 2001) posits that employees face a fundamental social dilemma in the workplace: they do not have enough information to know whether they can trust others not to exploit them or exclude them from social relationships. To cope with the little information they have, employees use cognitive shortcuts—heuristics—to assess fairness-related information. Once a group of employees forms a heuristic judgment of a target (e.g., the supervisor or coworkers), FHT posits that they will rely on it as a shortcut to assess subsequent fairness-related events involving the same target. Therefore, fairness heuristic judgments act as an overall perception of justice. After forming a heuristic judgment, employees will interpret subsequent information based on their previously established overall framework. More importantly, FHT posits that heuristics are used within hierarchical (e.g., supervisor-employee) and non-hierarchical (e.g., employee-employee) relationships. As described by Lind (2001), “the dual threat of exploitation and exclusion upon which much of the theory is based manifests itself very starkly in hierarchical contexts, because of the power differential [justice climate], but it can be just as strong in close equal-power relations [peer justice]” (p. 222). Therefore, FHT not only provides the theoretical argumentation for overall justice judgments, but it does so in a way that is consistent with the overall approach to both justice climate and peer justice.

Taken together, both empirical evidence and theory support Ambrose and Schminke's (2007) call for research on the overall approach to justice at the unit-level of analysis. Directly responding to that call, Li et al. (2013) tested a model where they operationalized justice climate and peer justice perceptions as hierarchical—second-order—or composite constructs. That is, the overall perception of each source of justice—i.e., justice climate and peer justice—was indicated by the different justice facets. Li et al. argued that “justice perceptions can be considered as a two-level structure, with the first-level indicators representing the various dimensions of justice, and the second-level representing the overall perception of justice” (p. 573). Li et al.'s results showed that justice climate and peer justice were best represented by combining their first-order factors (i.e., facets) into two separate second-order

factors. Although the Li et al. findings were important, it should be kept in mind that their data were obtained from a sample of undergraduate students. As these authors suggested, there is a need for research to reexamine their findings in a different context. Since students are not subjected to the labor conditions and processes directly connected to the day-to-day life of work groups and organizations the way employees are, in this study we aim to replicate Li et al.'s findings with a sample of employees from a formal work setting and, thus, extend their generalizability.

### Examining the Structure of Justice Climate and Peer Justice in a Non-student Sample

Replicating the hierarchical structures of justice climate and peer justice observed by Li et al. (2013) represents an important contribution to the organizational justice literature because evidence suggests that results obtained from student subjects may differ from those obtained from actual employees (Henrich, Heine, & Norenzayan, 2010). In this study we will address the replication of the hierarchical structure of justice climate and peer justice using a thorough four-step approach.

As Peterson (2001) indicated, student responses tend to be more homogeneous than non-student responses. This increased homogeneity is an important concern when studying organizational climates such as justice climate and peer justice because it can artificially inflate within-unit agreement. Thus, as a first step we will examine the appropriateness of aggregating the first-order facets of justice climate—i.e., distributive justice climate, procedural justice climate, interpersonal justice climate, and informational justice climate—and peer justice—i.e., distributive peer justice, procedural peer justice, interpersonal peer justice, and informational peer justice—to the unit level of analysis.

Peterson (2001) also observed that effect sizes derived from student samples—both direction and magnitude—frequently differ from those derived from non-student samples. Consequently, before testing the hierarchical models of justice climate and peer justice, in a second step we will examine the construct validity of justice climate and peer justice as two different factor structures. That is, we will examine whether the items in each facet of justice climate and peer justice measure what they are intended to measure (Babin, Boles, & Robin, 2000).

In a third step, we will test the hierarchical structure of justice climate and peer justice reported by Li et al. (2013). That is, we will explore an additional model in which two second-order factors (justice climate or peer justice) account for the relationship between their corresponding first-order factors (distributive, procedural, interpersonal, and informational justice). We will use indicators of scale convergence and discriminant validity to examine all these structures.

Finally, in a fourth step, we will examine the predictive validity of justice climate and peer justice—as second-order factors—within a well-defined nomological network. That is, we will examine the behavior of justice climate and peer justice when related to proximal versus distal outcomes. To this end, we consider the relationships of justice climate and peer justice with two measures of employee reciprocity: perceived reciprocity with the supervisor and perceived reciprocity with coworkers. As a general construct, reciprocity is defined as a “continuum ranging from under-benefitted reciprocity (when the person perceives that he/she is receiving less than he/she deserves) to balanced reciprocity (when the person perceives that there is an equilibrium) to over-benefitted reciprocity (when the person perceives that he/she is receiving more than he/she deserves)” (Moliner, Martínez-Tur, Peiró, Ramos, & Cropanzano, 2013, p. 31). Since justice climate refers to perceptions of fair treatment provided by authorities, we

expect that justice climate will present a stronger relationship with reciprocity with the supervisor than peer justice will. Similarly, since peer justice refers to perceptions of fair treatment among coworkers, we expect that peer justice will present a stronger relationship with reciprocity with coworkers than justice climate will.

## Method

### Sample and Procedure

We surveyed a total of 760 employees from 98 organizations affiliated with the Confederation of Organizations for Persons with Intellectual Disability (FEAPS, Spain). These organizations pertain to the health care industry and provide services to persons with intellectual disability. Each organization is considered as a work unit of FEAPS. The employees' main occupations—primary health care workers, psychologists, social workers, physiotherapists, and occupational therapists—were in line with those described as the most frequent professions in these settings (World Health Organization, 2007). This study is part of a larger project investigating group processes in this type of organizations. The current research study focuses on validating measures of justice climate and peer justice in detail.

Participation was confidential and voluntary. Each organization randomly chose its employees. Since the core variables of this study were based on aggregated measures, we used data only when there were at least three employees per work unit. After deleting cases with missing data, the final sample consisted of 532 employees nested in 79 work units. The decrease in sample size was due to participants' incomplete responses and the design requirement to have at least three responses per work unit to aggregate to the group level (see Colquitt et al., 2002; Tracey & Tews, 2005). Work units ranged from 3 to 12 employees (mean = 6.73,  $SD = 2.20$ ). Employees' average age was 35.24 years ( $SD = 8.76$ ), their average organizational tenure was 6.91 years ( $SD = 6.58$ ), 71.06% were women, and 55.73% had earned a university degree—the remaining 44.27% had completed, at least, 10 years of state compulsory education.

### Measures

Both justice climate and peer justice were assessed using the referent shift consensus model (Chan, 1998). Instead of focusing on the treatment received by each individual ("I am treated. . ."), the referent shift consensus model focuses all respondents on the work unit as a whole ("We are treated. . ."). According to Bashshur, Rupp, and Christopher (2004), this approach leads to more agreement within units and a better ability to distinguish between units than direct consensus models, which focus on the treatment received by each member of the unit.

#### Justice climate

We assessed justice climate based on the 20-item scale developed by Colquitt (2001), using a 7-point Likert scale (ranging from 1, *strongly disagree*, to 7, *strongly agree*). Four items referred to distributive justice, 7 items to procedural justice, 4 items to interpersonal justice, and 5 items to informational justice (see the entire scale in the Appendix).

#### Peer justice

We assessed peer justice based on the scale developed by Li and Cropanzano (2009), using a 5-point Likert scale (ranging from 1, *strongly disagree*, to 5, *strongly agree*). Considering the importance attributed to informational justice, we added additional items referring to this facet. Not only was this decision consistent with

previous recommendations (see Colquitt, 2001; Colquitt & Shaw, 2005), but it also allowed us to make peer justice directly comparable to the measure of justice climate. The final peer justice scale contained 16 items. Participants were instructed to focus their attention on the way coworkers treat each other. Two items specifically referred to distributive peer justice, 5 items to procedural peer justice, 4 items to interpersonal peer justice, and 5 items to informational peer justice (see the entire scale in the Appendix).

#### Perceived reciprocity

We assessed perceived reciprocity with the supervisor and coworkers with two single items traditionally used in the reciprocity literature (e.g., Buunk, Doosje, Jans, & Hopstaken, 1993; Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985; Moliner et al., 2013). Employees were requested to consider the relationships with the supervisors and their coworkers. Then, they had to endorse the statement that best characterized each relationship. Five possible answers were presented: (1) 'I give much more to my supervisor/coworkers than I receive in return'; (2) 'I give more to my supervisor/coworkers than I receive in return'; (3) 'We both/all provide the same amount to one another'; (4) 'My supervisor/coworkers give(s) me more than I provide in return'; (5) 'My supervisor/coworkers give(s) me much more than I provide in return'.

## Results

### Step 1: Aggregating the Facets of Justice Climate and Peer Justice

In order to examine the appropriateness of working with aggregated data, we followed two complementary approaches indicated by Kozlowski and Klein (2000): a consensus-based approach (calculation of the average deviation index,  $AD_{M(j)}$ ) and a consistency-based approach calculation of the intraclass correlation coefficient,  $ICC(1)$ . The  $AD_{M(j)}$  presents some advantages over the interrater agreement index ( $r_{wg}$ ; James, Demaree, & Wolf, 1984). The  $AD_{M(j)}$  only requires a priori specification of a null response range of interrater agreement because it does not require the modeling of the random or null response distribution. In addition, the estimates provided by the  $AD_{M(j)}$  are in the metric of the original response scale (González-Romá, Peiró, & Tordera, 2002). To determine cut-off criteria for the  $AD_{M(j)}$ , we followed Dunlap, Burke, and Smith-Crowe (2003), who recommend cut-off values of 0.83 for 5-point Likert scales, and 1.17 for 7-point scales. The  $ICC(1)$  represents the influence of group membership on the reliability and degree of group members' responses (Bliese, 2000). To examine the adequacy of the  $ICC$  values, we followed LeBreton and Senter (2008). Additionally, we computed one-way analysis of variance (ANOVA) to ascertain whether there was between-unit discrimination among the studied variables (Chan, 1998).

