From social context and resilience to performance through job satisfaction: A multilevel study over time

Isabella Meneghel
Universitat Jaume I, Spain

Laura Borgogni
Sapienza University of Rome, Italy

Mariella Miraglia
Norwich Business School, UK

Marisa Salanova
Universitat Jaume I, Spain

Isabel M Martínez
Universitat Jaume I, Spain

Abstract

Giving the crucial role of organizational context in shaping individual attitudes and behaviors at work, in this research we studied the effects of collective work-unit perceptions of social context on individual work resilience and two key individual outcomes: job satisfaction and job performance as rated by the supervisor. We theorized that collective perceptions of social context act as antecedents of individual variables, and that individual job satisfaction mediates the relationship between collective perceptions of social context and job performance, and between work resilience and job

Corresponding author:
Isabella Meneghel, Department of Social Psychology, Universitat Jaume I, Av. Vicente Sos Baynat s/n, Castellón de la Plana 12071, Spain.
Email: meneghel@uji.es

performance over time. A sample of 305 white-collar employees, clustered in 67 work-units, participated in the study. Hierarchical linear modeling highlighted that collective perceptions of social context are significant related to individual work resilience. Moreover, results showed that individual job satisfaction fully mediates the relationship between collective perceptions of social context and individual job performance and the relationship between individual work resilience and individual job performance. At a practical level, results suggest that interventions on collective perceptions of social context may increase work resilience, job satisfaction and job performance over time at the individual level.

Scholars have increasingly recognized the crucial role of the organizational context in shaping individual attitudes and behaviors at work (Griffin, 2007; Johns, 2006). Although most studies have embraced an individual perspective (Diestel et al., 2014), people are not isolated actors in the workplace, but rather their perceptions, feelings and behaviors are influenced by their interactions with others (Mowday and Sutton, 1993; Pfeffer, 1991). Hence, it is fundamental to take into consideration not only how employees individually represent the organizational context, but also their collective perceptions of it. Recent theoretical developments and empirical findings call for a broader perspective that explicitly takes into account higher levels of analysis (e.g. work-unit) when predicting individual job attitudes and behaviors (Diestel et al., 2014). The need for a multilevel framework that adds the collective level of analysis to the traditional individual level stems mainly from the increasing relevance of work-units in organizations. In fact, in the past two decades, team-work has become the common choice when organizations restructure their workforces to achieve greater flexibility (Burke et al., 2006), productivity and motivation (Li et al., 2014), making work-units highly responsible for key organizational outcomes (He et al., 2014).

Given these premises, the current study focuses on perceptions of social context (PoSC[1]), defined as the set of positive perceptions by employees of the behaviors enacted by the most relevant social constituents within the organization (i.e. top management, immediate supervisor and colleagues) (Borgogni et al., 2010b, 2011a). PoSC have been studied within the framework of social cognitive theory (Bandura, 1986) to emphasize the role of the individual as an agentic being in the context construal process, and they have been examined in relation to individual job attitudes and organizational behaviors. However, the concept of PoSC should not be limited to the individual level of analysis. Indeed, as employees are collectively exposed to the same work environment, the meaning attached to contextual features is socially construed, leading to a common interpretation, understanding and attitudinal evaluation of the job experience (Kozlowski and Hattrup, 1992; Salancik and Pfeffer, 1978). Thus, perceptions about organizational social constituents are shared within the work-unit, determining the emergence of a collective level of PoSC.

The urgent need to study the collective perceptions of the immediate social context is even more evident given their consequences for the individual and the overall organization. Although this evidence comes largely from aggregations of climate perceptions, we expect the same dynamics for PoSC because work-unit contextual perceptions may influence individuals' functioning and attitudes toward the job, such as job satisfaction, affecting individual and organizational productivity (Ostroff, 1993; Parker et al., 2003; Salancik and Pfeffer, 1978). With specific regard to individual functioning, the organizational context may encourage or discourage the emergence of positive personal resources, such as resilience at work. According to the Conservation of Resources (COR) theory (Hobfoll, 1989), the resources available to the individual and the group tend to aggregate and sustain one another, creating caravan passageways, defined as environmental conditions that support, enrich and protect individual's resources (Chen et al., 2015). Hence, positive PoSC can be seen as the contextual conditions that contribute to building up employees' personal resources.