The results of the aggregation analyses are depicted in Table 1. With the exception of distributive justice climate and distributive peer justice, all the remaining justice facets—procedural justice climate, interpersonal justice climate, informational justice climate, procedural peer justice, interpersonal peer justice, and informational peer justice—showed sufficient levels of within-unit agreement and between-unit differentiation. Interestingly, distributive justice climate and distributive peer justice were the only facets that failed to show within-unit agreement, as denoted by the sum of each mean  $AD_{M(j)}$  with its corresponding standard deviation. Because these results prevent us from arguing that a distributive climate might have emerged, before taking any other action we decided to further assess the level of agreement using a different index. To this end, we computed James et al.'s (1984)  $r_{wg}$  index. Despite the limitations presented by the  $r_{wg}$  index, this index is one

**Table 1**  
Aggregation Indexes and One-Way Analyses of Variance (ANOVAs).

	AD <sub>M(j)</sub>			ICC(1)	ANOVA
	Mean	SD	Cut-off		
Distributive justice climate	0.99	0.34	1.17	.31	$F(78, 453) = 4.01^{**}$
Procedural justice climate	0.83	0.31	1.17	.27	$F(78, 453) = 3.56^{**}$
Interpersonal justice climate	0.72	0.33	1.17	.20	$F(78, 453) = 2.65^{**}$
Informational justice climate	0.77	0.32	1.17	.26	$F(78, 453) = 3.36^{**}$
Distributive peer justice	0.71	0.26	0.83	.12	$F(78, 453) = 1.88^{**}$
Procedural peer justice	0.55	0.18	0.83	.27	$F(78, 453) = 3.54^{**}$
Interpersonal peer justice	0.53	0.21	0.83	.37	$F(78, 453) = 5.09^{**}$
Informational peer justice	0.46	0.16	0.83	.20	$F(78, 453) = 2.65^{**}$

Note. AD<sub>M(j)</sub> = average deviation index; ICC(1) = intraclass correlation coefficient.

\*\*  $p < .01$ .

of the most commonly used indicators of within-unit agreement by unit-level scholars (LeBreton & Senter, 2008).

Even though the heuristics are arbitrary, unit-level research has typically used a cut-off value of .70 for the  $r_{wg}$  index (LeBreton & Senter, 2008). Whereas the average  $r_{wg(j)}$  values for procedural justice climate, interpersonal justice climate, informational justice climate, procedural peer justice, interpersonal peer justice, and informational peer justice were all above the recommended cut-off value (.74, .77, .71, .79, .81, .79, respectively), the average  $r_{wg(j)}$  values shown by distributive justice climate and distributive peer justice were not sufficient to argue for the emergence of these climates (.51 and .51, respectively). It is important to recall that, as with the other justice facets, both distributive justice climate and distributive peer justice were measured based on the referent-shift consensus model proposed by Chan (1998). That is, to rate the items, each individual employee was asked to focus on the treatment received by the group as a whole. Hence, the referent in these items was the group, not the individual. Although distributive justice is traditionally considered in the justice research, we decided to exclude the items referring to distributive justice climate and distributive peer justice from the following analyses. In the discussion section we provide several arguments that may help to understand why unit members did not show sufficient within-unit agreement on their distributive justice perceptions.

In the following sections, we conduct a series of confirmatory factor analyses (CFA). Since justice climate and peer justice are both, by nature, unit-level phenomena, we ran these analyses using aggregated data to make sure the level of analysis aligns with the level of theory (Kozlowski & Klein, 2000).

### Step 2: First-Order Structures

**First-order structure of justice climate.** We first tested a model that proposed that justice climate was a three-factor construct composed of the facets that showed within-unit agreement and between-unit differentiation—procedural justice climate, interpersonal justice climate, and informational justice climate. To assess model fit, we computed the following fit indices: the Root Mean Square Residual (RMSEA)—values smaller than .10 indicate an acceptable fit (Browne & Cudeck, 1993)—, Non-Normed Fit Index (NNFI)—values greater than .95 indicate good fit—, Comparative Fit Index (CFI)—values close to .95 indicate good fit (Hu & Bentler, 1999)—, and Standardized Root Mean Square Residual (SRMR)—values greater than .10 indicate model rejection (Marsh, Hau, & Wen, 2004). Since chi-square largely depends on sample size (Cheung & Rensvold, 2002; Meade, Johnson, & Braddy, 2008), scholars recommend comparing models based on more practical criteria. Cheung and Rensvold (2002) and Widaman (1985), for instance, suggest that an improvement in model fit should be supported by a .010 increase in CFI or NNFI ( $\Delta$ CFI and  $\Delta$ NNFI). Chen (2007)

suggests that a .015 decrease in RMSEA ( $\Delta$ RMSEA) or .030 in SRMR ( $\Delta$ SRMR) also supports an improvement in model fit.

The three-factor structure (see Figure 1a) provided a good fit to the data:  $\chi^2 = 165.35$ ,  $df = 101$ ,  $p < .01$ ; RMSEA = .090; CFI = .983; NNFI = .980; SRMR = .053. Although all the item-factor loadings were significant ( $p < .01$ ), one item referring to interpersonal justice climate was below the recommended .70 (Shipp, Burns, & Desmul, 2010). As depicted in Table 2, all the other item-factor loadings ranged from .79 to .98, suggesting scale convergence (Anderson & Gerbing, 1988). We tested a model without the item that presented a low item-factor loading, but without observing an improvement over the model representing all the items ( $\chi^2 = 156.21$ ,  $df = 87$ ,  $p < .01$ ; RMSEA = .101; 90% CI = 0.075, 0.126; CFI = .981; NNFI = .977; SRMR = .051;  $\Delta$ RMSEA < .015;  $\Delta$ CFI < .010;  $\Delta$ NNFI < .010;  $\Delta$ SRMR < .030). Therefore, we decided to conserve the model with all the items. The average variance extracted (AVE) for each justice climate facet, ranging from .74 to .88, exceeded the criterion of .50 and was larger than the square of any correlation between the factors, providing support for the convergent and discriminant validity of the construct (Fornell & Larcker, 1981). To further test the adequacy of the three-factor structure, we compared the three-factor structure to an alternative model represented by a one-factor structure. The results of the one-factor structure showed a worse fit to the data than the three-factor structure ( $\chi^2 = 850.30$ ,  $df = 104$ ,  $p < .01$ ; RMSEA = .303; 90% CI = 0.285, 0.322; CFI = .806; NNFI = .776; SRMR = .136;  $\Delta$ RMSEA < .015;  $\Delta$ CFI < .010;  $\Delta$ NNFI < .010;  $\Delta$ SRMR < .030), providing additional support for the three-factor structure of justice climate.

**First-order structure of peer justice.** As in the case of justice climate, we first tested a model proposing that peer justice is a three-factor construct composed of the facets that showed within-unit agreement and between-unit differentiation—procedural peer justice, interpersonal peer justice, and informational peer justice. The fit to the data of the three-factor structure was satisfactory:  $\chi^2 = 130.42$ ,  $df = 74$ ,  $p < .01$ ; RMSEA = .099; CFI = .984; NNFI = .981; SRMR = .029. However, we decided to eliminate two items—one referring to procedural peer justice and one referring to informational peer justice—because they presented high standardized residuals (Kline, 2011). The model with fewer items (see Figure 1b) presented an improvement over the model with all the items ( $\chi^2 = 56.33$ ,  $df = 51$ ,  $p > .05$ ; RMSEA = .037; CFI = .998; NNFI = .997; SRMR = .026;  $\Delta$ RMSEA > .015;  $\Delta$ CFI > .010;  $\Delta$ NNFI > .010;  $\Delta$ SRMR = .003). As depicted in Table 3, all item-factor loadings were significant ( $p < .01$ ) and above the recommended .70, and all the AVE for each factor ranged from .70 to .81, exceeding the criterion of .50 and providing support for the convergent validity of the construct. We then compared the three-factor structure to an alternative model represented by a one-factor structure. This general one-factor structure did not show an improvement over the three-factor structure ( $\chi^2 = 90.76$ ,  $df = 54$ ,  $p < .01$ ; RMSEA = .093; CFI = .986; NNFI = .983; SRMR = .036;  $\Delta$ RMSEA < .015;  $\Delta$ CFI < .010;

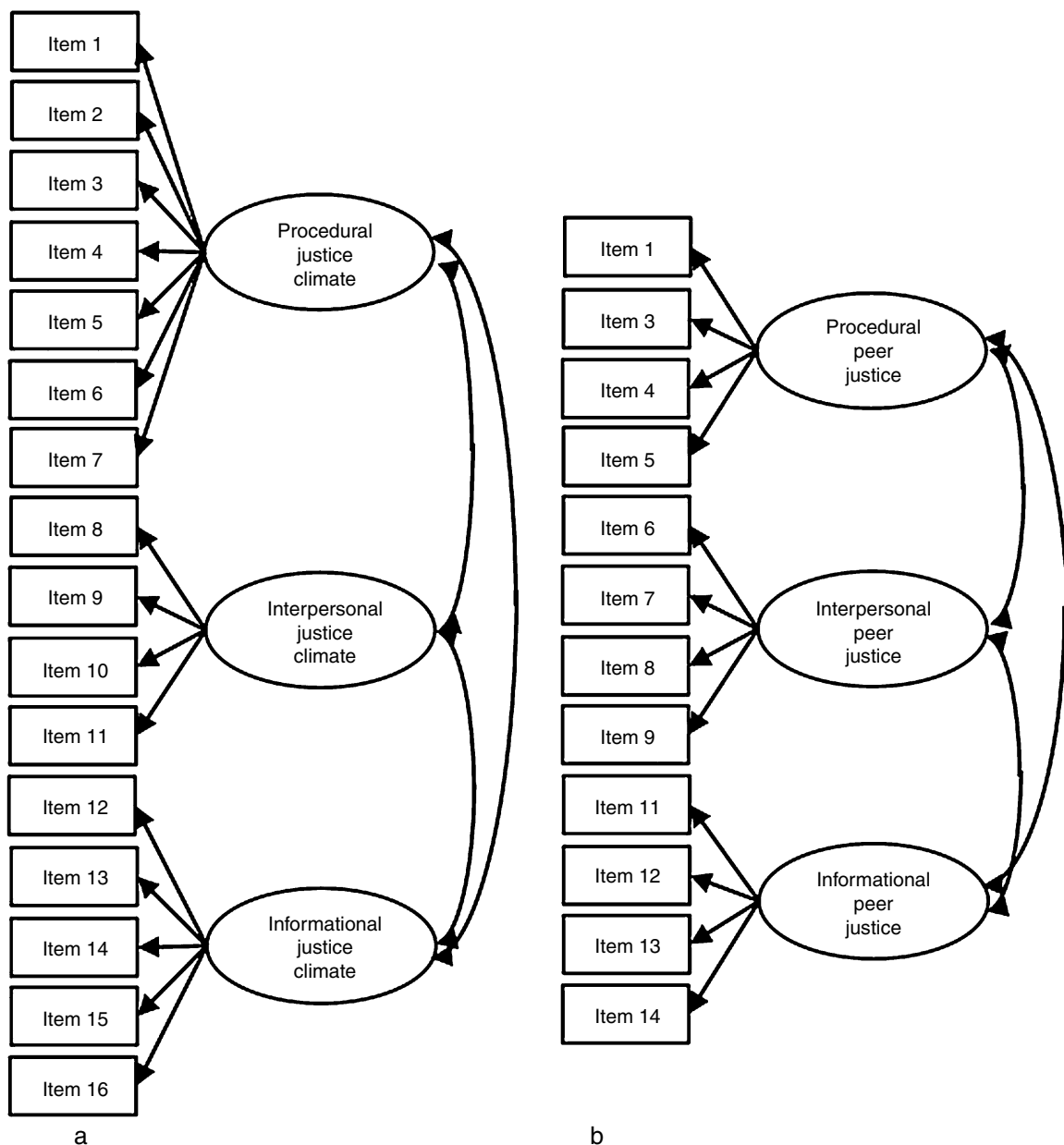


Figure 1. Models tested in Step 2.

$\Delta\text{NNFI} < .010$ ;  $\Delta\text{SRMR} < .030$ ). Although the three-factor structure showed a better fit to the data, none of the AVEs of these three factors was larger than the square of the correlations between the factors. That is, the AVE did not provide support for the discriminant validity of procedural peer justice, interpersonal peer justice, and informational peer justice (Fornell & Larcker, 1981). Thus, the lack of sufficient discriminant validity of the first-order facets of peer justice provides preliminary support for the hierarchical structure—overall approach—proposed by Li et al. (2013).

### Step 3: Hierarchical Structure of Justice Climate and Peer Justice

Li et al. (2013) observed that justice climate and peer justice were best represented through a hierarchical structure that combined the first-order facets of these constructs. If we were to independently test the hierarchical structure of justice climate and peer justice, we would obtain exactly the same results as for the three-factor structure. To avoid duplicating results, Li

et al. compared each hierarchical—second-order—model to a first-order model with the covariance among the factors constrained to zero. While this procedure is theoretically plausible, the extensive empirical evidence from previous research suggests that justice factors are highly correlated (e.g., Whitman et al., 2012). Consequently, we decided to extend the procedure followed by Li et al. and test an integrative model of unit-level fairness. That is, we created two second-order structures to represent the three underlying facets of justice for each type of unit-level fairness—justice climate and peer justice. Thus, in this model the relationship among procedural justice climate, interpersonal justice climate, and informational justice climate can be accounted for by the higher level construct of justice climate, whereas the relationship among procedural peer justice, interpersonal peer justice, and informational peer justice can be accounted for by the higher level construct of peer justice (see Figure 2). The fit for the model was:  $\chi^2 = 494.31$ ,  $df = 343$ ,  $p < .01$ ;  $\text{RMSEA} = .075$ ;  $\text{CFI} = .980$ ;  $\text{NNFI} = .978$ ;  $\text{SRMR} = .105$ . Previous studies, such as the ones conducted by Kim (2005) and Marsh et al.

**Table 2**  
Standardized Confirmatory Factor Analysis (CFA) Loading Estimates.

	Means	SD	Procedural justice climate	Interpersonal justice climate	Informational justice climate
Item 1	5.31	0.89	.88		
Item 2	5.15	0.84	.89		
Item 3	4.70	0.96	.90		
Item 4	5.19	0.98	.90		
Item 5	4.97	0.89	.93		
Item 6	5.19	0.76	.79		
Item 7	5.56	0.79	.89		
Item 8	6.04	0.69		.94	
Item 9	6.20	0.63		.98	
Item 10	6.18	0.64		.96	
Item 11	5.39	1.01		.44	
Item 12	5.57	0.80			.83
Item 13	5.53	0.86			.95
Item 14	5.54	0.78			.96
Item 15	5.37	0.86			.97
Item 16	5.40	0.86			.96
AVE			.78	.74	.88
Reliability estimates			.96	.89	.97

Note. AVE = Average variance extracted. All factor loading estimates were significant ( $p < .01$ ).

**Table 3**  
Standardized Confirmatory Factor Analysis (CFA) Loading Estimates.

	Means	SD	Procedural peer justice	Interpersonal peer justice	Informational peer justice
Item 1	3.89	0.53	.82		
Item 3	3.59	0.59	.84		
Item 4	3.75	0.55	.91		
Item 5	3.62	0.57	.94		
Item 6	3.47	0.85		.80	
Item 7	4.00	0.53		.73	
Item 8	4.04	0.57		.93	
Item 9	4.18	0.53		.88	
Item 11	3.92	0.50			.85
Item 12	4.13	0.42			.88
Item 13	3.93	0.48			.92
Item 14	3.98	0.44			.94
AVE			.77	.70	.81
Reliability estimates			.93	.90	.94

Note. AVE = Average variance extracted. All factor loading estimates were significant ( $p < .01$ ).

**Table 4**  
Standardized Confirmatory Factor Analysis (CFA) Loading Estimates.

	Means	SD	Justice climate	Peer justice
Procedural justice climate	5.31	0.89	.75	
Interpersonal justice climate	5.15	0.84	.88	
Informational justice climate	4.70	0.96	.90	
Procedural peer justice	5.19	0.98		.95
Interpersonal peer justice	4.97	0.89		.99
Informational peer justice	5.19	0.76		.95
AVE			.72	.93
Reliability estimates			.97	.97

Note. AVE = Average variance extracted. All factor loading estimates were significant ( $p < .01$ ).

(2004), have demonstrated that SRMR is sensitive to sample size because it decreases as sample size increases (Chen, 2007), suggesting that researchers should not be overly critical if it is not quite .099. Based on these recommendations, we argue that the model showed an acceptable fit to the data. As depicted in Table 4, all the first-order factor loadings were significant ( $p < .01$ ) and above the recommended .70. Moreover, the AVE for each second-order factor ranged from .72 to .93, exceeding the criterion of .50 and, thus, providing support for the convergent validity of both constructs. More importantly, the AVE was larger than the square of the correlation between the second-order factors, providing support for the discriminant validity between justice climate and peer justice (Fornell & Larcker, 1981).

Even though these findings satisfactorily demonstrate the distinction between justice climate and peer justice, we ran an additional CFA without marking any differences regarding the two types of unit-level fairness. To this end, we created a second-order structure—i.e., justice as a whole—, where the six facets of justice—procedural justice climate, interpersonal justice climate, informational justice climate, procedural peer justice, interpersonal peer justice, and informational peer justice—loaded independently from their source. The difference between models revealed that the model that considered the two types of unit-level fairness separately yielded a better fit ( $\chi^2 = 509.70$ ,  $df = 344$ ,  $p < .01$ ; RMSEA = .079; CFI = .979; NNFI = .976; SRMR = .217;  $\Delta$ RMSEA > .015;  $\Delta$ CFI > .010;  $\Delta$ NNFI > .010;  $\Delta$ SRMR > .030).