Within the presented theoretical framework, this study adopts an innovative approach and examines PoSC at the work-unit level of analysis. It not only intends to verify whether positive collective PoSC promote employees' satisfaction with the job, as already shown at the individual level (Borgogni et al., 2010a, 2011a), but it also assumes a positive association between collective PoSC and positive personal resources, such as work resilience. This, in turn, may increase job satisfaction (Larson and Luthans, 2006; Youssef and Luthans, 2007). Indeed, highly resilient individuals adapt more easily and bounce back more successfully after negative events in the workplace, thus obtaining greater satisfaction (Larson and Luthans, 2006; Youssef and Luthans, 2007). Finally, as job attitudes represent a key factor in sustaining productivity (Riketta, 2008), collective PoSC and individual resilience may increase job satisfaction and, consequently, enhance job performance. More specifically, our objectives are to: (i) examine the cross-level relationship between collective PoSC and individual work resilience; (ii) analyze the cross-level association between collective PoSC and employees' job satisfaction over time; (iii) corroborate the link between work resilience and job satisfaction at the individual level over time; and (iv) investigate the extent to which job satisfaction mediates the relationship between collective PoSC and performance and between work resilience and performance over time. To describe the interrelationships among variables measured at different levels (i.e. individual and collective), the analytic strategies used must explicitly account for the nested nature of the data and take into consideration all the potential group membership effects when examining the hypothesized relationships (Hofmann et al., 2000; Raudenbush and Bryk, 2002). Therefore, we employed a multilevel design with data gathered at two distinct time-points.

Collective perceptions of social context and individual resilience

The set of behaviors considered in PoSC have been identified as prototypical across diverse organizational contexts (Borgogni et al., 2011a), and they cover both productive and socio-emotional aspects of interactions in the work context. Indeed, work groups carry out and simultaneously pay attention to: task-related behaviors, which are

instrumental in goal achievement and production; and relation-care behaviors, which respond to inner needs for individuation and belongingness (Bales, 1950).

Although positive perceptions originate within the person, collective PoSC represent an emergent construct that is the product of the exposure to collective situations and of members' interaction within the team, leading to the convergence of shared perceptions (Kozlowski and Ilgen, 2006). Thus, collective PoSC are defined as shared or collective positive perceptions of the prototypical constituents of the social context, working at the collective level as a broad concept which reflects the overall work-unit perception of the social environment. Several explanations may help to understand how individuals' perceptions can be converted into a collective construct of perceived social context. For instance, according to the social information processing theory (Salancik and Pfeffer, 1978), the social context provides elements for constructing meaning. Individuals working in the same unit are exposed to a common reality, sharing the same contextual cues and referring to the same organizational social actors, which commonly guides their cognitions and perceptions. Furthermore, frequent social interactions and communication among members of the work group shape individual views and meanings, leading to the development of collective perceptions (Klein et al., 2001; Morgeson and Hofmann, 1999). Finally, according to the crossover model (Chen et al., 2015; Westman, 2001), three mechanisms are responsible for transferring positive perceptions or feelings within team and organizational contexts. Specifically, transmission (i) can work through empathy (e.g. one's perceptions of positive relationship-oriented behaviors performed by the social constituents may lead to the crossover of these positive perceptions to other team members); (ii) may occur indirectly, following the interactions among colleagues (e.g. when an employee's positive PoSC increase, he or she has more positive interactions with social constituents and, thus, is motivated to provide positive task-related and/or relation-care behaviors); or (iii) may emerge when all workers are exposed to the same levels of job resources (e.g. top management's actions with regard to their attention to employee development) and, thus, probably experience the same types and levels of PoSC.

Collective PoSC are defined as a composite and higher-order construct that summarizes its three dimensions, in a similar way as at the individual level (Consiglio et al., in press). We posit that the distinct organizational social constituents may interact, simultaneously shaping employees' collective perceptions of the social context and creating an overall effect that is greater than the sum of the individual facets (Bowen and Ostroff, 2004). Therefore, collective PoSC can be considered as a 'Gestalt' construct (Schulte et al., 2006), defining the social context as an entirety, so that the collective perceptions of the main organizational social actors converge in a higher-order concept.