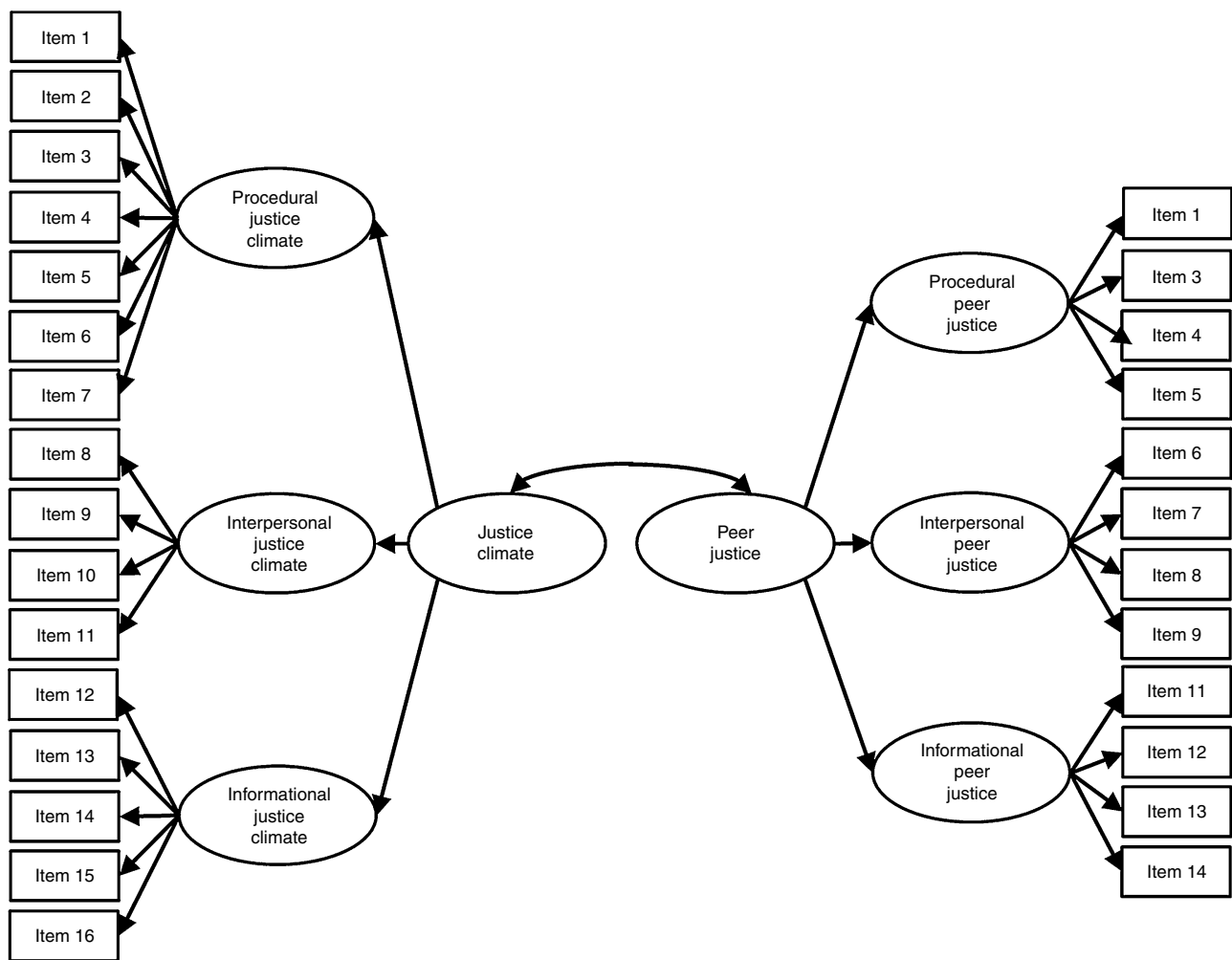


Figure 2. Model tested in Step 3.

In spite of the high correlations between the justice facets—procedural justice climate, interpersonal justice climate, informational justice climate procedural peer justice, interpersonal peer justice, and informational peer justice—, Table 5 shows that the correlations between justice climate and its facets are higher than the correlations between justice climate and the facets of peer justice. The same thing is true for peer justice; the correlations between peer justice and its facets are higher than the correlations between peer justice and the facets of justice climate.

#### Step 4: Predictive Validity of Justice Climate and Peer Justice

In order to examine the predictive validity of justice climate and peer justice, we tested the relationship of these constructs with two types of reciprocity, reciprocity with the supervisor and reciprocity with coworkers. Whereas justice climate and peer justice are unit-level constructs, perceived reciprocity with the supervisor and with coworkers are individual-level constructs. Thus, to adequately test these cross-level relationships, we used hierarchical linear modeling (HLM). This methodology allows the simultaneous examination of the effects of variables at both the individual and unit levels (Raudenbush & Bryk, 2002). Due to potential effects of employees' gender, organizational tenure, and work-unit size on relationship quality (e.g., Bauer & Green, 1996; Colquitt et al., 2002; Wayne, Liden, & Sparrowe, 1994), we controlled the effects

of these variables. Moreover, we followed Hofmann and Gavin's (1998) recommendations and grand-mean centered all the independent variables, and Bliese (2002) suggestion to compute the variance explained by each set of predictors, 1–(variance with predictors/variance without predictors).

Before testing the cross-level effect of justice climate and peer justice, we examined the degree of between-group variance in the two dependent variables. Model 0 (null model) revealed that 16.83% of the variance in reciprocity with the supervisor and 15.02% of the variance in reciprocity with coworkers resides between units ( $\tau_{00} = .119, \chi^2 = 1293.88, df = 3, p < .01$ ;  $\tau_{00} = .085, \chi^2 = 1180.76, df = 3, p < .01$ , respectively). As Table 6 shows, justice climate had a significant cross-level relationship with perceived reciprocity with the supervisor ( $\gamma = .50, p < .01$ ), even after controlling for gender, organizational tenure, work-unit size, and peer justice. Peer justice had no effect on perceived reciprocity with the supervisor. In contrast, peer justice had a significant cross-level relationship with perceived reciprocity with coworkers ( $\gamma = .61, p < .01$ ), even after controlling for gender, organizational tenure, work-unit size, and justice climate. Justice climate had no effect on perceived reciprocity with coworkers. Together, these results support the predictive validity of justice climate and peer justice, as these constructs behave distinctively when related to proximal versus distal variables such as reciprocity with the supervisor and reciprocity with coworkers.



**Table 5**  
Work-unit Level Means, Standard Deviations, and Correlations.

	Mean	SD	1	2	3	4	5	6	7	8
Procedural justice climate	5.15	0.79	-							
Interpersonal justice climate	5.95	0.61	.65**	-						
Informational justice climate	5.48	0.78	.65**	.76**	-					
Procedural peer justice	3.71	0.50	.53**	.26*	.34**	-				
Interpersonal peer justice	3.92	0.57	.47**	.24*	.25**	.87**	-			
Informational peer justice	3.99	0.42	.41**	.21	.31**	.86**	.84**	-		
Justice climate	5.53	0.65	.87**	.89**	.91**	.37**	.37**	.36**	-	
Peer justice	3.87	0.47	.50**	.25*	.32**	.96**	.96**	.94**	.41**	-

**Table 6**  
Results of Random Coefficient Modeling Analyses.

	Reciprocity with the supervisor			Reciprocity with coworkers		
	Null model	Model 1	Model 2	Null model	Model 1	Model 2
<i>Level 1 (n = 532)</i>						
Intercept	2.46** (.06)	2.46** (0.06)	2.45** (0.05)	2.94** (0.05)	2.93** (0.06)	2.93** (0.04)
Gender		-.01 (.10)	.01 (.09)		.06 (.08)	.08 (.08)
Organizational tenure		-.02 (.01)	-.02 (.01)		-.02 (.01)	-.01 (.01)
<i>Level 2 (n = 79)</i>						
Work-unit size		.02 (.02)			.02 (.02)	.03 (.02)
Justice climate			.02 (.02)			-.04 (.06)
Peer justice			.04 (.09)			.61** (.08)
Variance explained:						
Within-unit variance ( $\sigma^2$ )	.588	.556	.553	.481	.442	.438
Between-unit variance ( $\tau_{00}$ )	.119	.119	.036	.085	.085	.035
Within-unit $R^2$		5.44%	5.95%		8.11%	8.94%
Between-unit $R^2$		.00%	69.75%		.00%	58.82%
Number of free parameters	3	11	13	3	11	13
Model deviance ( $\chi^2$ )	1293.88	1279.18	1230.84	1180.76	1160.16	1115.88
$\Delta df$	-	8	2	-	8	2
$\Delta \chi^2$	-	14.70	48.34**	-	20.60**	44.28**

Note. Standard errors are reported in parentheses.  
\* $p < .05$ , \*\* $p < .01$ .

## Discussion

In the present study, we reexamined Li et al.'s (2013) hierarchical structure of justice climate and peer justice, which they originally validated separately for each construct and with data from US undergraduate students. To do so, we used data collected from health care organizations from Spain. We simultaneously examined the structure of justice climate and peer justice, confirming the convergent and discriminant validity of these hierarchical constructs (see Figure 2). This study also validated these measures with data collected within a formal work environment such as the one provided by the health care industry. As Li et al. found, we observed that justice climate and peer justice can be modeled as two distinct hierarchical—second-order—constructs. Finally, we also observed that justice climate and peer justice show a clearly distinctive behavior when related to proximal versus distal variables such as reciprocity with the supervisor and reciprocity with coworkers. In the following sections, we discuss these results in greater detail and their implications for the justice literature.

### Aggregating the Facets of Justice Climate and Peer Justice

When working with shared perceptions, an important requirement for researchers is to justify that employees who work in the same unit report similar levels of the constructs being measured (e.g., justice climate, peer justice), and that units can be differentiated based on these same constructs (Chan, 1998; Kozlowski & Klein, 2000). In our sample, we did not observe sufficient levels of agreement on distributive perceptions, even though this facet is traditionally considered in organizational justice research. In other words, whereas individuals within the same work unit reported similar perceptions of procedural justice climate, interpersonal justice climate, informational justice climate, procedural peer justice,

interpersonal peer justice, and informational peer justice, they did not report similar perceptions of distributive justice climate or distributive peer justice. Thus, future investigations need to look more closely at distributive justice to examine whether this facet can be considered beyond the individual level.

Even though the lack of agreement on distributive justice climate and distributive peer justice seems to be related to the distributive facet *per se*, rather than to the source of justice, we believe that these results should be interpreted separately for justice climate and peer justice. In the following paragraphs, we provide a series of possible reasons for the lack of within-unit agreement shown by distributive justice climate and distributive peer justice.

*Aggregating distributive justice climate.* Social information processing theory (SIP) argues that employees do not operate in a vacuum. Instead, individuals use information modeled from others, which, over time, results in shared perceptions about practices, values, and norms (Salancik & Pfeffer, 1978). Roberson (2006a, 2006b) argues that these shared perceptions are reached through a process of collective sense-making. As Roberson (2006a) explains, the social interaction that takes place between unit members may facilitate social comparison and the creation of shared evaluations of the unit's treatment. More importantly, Roberson demonstrated that the more time spent interacting—sense-making—the higher the convergence of unit members' perceptions. That is, "given that longer interaction times provide additional opportunities for social influence and comparison, [...], the duration of team sense-making discussions may be influential in the development of team justice climates" (Roberson, 2006a, p. 189).

Based on our results, we argue that the unit members from our sample may not have engaged long enough in sense-making

activities about the allocation of resources by authority figures (distributive justice climate). We have identified two reasons that may have influenced the time individuals spent discussing the distribution of outcomes. As we describe next, the first reason has to do with the nature of distributive justice perceptions. The second reason has to do with a contextual factor of Spanish organizations that attend to people with intellectual disabilities.

The first reason involves the two justice facets most frequently studied in the fairness literature, distributive and procedural justice (e.g., [Ambrose & Arnaud, 2005](#)). Interestingly, the number of studies that have measured these facets varies greatly depending on the level of analysis. [Colquitt et al.'s \(2013\)](#) meta-analysis conducted at the individual level of analysis found that around 76% of the studies that met their inclusion criteria measured the procedural facet of justice, and around 67% measured the distributive facet. However, [Whitman et al.'s \(2012\)](#) meta-analysis conducted with unit-level data showed a different pattern. Whereas 92% of the studies that met the inclusion criteria for Whitman et al.'s meta-analysis measured the procedural facet, only 24% measured the distributive facet of justice. Despite the relative importance attributed to these facets for each level of analysis, the substantial variation in these percentages, in addition to our results, questions the nature of the level of distributive justice climate. It is not clear whether distributive justice does in fact emerge as a climate *per se*, or if it remains as an individual perception. The personality, job role, social status, and individual trajectory of each employee may influence the way each unit member assesses the fairness with which outcomes are allocated (e.g., [Bangwayo-Skeete, Rahim, & Zikhali, 2013](#); [Barr, Burns, Miller, & Shaw, 2011](#); [Birnbaum & Stegner, 1979](#); [Cappelen, Hole, Sorensen, & Tungodden, 2007](#); [Stouten, Kuppens, & Decoster, 2013](#)). In fact, self-serving bias research has shown that distributive justice judgments are often biased (e.g., [Konow, 2000](#); [Messick & Sentis, 1979](#); [Ross & Sicoly, 1979](#); [Thompson & Loewenstein, 1992](#)). Hence, it is feasible that biased perceptions of distributive justice may affect the social interaction processes that take place when coworkers engage in sense-making activities (e.g., [Barr et al., 2011](#)). Due to the existence of biased perceptions, employees might need more time and a clearer understanding of the criteria to appraise the distribution of resources as just or unjust than they need to appraise other facets of justice (e.g., procedural justice climate). In other words, the existence of biased perceptions might require a more thorough sense-making process to develop shared perceptions of distributive justice. Thus, in the case of scholarly research, biased perceptions of distributive justice might be more detrimental to the study of distributive justice climate than to the study of individual-level distributive perceptions. Therefore, it is important for future research to address the emerging nature of unit-level distributive justice. To do so, we propose that scholars should not only consider the *functional approach* to unit-level phenomenon, but also the *structural approach*. Whereas the functional approach emphasizes the effects of a unit-level construct within an organizational system, the structural approach posits that unit-level constructs originate from individuals and are shaped through a social interaction process among members of the same unit ([Morgeson & Hofmann, 1999](#)). The present study provides an example of the difficulties in capturing the structural emergence of distributive justice climate. As mentioned throughout this section, we did not observe sufficient within-unit agreement to justify that a distributive justice climate had emerged.

The second reason that may help to explain why unit members may not have engaged long enough in sense-making activities of distributive justice climate perceptions has to do with a contextual factor of the organizations that participated in the study, that is, Spanish organizations that attend to persons with intellectual disability. This contextual factor is the existence of specific collective agreements—also known as collective bargaining agreements—that

regulate the activities of Spanish healthcare organizations providing attention to persons with intellectual disability. These agreements, which are generally negotiated every five years, determine employees' timetables, wages and holidays, among other practices and norms. This factor seems to promote an equality principle among all the stakeholders related to these organizations. Employees' benefits—such as increases in salary—are fixed by these collective agreements, which are unrelated to the exact amount of effort employees put into their jobs (e.g., [Boletín Oficial del Estado, 2006](#), June 27). Equality theory ([Leung & Bond, 1984](#)), however, differs from the most common approach to operationalizing distributive perceptions (e.g., [Ambrose & Arnaud, 2005](#); [Colquitt, 2001](#)), which is the one we used to measure distributive justice climate in this study. This later theory has been referred to as equity theory and dictates that employees are compensated—for instance with a salary increase, a promotion, a newer computer—based on the size of their contribution—for instance, the number of work hours, educational degree, experience or skills ([Adams, 1963, 1965](#)). In an industry as specific as the one described in this study, where most of the norms seem to have been formulated based on an equality principle, employees might be more reluctant to engage in social interactions to discuss whether the benefits or resources they receive are fair based on the contributions they make. The social nature of these organizations might even make the employees less willing to discuss their distributive justice climate perceptions. Consequently, employees from these organizations might not engage in interactions about the fairness of the outcomes they receive as much as employees in other sectors would. Therefore, it is reasonable to expect that each employee will have different opinions. The lack of collective sense-making would translate into a low level of agreement within units.

*Aggregating distributive peer justice.* [Cropanzano et al. \(2011\)](#) and [Li et al. \(2013\)](#) both used data from undergraduate students, who might not have been sufficiently familiar with the full array of work benefits (e.g., salary, promotions, working hours) that characterize formal work settings. Furthermore, only Li et al. measured distributive peer justice. Even though variables from student samples tend to show higher homogeneity than variables from formal work environments ([Peterson, 2001](#)), Li et al. reported that distributive peer justice did not show an  $r_{wg}$  index above the typical cut off value of .70 ([LeBreton & Senter, 2008](#)); their  $r_{wg}$  index for this variable was marginal, .66.

Taken together, [Li et al. \(2013\)](#) and the results of the present study raise a concern originally raised by [Ambrose and Schminke \(2007\)](#), who questioned the relevance of some of the peer justice facets. According to these scholars, coworkers sometimes make allocation decisions (i.e., distributive justice), but most of the time allocation decisions are not part of their role. Typically, these decisions depend on the organization and the supervisor. In the organizations from our sample, the allocation decisions of work units may have been limited not only by the organization or the supervisor, but also by the protocols unit members have to follow when attending to their customers (i.e., persons with intellectual disability). If unit allocation decisions were not entirely within the reach of coworkers, then employees may have had difficulty in assessing distributive peer justice, affecting, in turn, the level of within-unit agreement shown by unit members.

In addition, we argue that in organizations like the ones used in the present study, instrumental assets are not the only resources being allocated. In these service organizations, encounters between employees and customers are characterized by a lengthy duration, affective implication, and close spatial proximity ([Price, Arnould, & Tierney, 1995](#)). Therefore, the emotional assets being transferred become more salient. In work units where employees have to work together while closely attending to persons with intellectual disability, the allocation of emotional assets within the unit might

become considerably more important than in other service organizations such as hospitals, where encounters with customers (i.e., patients) are much briefer and separated in time. How could this have influenced the level of agreement of individuals' distributive peer justice perceptions? By not considering items referring to the allocation of socio-emotional assets within the unit, we might have left out an important aspect of the phenomenon of distributive peer justice climate.

A final remark that may help to explain the low level of within-unit agreement applies to both distributive peer justice and distributive justice climate. As in the case of justice climate, research on distributive justice seems to differ depending on the level of interest. Distributive justice has been thoroughly examined at the individual level of analysis (see Colquitt et al., 2013) but, according to Li and Cropanzano (2009), "there is little research on collective perceptions of distributive justice" (p. 3) (see also Whitman et al., 2012). Regardless of whether the source of justice is within the unit (peer justice) or outside it (justice climate), individuals might not engage in social interactions about their distributive perceptions as frequently as they do about other facets of justice. Because employees' compensations represent an important aspect of their distributive perceptions, we draw on the literature to set an example. US employees, for instance, seem to favor pay secrecy (Hrnx.com, 2001). More importantly, many organizations tend to promote pay secrecy as a way to motivate their employees and reduce workplace conflict (Colella, Paetzold, Zardkoohi, & Wesson, 2007). Thus, employees and organizations seem to jointly reinforce a culture where no compensation information is shared. This "cultural taboo regarding money", as indicated by Trachtman (1999), may extend to other benefits and resources employees receive in the workplace, such as a new computer or a bigger office. In environments where there is an implicit understanding among coworkers not to discuss their compensation, employees would probably avoid sharing their individual perceptions about distributive justice. During social interactions, employees would rather share their perceptions about other topics with less cultural burden. Consequently, we believe employees would not engage in discussions about the outcomes *per se* they receive as frequently as they would engage in discussions about how they perceive that these outcomes are allocated (procedural justice), whether they are treated with respect (interpersonal justice), or whether they receive adequate explanations for the outcomes they receive (informational justice). Future research interested in the emergence process of the different justice facets should further examine this line of inquiry.

#### *First-Order Approach Versus Second-Order Approach*

Our results showed that in Spanish health care employees, justice climate can be represented as three first-order constructs—procedural, interpersonal, and information justice climate—or as a second-order—hierarchical—construct, so that an overall perception of justice climate is indicated by the different justice facets. The results for peer justice were different. Despite showing a good fit to the data, the facets of peer justice presented strong correlations that prevent us from arguing that there is sufficient differentiation among them and, in turn, compel us to reject the first-order approach. For the second-order approach, however, the relationship among procedural peer justice, interpersonal peer justice, and informational peer justice was accounted for by the higher-level construct of peer justice. Thus, we believe that among Spanish health care employees, peer justice is best represented as a second-order construct. These results provide useful insights to the justice literature.

Because our results for justice climate replicate those found by Li et al. (2013), we believe that researchers interested in this construct can operationalize it by using either a first-order approach (where the focus is on the facets of justice climate; see Figure 1a)

or a second-order or overall approach (where the focus is on justice climate as a composite; see Figure 2). As previously suggested by Li and colleagues, this decision should be guided by theoretical and pragmatic reasons.

When examining peer justice, researchers should be more careful. Our results do not support the findings by Li et al. (2013) with undergraduate students (see Figure 1b). They only support the second-order structure of peer justice (see Figure 2) because the three-factor structure of peer justice did not show sufficient discriminant validity among its factors. Unit members did not seem to adequately distinguish between procedural, interpersonal, and informational peer justice. Despite the lack of discriminant validity, the three-factor model showed a good fit to the data. These results might be explained by Rupp and Paddock's (2010) dynamic model of justice, which integrates different frameworks to help understand the development of source-based climates—such as peer justice or justice climate—over time.