As mentioned above, shared PoSC may be viewed as contextual conditions that support, enrich, and protect individuals' resources, such as resilience at work. Owing to the increasing complexity of work environments characterized by hyper-competition and rapid changes (Sutcliffe and Vogus, 2003), attention has been paid to the potential role of resilience in crisis scenarios (Kaplan et al., 2013). Resilience in organizational settings is commonly defined as the process or capacity to adjust and thrive amidst adversity, going beyond the restoration of a 'normal' level to learn and grow from difficulties and emerging stronger than before (Sutcliffe and Vogus, 2003). Thus, resilience is an important

psychological ability which helps the employee to face the demand for flexibility, adaptation and improvisation in situations characterized by change and uncertainty (Youssef and Luthans, 2007), but it also represents the need to find unknown inner strengths and resources to cope effectively (Ganor and Ben-Lavy, 2003). The resilience literature suggests that growing in the face of adversity significantly depends on the characteristics of social environments (Luthar et al., 2000) and the existence and quality of interpersonal relationships (Luthans et al., 2006). Indeed, a supportive workplace is likely to act as a contextual resource to help employees to successfully overcome difficulties and restore energy after setbacks (Luthans et al., 2008). However, not all relationships are equally valuable for resilience, since only high quality relationships can facilitate information sharing, collective sense-making, learning processes and problem solving (Carmeli et al., 2013; Paulus and Nijstad, 2003). We propose that PoSC are representative of high-quality relationships because they refer to the perception of positive behaviors performed by significant organizational constituents, and they appear to satisfy the core social motives that drive people in their interactions (Fiske, 2004). Colleagues reinforce feelings of belonging and trust through the development of solid and durable relationships, supervisors support and foster individual control and self-concepts via positive feedback, and top management ensures understanding by defining collective meanings, policies and procedures. Therefore, we argue that when employees working in the same unit share positive perceptions of their supervisor, colleagues, and top management, they are better able to develop work resilience. Thus, the following hypothesis is proposed:

> *Hypothesis 1*: Collective perceptions of social context will be positively related to individual work resilience.

Multilevel predictors of job satisfaction

Job satisfaction has been defined as 'an evaluative state that expresses contentment with, and positive feelings about, one's job' (Judge and Kammeyer-Mueller, 2012: 347). It is, thus, a broad construct that comprises all or most of the characteristics of the job itself and the work environment that employees find rewarding, fulfilling and satisfying (Weiss, 2002). Although job satisfaction reflects an evaluation of individual experiences, it is also likely to be affected by the attributes of the context where the individual operates (Ostroff, 1992, 1993). Social environment variables, such as relationships with coworkers and supervisors, predict satisfaction levels above and beyond the characteristics of the work itself (Judge and Kammeyer-Mueller, 2012; Morgeson and Humphrey, 2006). Moreover, a substantial body of research has shown that perceptions of one's context influence human responses (Pritchard and Karasick, 1973; Schnake, 1983), so that employees may derive their job satisfaction from a context that they perceive as positive (Judge et al., 2000).

There is empirical evidence from various sectors (e.g. public and private organizations, schools, the military) that individual PoSC can shape employees' job satisfaction (Borgogni et al., 2010a, 2011a; Parker et al., 2003). However, given that employees collectively share the same work environment and the same leader, ultimately creating a bounded context, also collective perceptions may influence individual work attitudes.

Accordingly, we assume that people may develop positive job attitudes not only when they individually perceive the organizational constituents favorably, but also when they share these positive perceptions. Based on this assumption, we suggest that when employees collectively perceive the supervisor, colleagues and top management positively, they will be highly satisfied with their jobs. Hence, we propose the following hypothesis:

> *Hypothesis 2*: Collective perceptions of social context will be positively related to individual job satisfaction over time.

Additionally, we take into consideration the relationship between the two proposed consequences of collective PoSC, namely individual work resilience and job satisfaction. So far, studies on the antecedents of job satisfaction have mainly focused on employee characteristics like self-efficacy, core self-evaluations and dispositional affect (Fernández-Ballesteros et al., 2002; Judge and Kammeyer-Mueller, 2012). Although the literature on workplace resilience is still scarce, two studies have related resilience to job satisfaction (Larson and Luthans, 2006; Youssef and Luthans, 2007); however, both studies are correlational and cross-sectional, making it difficult to establish causal links. More recently, Liossis and colleagues (2009) showed that the Promoting Adult Resilience program led to a significant improvement in participants' job satisfaction at a six-month follow-up, providing evidence that interventions designed to strengthen work resilience influence job satisfaction over time. These results suggest that individuals with higher levels of work resilience are more likely to positively adapt to and successfully bounce back from negative events in the workplace, achieving higher motivational levels and rebounding beyond homeostasis (West et al., 2009); in turn, their job satisfaction can be enhanced. Indeed, job satisfaction reflects individual evaluations of various aspects of the job. Because resilience allows people to proactively prepare for hardships and minimize the impact of stressors on work life (Shin et al., 2012), highly resilient people are more likely to evaluate these job aspects as less stressful, more positive, and more satisfying. Hence, we set the following hypothesis:

> *Hypothesis 3*: Individual work resilience will be positively related to individual job satisfaction over time.