According to Rupp and Paddock's (2010) dynamic model, during their daily work employees individually experience justice-related events in the form of a facet of justice (e.g., interpersonal justice). This experience is then translated into an emotional reaction (Weiss & Cropanzano, 1996), which, in turn, triggers a cognitive process that requires the identification of the perpetrator of the (in)justice (e.g., the supervisor, coworkers, customers) (Lind, 2001). Thus, over time, all justice-related events, whether related to outcomes, processes, interpersonal treatment, or quality of information, are categorized into source-based justice perceptions (e.g., supervisory-based justice, coworker-based justice, customer-based justice). These source-based justice perceptions are then aggregated to the work-unit level through a parallel socialization process, such as the one previously described by social information processing theory (Salancik & Pfeffer, 1978). This social process results in what have been referred to as multifoci justice climates or source-based justice climates like the ones examined in this study (justice climate and peer justice). The good fit to the data of the three-factor structure of peer justice and the lack of discriminant validity of this model could be two sides of the same coin that might be explained by the cross-sectional nature of our data.

As depicted by Rupp and Paddock's (2010) model, as time goes by, the salience of justice events is transferred to the salience of the source of justice. Thus, if we were to measure individual perceptions of coworker-based justice in newly formed teams, the discriminant validity of the facets would be greater than if we were to measure it in more experienced teams. Based on these arguments, it is possible to conceive the legitimacy of a model showing good fit to the data and a simultaneous lack of discriminant validity, as in the three-factor model of peer justice. When measuring shared perceptions of coworker-based justice—peer justice—with a cross-sectional design, as in the present study, it is possible to observe that the facets of peer justice are valid indicators of peer justice (shown by the good fit to the data). This might occur because the facets represent the most archaic part of the development of justice perceptions, the events. That is, all employees experience these justice events in some way. The simultaneous lack of discriminant validity of the facets of peer justice might take place because, over time, the source of justice has become more salient. Therefore, if we had focused solely on newly formed units, we would probably have observed a greater discriminant validity between the facets of peer justice. Based on Rupp and Paddock's model, these results might have been found for peer justice and not justice climate because employees simply spend much more time interacting with their coworkers than they do interacting with their supervisors. Hence, future research on the facets of peer justice should pay special attention to the importance of considering the time employees have already spent working as a unit. This is particularly important for scholars interested in organizations that present similar

characteristics to the ones used in this study, where employees are required to work closely together to fully attend to their customers.

#### *Predictive Validity of Justice Climate and Peer Justice*

As a final contribution, we explored the behavior of justice climate and peer justice within a nomological network that consisted of reciprocity with the supervisor and reciprocity with coworkers. As expected, justice climate presented a stronger relationship with reciprocity with the supervisor than peer justice did. Similarly, peer justice presented a stronger relationship with reciprocity with the coworkers than justice climate did. These results suggest that employees are not only capable of distinguishing between justice climate and peer justice, but also that these climates behave distinctively within their nomological network.

### **Limitations and Strengths**

As with any research, the present study presents some limitations. The main limitation of this study has to do with its cross-sectional nature. As previously discussed, we believe that a longitudinal assessment of justice climate and peer justice would have allowed us to test whether the factorial structures of these constructs vary over time. This represents an important avenue for future research.

The nature of the study sample (i.e., organizations for the attention to persons with intellectual disability) offers an important advantage. Since employees are required to work closely together, the way these organizations attend to their customers facilitates the study of unit-level phenomena. However, this specific sector also presents some contextual factors—which were thoroughly discussed—that might have influenced our results (e.g., the existence of collective agreements and the social nature of organizational goals). Despite these factors, the data collected from these Spanish organizations was useful for replicating the findings by Li et al. (2013), which were based on a sample of US undergraduate students.

Despite these limitations, this study provides evidence of the validity of justice climate and peer justice as two hierarchical constructs that show the importance of considering different sources of fairness within the workplace. In addition to the more consolidated research on justice climate, the validation of peer justice as a second-order construct represents an important contribution, as, in most service organizations, services are delivered by coworkers working together (e.g., Gilson, Shalley, & Blum, 2001). Thus, in addition to justice climate, peer justice offers a key opportunity to explore work-unit processes and outcomes.

### **Conflict of Interest**

The authors of this article declare no conflict of interest.

### **Financial Support**

This research was carried out under the financial support of the Spanish Agency of Economy and Competitiveness (PSI2013-48509-P and PSI2010-21891).

### **Appendix**

Distributive justice climate items:

Las ventajas recibidas reflejan el esfuerzo que ponemos en el trabajo / The benefits we receive reflect the effort we put into our work.

Son adecuadas para el trabajo que realizamos / The benefits we receive are appropriate for the work we have completed as a work unit.

Son un fiel reflejo de las contribuciones que realizamos al centro / The benefits we receive reflect what we have contributed to the organization.

Están justificadas, si se tiene en cuenta el trabajo que realizamos / The benefits we receive are justified, given our performance as a work unit.

Procedural justice climate items:

En estos procedimientos expresamos nuestros puntos de vista / We express our views in the procedures used to achieve our benefits.

Nosotros/as influimos sobre el resultado obtenido con estos procedimientos / We have influence over the benefits obtained with these procedures.

Estos procedimientos se aplican a todos por igual, consistentemente / Procedures are applied consistently to all unit members. Estos procedimientos son no discriminatorios / These procedures are free of bias.

Estos procedimientos se basan en información certera y precisa / These procedures are based on accurate information.

Podemos quejarnos del resultado obtenido con estos procedimientos / We are able to complain about the outcomes obtained with these procedures.

Estos procedimientos son éticos y morales / These procedures uphold ethical and moral standards.

Interpersonal justice climate items:

Les trata con amabilidad y cortesía / The supervisor treats work-unit members in a polite manner.

Les trata con respeto / The supervisor treats work-unit members with respect.

Les ofrece un trato digno / The supervisor treats work-unit members with dignity.

Los comentarios que el/la jefe/a hace de ustedes son impropios o injustos / The supervisor makes inappropriate or unfair comments or remarks about work-unit members.

Informational justice climate items:

Es sincero/a en su comunicación con ustedes / The supervisor is candid when communicating with the work-unit members.

Les explica completamente los procedimientos a seguir en el trabajo / The supervisor explains the procedures thoroughly.

Les ofrece explicaciones razonables con respecto a los procedimientos a seguir / The supervisor's explanations about the procedures are reasonable

Les informa sobre detalles del trabajo de una manera oportuna / The supervisor communicates details about the job in a timely manner.

Ofrece la información específica que necesita cada uno de ustedes / The supervisor tailors his/her communications to the specific needs of each unit member.

Distributive peer justice items:

Intentamos, como grupo de compañeros/as, que las personas que aportan más esfuerzo en su trabajo tengan mayor acceso a estos beneficios / As a work unit, we try to make sure the people who make more effort in their job have more access to benefits.

Como grupo de compañeros/as, intentamos que los beneficios estén distribuidos en relación con la calidad del trabajo que realiza

cada uno / As a work unit, we try to distribute benefits based on the quality of work performed by each unit member.

#### Procedural peer justice items:

Entre nosotros nos comunicamos nuestros puntos de vista y sentimientos sobre la manera en que las decisiones se toman en el grupo de compañeros/as / We express our views and feelings about the way decisions are made in the work unit.

Cuando tomamos una decisión dentro del grupo de compañeros/as lo hacemos evitando discriminaciones entre nosotros / The way we make decisions is free from personal bias.

No siempre tenemos en cuenta las opiniones de las distintas personas del grupo de compañeros/as a la hora de debatir sobre los procedimientos / When discussing procedures, we do not always take into account the views of the different people in the work unit.

Entre nosotros, como compañeros/as, nos comunicamos con información certera y precisa / When discussing procedures, we use accurate and precise information.

Las decisiones que tomamos entre el grupo de compañeros/as son coherentes y siguen siempre los mismos criterios / The decisions we make as a work unit are coherent and always follow the same criteria.

#### Interpersonal peer justice items:

Nos criticamos unos a otros, poniendo el acento en los aspectos negativos / We put each other down.

Los compañeros/as debatimos y participamos ante los temas que nos afectan / We debate the issues that affect us.

Como compañeros/as de trabajo nos ayudamos unos a otros / We help each other out.

El trato entre nosotros, como grupo de compañeros/as, es respetuoso / We treat each other with respect.

#### Informational peer justice items:

Dentro del grupo de compañeros/as, nos comunicamos de una forma respetuosa / Within the work unit, we communicate with each other in a respectful manner.

Solemos explicarnos entre nosotros los procedimientos que utilizamos de una manera detallada / In general, we thoroughly explain the work-unit procedures we use to each other.

Como grupo de compañeros/as, cuando necesitamos explicarnos algo entre nosotros, lo hacemos aportando razones y argumentos / When we need to explain something within the work unit, we do so by providing reasons and arguments.

Cuando tenemos que realizar un trabajo, como grupo de compañeros/as nos comunicamos los detalles del mismo en el momento oportuno y necesario / When we need to explain something within the work unit, we do it in a timely manner and by providing details.

Como grupo de compañeros/as adaptamos la información que intercambiamos entre nosotros en función de las necesidades cada miembro del grupo / Within the work unit, we tailor communications based on the specific needs of each unit member.

## References

- Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology*, 67, 422–436. <http://dx.doi.org/10.1037/h0040968>
- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 267–299). New York: Academic Press.
- Ambrose, M. L., & Arnaud, A. (2005). Distributive and procedural justice: Construct distinctiveness, construct interdependence, and overall justice. In J. Greenberg, & J. Colquitt (Eds.), *The handbook of organizational justice* (pp. 59–84). Mahwah, NJ: Erlbaum.
- Ambrose, M. L., & Schminke, M. (2007). Examining Justice Climate: Issues of Fit, Simplicity, and Content. In F. Dansereau, & F. J. Yammarino (Eds.), *Multi-Level Issues in Organizations and Time* (pp. 397–413). Bingley, UK: Emerald Group Publishing Limited.
- Ambrose, M. L., & Schminke, M. (2009). The role of overall justice judgments in organizational justice research: A test of mediation. *Journal of Applied Psychology*, 94, 491–500. <http://dx.doi.org/10.1037/a0013203>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411–423. <http://dx.doi.org/10.1037/0033-2909.103.3.411>
- Babin, B. J., Boles, J. S., & Robin, D. P. (2000). Representing the perceived ethical work climate among marketing employees. *Journal of the Academy of Marketing Science*, 28, 345–358. <http://dx.doi.org/10.1177/0092070300283004>
- Bangwayo-Skeete, P. F., Rahim, A. H., & Zikhal, P. (2013). What determines individuals' preferences for efficiency over equity-based wages? *Journal of Economic Studies*, 40, 600–613. <http://dx.doi.org/10.1108/JES-10-2011-0126>
- Barr, A., Burns, J., Miller, L., & Shaw, I. (2011). *Theoretical notions of distributive justice and relative economic status*. (IFS Working Paper, 11/19).
- Bashshur, M., Rupp, D. E., & Christopher, J. (2004). *Theoretically-based strategies for defining and measuring justice climate: Implications for multilevel research in organizational justice*. Paper presented at the 64th Annual Meeting of the Academy of Management, New Orleans, LA.
- Bauer, T. N., & Green, S. G. (1996). Development of leader-member exchange: A longitudinal test. *Academy of Management Journal*, 39, 1538–1567. <http://dx.doi.org/10.2307/257068>
- Bies, R. J. (2005). Are procedural justice and interactional justice conceptually distinct? In J. Greenberg, & J. A. Colquitt (Eds.), *Handbook of organizational justice*. (pp. 85–112). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Bies, R. J., & Moag, J. F. (1986). Interactional justice: Communication criteria of fairness. In R. J. Lewicki, B. H. Sheppard, & M. H. Bazerman (Eds.), *Research on negotiation in organizations* (pp. 43–55). Greenwich, CT: JAI Press.
- Birnbaum, M. H., & Stegner, S. E. (1979). Source credibility in social judgment: Bias, expertise, and the judge's point of view. *Journal of Personality and Social Psychology*, 37, 48–74. <http://dx.doi.org/10.1037/0022-3514.37.1.48>
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein, & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 349–381). San Francisco, CA: Jossey-Bass.
- Bliese, P. D. (2002). Multilevel random coefficient modeling in organizational research: Examples using SAS and S-PLUS. In F. Drasgow, & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 401–445). Jossey-Bass.
- Boletín Oficial del Estado (BOE) (2006, June 27). XII Convenio colectivo general de centros y servicios de atención a personas con discapacidad. *BOE núm. 152* (11477), 24225–24245. Retrieved from <http://www.boe.es/boe/dias/2006/06/27/pdfs/A24225-24245.pdf>
- Branscombe, N. R., Spears, R., Ellemers, N., & Doosje, B. (2002). Intragroup and intergroup evaluation effects on group behavior. *Personality and Social Psychology Bulletin*, 28, 744–753. <http://dx.doi.org/10.1177/0146167202289004>
- Browne, M. W., & Cudeck, R. (1993). *Alternative ways of assessing model fit*. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models*. Newbury Park, CA: Sage.
- Buunk, B. P., Doosje, B. J., Jans, L. G. J. M., & Hopstaken, L. E. M. (1993). Perceived reciprocity, social support, and stress at work: The role of exchange and communal orientation. *Journal of Personality and Social Psychology*, 65, 801–811. <http://dx.doi.org/10.1037//0022-3514.65.4.801>
- Cappelen, A., Hole, A., Sorensen, E., & Tungodden, B. (2007). The pluralism of fairness ideals: An experimental approach. *American Economic Review*, 97, 818–827. <http://dx.doi.org/10.1257/aer.97.3.818>
- Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology*, 83, 234–246. <http://dx.doi.org/10.1037/0021-9010.83.2.234>
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, 14, 464–504. <http://dx.doi.org/10.1207/S15328007SEM0902.5>
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9, 233–255. <http://dx.doi.org/10.1207/S15328007SEM0902.5>
- Choi, J. (2008). Event justice perceptions and employees' reactions: Perceptions of social entity justice as a moderator. *Journal of Applied Psychology*, 93, 513–528. <http://dx.doi.org/10.1037/0021-9010.93.3.513>
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Mahwah, NJ: Erlbaum.
- Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 86, 278–321. <http://dx.doi.org/10.1006/obhd.2001.2958>
- Colella, A., Paetzold, R. L., Zardkoobi, A., & Wesson, M. J. (2007). Exposing pay secrecy. *Academy of Management Review*, 32, 55–71. <http://dx.doi.org/10.5465/AMR.2007.23463701>
- Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of Applied Psychology*, 86, 386–400. <http://dx.doi.org/10.1037/0021-9010.86.3.386>
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of

- organizational justice research. *Journal of Applied Psychology*, 86, 425–445. <http://dx.doi.org/10.1037/0021-9010.86.3.425>
- Colquitt, J. A., Noe, R. A., & Jackson, C. L. (2002). Justice in teams: Antecedents and consequences of procedural justice climate. *Personnel Psychology*, 55, 83–109. <http://dx.doi.org/10.1111/j.1744-6570.2002.tb00104.x>
- Colquitt, J. A., Scott, B. A., Rodell, J. B., Long, D. M., Zapata, C. P., Conlon, D. E., & Wesson, M. J. (2013). Justice at the millennium, a decade later: A meta-analytic test of social exchange and affect-based perspectives. *Journal Of Applied Psychology*, 98, 199–236.
- Colquitt, J. A., & Shaw, J. C. (2005). *How should organizational justice be measured?* Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Colquitt, J. A., Zapata-Phelan, C. P., & Roberson, Q. M. (2005). Justice in teams: A review of fairness effects in collective contexts. In J. J. Martocchio (Ed.), *Research in personnel and human resources management* (Vol. 24, pp. 53–94). Oxford, UK: Elsevier.
- Cropanzano, R., Li, A., & Benson, L. (2011). Peer justice and teamwork process. *Group & Organization Management*, 36, 567–596. <http://dx.doi.org/10.1177/1059601111414561>
- Cropanzano, R., Li, A., & James, K. (2007). Intraunit Justice and Interunit Justice and the People who Experience Them. In F. Dansereau & F. J. Yammarino (Eds.), *Multi-Level Issues in Organizations and Time (Research in Multi Level Issues* (Vol. 6, pp. 415–437). Bingley, UK: Emerald Group Publishing Limited.
- Dunlap, W. P., Burke, M. J., & Smith-Crowe, K. (2003). Accurate tests of statistical significance for  $F_{WC}$  and average deviation interrater agreement indexes. *Journal of Applied Psychology*, 88, 356–362. <http://dx.doi.org/10.1037/0021-9010.88.2.356>
- Ehrhart, M. G. (2004). Leadership and procedural justice climate as antecedents of unit-level organizational citizenship behavior. *Personnel Psychology*, 57, 61–94. <http://dx.doi.org/10.1111/j.1744-6570.2004.tb02484.x>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39–50.
- Gilson, L. L., Shalley, C. E., & Blum, T. C. (2001). Team and organizational attitudes as a lens and mirror impacting customer satisfaction: An empirical test in self-managed teams. *Journal of Quality Management*, 6, 235–256. [http://dx.doi.org/10.1016/S1084-8568\(01\)00039-6](http://dx.doi.org/10.1016/S1084-8568(01)00039-6)
- 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, 465–465–473. doi: 10.1037/0021-9010.87.3.465.
- Greenberg, J. (2001). Setting the justice agenda: Seven unanswered questions about what, why and how. *Journal of Vocational Behavior*, 58, 210–219. <http://dx.doi.org/10.1006/jvbe.2001.1792>
- Hatfield, E., Traupmann, J., Sprecher, S., Utne, M., & Hay, J. (1985). Equity and intimate relations: Recent research. In W. Ickes (Ed.), *Compatible and incompatible relationships* (pp. 91–117). New York: Springer. [http://dx.doi.org/10.1007/978-1-4612-5044-9\\_5](http://dx.doi.org/10.1007/978-1-4612-5044-9_5)
- Hauenstein, N. M. A., McGonigle, T., & Flinder, S. W. (2001). A meta-analysis of the relationship between procedural justice and distributive justice: Implications for justice research. *Employee Responsibilities and Rights Journal*, 13, 39. <http://dx.doi.org/10.1023/A:1014482124497>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2–3), 61–83. <http://dx.doi.org/10.1017/S0140525X0999152X>
- Hofmann, D. A., & Gavin, M. B. (1998). Centering Decisions in Hierarchical Linear Models: Implications for Research in Organizations. *Journal of Management*, 24, 623–641.
- Holtz, B. C., & Harold, C. M. (2009). Fair today, fair tomorrow? A longitudinal investigation of overall justice perceptions. *Journal of Applied Psychology*, 94, 1185–1199. <http://dx.doi.org/10.1037/a0015900>
- Hrnext.com Survey. (2001). Retrieved from www.hrnext.com/content.
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <http://dx.doi.org/10.1080/10705519909540118>
- 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. <http://dx.doi.org/10.1037/0021-9010.69.1.85>
- Jones, D. A., & Martens, M. L. (2009). The mediating role of overall fairness and the moderating role of trust certainty in justice-criteria relationships: The formation and use of fairness heuristics in the workplace. *Journal of Organizational Behavior*, 30, 1025–1051. <http://dx.doi.org/10.1002/job.577>
- Kidwell, R. E., Jr., & Bennett, N. (1993). Employee propensity to withhold effort: A conceptual model to intersect three avenues research. *Academy of Management Review*, 18, 429–456.
- Kim, K. (2005). The relation among fit indexes, power, and sample size in structural equation modeling. *Structural Equation Modeling*, 12, 368–390. [http://dx.doi.org/10.1207/s15328007sem1203\\_2](http://dx.doi.org/10.1207/s15328007sem1203_2)
- Kim, T., & Leung, K. (2007). Forming and reacting to overall fairness: A cross-cultural comparison. *Organizational Behavior and Human Decision Processes*, 104, 83–95. <http://dx.doi.org/10.1016/j.obhdp.2007.01.004>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York, NY: Guilford press.
- Konow, J. (2000). Fair shares: Accountability and cognitive dissonance in allocation decisions. *The American Economic Review*, 90, 1072–1091. <http://dx.doi.org/10.1257/aer.90.4.1072>
- Kozlowski, S. W., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein, & S. W. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3–90). San Francisco, CA: Jossey-Bass.
- Lavelle, J. J., Brockner, J., Konovsky, M. A., Price, K. H., Henley, A. B., Taneja, A., & Vinekar, V. (2009). Commitment, procedural fairness, and organizational citizenship behavior: A multifoci analysis. *Journal of Organizational Behavior*, 30, 337–357. <http://dx.doi.org/10.1002/job.518>
- Lavelle, J. J., Rupp, D. E., & Brockner, J. (2007). Taking a multifoci approach to the study of justice, social exchange, and citizenship behavior: The target similarity model. *Journal of Management*, 33, 841–866. <http://dx.doi.org/10.1177/0149206307307635>
- LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods*, 11, 815–852. <http://dx.doi.org/10.1177/1094428106296642>
- Leung, K., & Bond, M. H. (1984). The impact of cultural collectivism on reward allocation. *Journal of Personality and Social Psychology*, 47, 793–804. <http://dx.doi.org/10.1037/0022-3514.47.4.793>
- Li, A., & Cropanzano, R. (2009). Fairness at the group level: Justice climate and intraunit justice climate. *Journal of Management*, 35, 564–599. <http://dx.doi.org/10.1177/0149206308330557>
- Li, A., Cropanzano, R., & Bagger, J. (2013). Justice climate and peer justice climate: A closer look. *Small Group Research*, 44, 563–592. <http://dx.doi.org/10.1177/1046496413498119>
- Liao, H., & Rupp, D. E. (2005). The impact of justice climate and justice orientation on work outcomes: A cross-level multifoci framework. *Journal of Applied Psychology*, 90, 242–256. doi: 10.1037/0021-9010.90.2.242.
- Lind, E. A. (2001). *Fairness heuristic theory: Justice judgments as pivotal cognitions in organizational relations*. Stanford, CA: Stanford University Press.
- Lind, E. A., & Van den Bos, K. (2002). When fairness works: Toward a general theory of uncertainty management. *Research in Organizational Behavior*, 24, 181–223. [http://dx.doi.org/10.1016/S0191-3085\(02\)24006-X](http://dx.doi.org/10.1016/S0191-3085(02)24006-X)
- Lipponen, J., & Wisse, B. (2010). Shared perceptions of perceived justice as a predictor of externally rated departmental level academic performance. *Journal of Occupational and Organizational Psychology*, 83, 1065–1074. <http://dx.doi.org/10.1348/096317909X479727>
- Mayer, D., Nishii, L., Schneider, B., & Goldstein, H. (2007). The precursors and products of justice climates: Group leader antecedents and employee attitudinal consequences. *Personnel Psychology*, 60, 929–963. <http://dx.doi.org/10.1111/j.1744-6570.2007.00096.x>
- Marsh, H. W., Hau, K. T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural equation modeling*, 11, 320–341. [http://dx.doi.org/10.1207/s15328007sem1103\\_2](http://dx.doi.org/10.1207/s15328007sem1103_2)
- Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology*, 93, 568–592. <http://dx.doi.org/10.1037/0021-9010.93.3.568>
- Messick, D. M., & Sentsis, K. P. (1979). Fairness and preference. *Journal of Experimental Social Psychology*, 15, 418–434. [http://dx.doi.org/10.1016/0022-1031\(79\)90047-7](http://dx.doi.org/10.1016/0022-1031(79)90047-7)
- Moliner, C., Martínez-Tur, V., Peiró, J. M., Ramos, J., & Cropanzano, R. (2013). Perceived reciprocity and well-being at work in non-professional employees: Fairness or self-interest? *Stress and Health: The International Society for the Investigation of Stress*, 29, 31–39. doi: 10.1002/smi.2421
- Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review*, 24, 249–265. <http://dx.doi.org/10.5465/AMR.1999.1893935>
- Mossholder, K. W., Bennett, N., & Martin, C. L. (1998). A multilevel analysis of procedural justice context. *Journal of Organizational Behavior*, 19, 131–141. [http://dx.doi.org/10.1002/\(SICI\)1099-1379\(199803\)19:23.0.CO;2-P](http://dx.doi.org/10.1002/(SICI)1099-1379(199803)19:23.0.CO;2-P)
- Naumann, S. E., & Bennett, N. (2000). A case for procedural justice climate: Development and test of a multilevel model. *Academy of Management Journal*, 43, 881–889. <http://dx.doi.org/10.2307/1556416>
- Peterson, R. A. (2001). On the use of college students in social science research: Insights from a second-order meta-analysis. *Journal of Consumer Research*, 28, 450–461. <http://dx.doi.org/10.1086/323732>
- Price, L. L., Arnould, E. J., & Tierney, P. (1995). Going to extremes: Managing service encounters and assessing provider performance. *Journal of Marketing*, 59(2), 83. <http://dx.doi.org/10.2307/1252075>
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Newbury Park, CA: Sage.
- Roberson, Q. M. (2006a). Justice in teams: The activation and role of sensemaking in the emergence of justice climates. *Organizational Behavior and Human Decision Processes*, 100, 177–192. <http://dx.doi.org/10.1016/j.obhdp.2006.02.006>
- Roberson, Q. M. (2006b). Justice in teams: The effects of interdependence and identification on referent choice and justice climate strength. *Social Justice Research*, 19, 323–344. <http://dx.doi.org/10.1007/s11211-006-0010-z>
- Ross, M., & Sicoly, F. (1979). Egocentric biases in availability and attribution. *Journal of Personality and Social Psychology*, 37, 322. <http://dx.doi.org/10.1037/0022-3514.37.3.322>
- Rupp, D. E., & Paddock, E. L. (2010). From justice events to justice climate: A multi-level temporal model of information aggregation and judgment. *Research on Managing Groups and Teams*, 13, 245–273. [http://dx.doi.org/10.1108/S1534-0856\(2010\)0000013012](http://dx.doi.org/10.1108/S1534-0856(2010)0000013012)
- Salancik, G. R., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative Science Quarterly*, 23, 224–253. <http://dx.doi.org/10.2307/2392563>

- Shaw, J. D., Zhu, J., Duffy, M. K., Scott, K. L., Shih, H., & Susanto, E. (2011). A contingency model of conflict and team effectiveness. *Journal of Applied Psychology, 96*, 391–400. <http://dx.doi.org/10.1037/a0021340>
- Shipp, F., Burns, G. L., & Desmul, C. (2010). Construct validity of ADHD-IN, ADHD-HI, ODD toward adults, academic and social competence dimensions with teacher ratings of thai adolescents: Additional validity for the child and adolescent disruptive behavior inventory. *Journal of Psychopathology and Behavioral Assessment, 32*, 557–564. <http://dx.doi.org/10.1007/s10862-010-9185-6>
- Simons, T., & Roberson, Q. (2003). Why managers should care about fairness: The effects of aggregate justice perceptions on organizational outcomes. *Journal of Applied Psychology, 88*, 432–432–443. doi: 10.1037/0021-9010.88.3.432.
- Stouten, J., Kuppens, P., & Decoster, S. (2013). Being angry for different reasons: The role of personality in distributive justice. *Journal of Applied Social Psychology, 43*, 795–805. <http://dx.doi.org/10.1111/jasp.12005>
- Thompson, L., & Loewenstein, G. (1992). Egocentric interpretations of fairness and interpersonal conflict. *Organizational Behavior and Human Decision Processes, 51*, 176–197. [http://dx.doi.org/10.1016/0749-5978\(92\)90010-5](http://dx.doi.org/10.1016/0749-5978(92)90010-5)
- Törnblom, K. Y., & Vermunt, R. (1999). An integrative perspective on social justice: Distributive and procedural fairness evaluations of positive and negative outcome allocations. *Social Justice Research, 12*, 39–64. <http://dx.doi.org/10.1023/A:1023226307252>
- Tracey, J. B., & Tews, M. (2005). Construct Validity of a General Training Climate Scale. *Organizational Research Methods, 8*, 353–374. <http://dx.doi.org/10.1177/1094428105280055>
- Trachtman, R. (1999). The money taboo: Its effects in everyday life and in the practice of psychotherapy. *Clinical Social Work Journal, 27*, 275–288. <http://dx.doi.org/10.1023/A:1022842303387>
- Walumbwa, F. O., Hartnell, C. A., & Oke, A. (2010). Servant leadership, procedural justice climate, service climate, employee attitudes, and organizational citizenship behavior: A cross-level investigation. *Journal of Applied Psychology, 95*, 517–529. <http://dx.doi.org/10.1037/a0018867>
- Wayne, S. J., Liden, R. C., & Sparrowe, R. T. (1994). Developing leader-member exchanges: The influence of gender and ingratiation. *American Behavioral Scientist, 37*, 697–714. <http://dx.doi.org/10.1177/000276429403700508>
- Weiss, H. M., & Cropanzano, R. (1996). *Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work*. Greenwich, CT: JAI Press.
- Whitman, D. S., Caleo, S., Carpenter, N. C., Horner, M. T., & Bernerth, J. B. (2012). Fairness at the collective level: A meta-analytic examination of the consequences and boundary conditions of organizational justice climate. *Journal of Applied Psychology, 97*, 776–791. <http://dx.doi.org/10.1037/a0028021>
- Widaman, K. F. (1985). Hierarchically nested covariance structure models for multitrait-multimethod data. *Applied Psychological Measurement, 9*, 1–26. <http://dx.doi.org/10.1177/014662168500900101>
- Wit, F. R. C., Greer, L. L., & Jehn, K. A. (2012). The paradox of intra-group conflict: A meta-analysis. *Journal of Applied Psychology, 97*, 360–390. <http://dx.doi.org/10.1037/a0024844>
- World Health Organization. (2007). *Atlas: Global resources for persons with intellectual disabilities*. Geneva: Author.
- Zhang, Z., & Jia, M. (2013). How can companies decrease the disruptive effects of stretch goals? the moderating role of interpersonal- and informational-justice climates. *Human Relations, 66*, 993–1020. <http://dx.doi.org/10.1177/0018726713483630>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.