The mediating role of job satisfaction

The link between job satisfaction and job performance has long been of interest to organizational psychologists, and several studies have suggested that job satisfaction is a key factor influencing productivity and job performance (Riketta, 2008). Recently, a meta-analysis tested the causal links between job attitudes (i.e. job satisfaction and organizational commitment) and performance, focusing on 16 longitudinal studies (Riketta, 2008). Regarding job satisfaction, results showed that, controlling for baseline performance, job satisfaction significantly influenced subsequent in- and extra-role performance, while the reverse causal effect was not statistically supported. These findings could be explained based on the literature that identifies job attitudes as proximal antecedents and guidelines

for behaviors (e.g. Fishbein and Ajzen, 1974) and refers to the energizing and facilitative effects of positive affect (as one component of satisfaction) in the workplace (e.g. Staw et al., 1994). Therefore, we posit that the more satisfied employees are with their jobs, the more likely they are to engage in positive behaviors on the job, doing what is required of them. Thus, we test the possible mediating role of job satisfaction in the relationship between collective PoSC and individual performance, and between individual work resilience and performance.

Drawing on the aforementioned empirical and theoretical evidence that identifies social context as an antecedent of job satisfaction, which in turn acts as a proximal determinant of behaviors, we assume that the more positively the work-unit collectively perceives its supervisor, colleagues and top management, the more satisfied its members will be with the job and, in turn, the more likely they are to engage in positive behaviors, resulting in increased job performance. Previous research confirmed the full mediation of job satisfaction between PoSC and performance at the individual level (Borgogni et al., 2010a, 2011a). Thus, we propose that this relationship persists in the case of collective PoSC:

> *Hypothesis 4*: Individual job satisfaction fully mediates the relationship between collective perceptions of social context and individual performance.

Previous research has suggested that resilience leads to increased job performance (Luthans et al., 2005; Luthar, 1991) because highly resilient employees are better prepared to rebound or recover from adversities, problems and failures. They are more flexible in meeting modified demands, more open to new experiences, and more likely to use setbacks as 'springboards' or opportunities for growth (Tugade and Fredrickson, 2004). Furthermore, building on our earlier explanation of the relationship between work resilience and job satisfaction, on the one hand, and the association between job satisfaction and performance, on the other, we predict that highly resilient employees will perform better because they experience more job satisfaction engendered by resilience. Therefore, work resilience may influence job satisfaction both directly and indirectly, via the mediating role of job satisfaction. Thus, we propose the following hypothesis:

> *Hypothesis 5*: Individual job satisfaction partially mediates the relationship between individual work resilience and performance.

Method

Participants and procedure

A longitudinal study was conducted in the headquarters of one of the largest service companies in Italy, which has a staff of about 150,000 employees working in 14,000 offices located throughout the country. The first data collection (Time 1) was carried out in June 2010; a total of 857 employees filled in the questionnaire, out of the 1158 who were initially contacted (response rate of 74%). The second set of data (Time 2) was collected in February 2012, and 935 employees (out of the 1493 involved) answered the questionnaire

(response rate of 63%). The final sample consists of 305 employees who responded at both times and could be clearly nested into a work-unit, defined as a unit of employees assigned to accomplish a set of tasks in a specific area and supervised by the same leader. Participants were white-collar employees working in a variety of functional areas and distributed across 67 work-units, with an average of 4.55 employees per unit. In addition, 53.4% were men, average age was 45 years (SD = 8.21), and mean organizational tenure was 15.15 years (SD = 10.14). For both data collection times, employees received an email from the HR department announcing the research and another one from the researchers explaining the project and the web-based questionnaire. Participation was voluntary, and each respondent was assigned a code by the HR department, corresponding to his or her questionnaire, in order to match the answers to the questionnaire with the supervisory performance ratings and, at the same time, guarantee privacy.

Measures

The measures included: (a) self-reports from the questionnaires on work resilience, PoSC and job satisfaction; and (b) employees' job performance, provided by the HR Department as an objective measure. All items were rated on a seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*).

Work resilience. To assess employees' resilience at Time 1, a nine-item scale was developed ad-hoc for the specific organizational context. Items were generated through meetings with key managers of the organization, using Flanagan's (1954) critical incident technique in order to focus on the specific work context. Unlike previous measures, which have generally assessed protective factors or resources involving personal characteristics and coping styles (e.g. Connor and Davidson, 2003), items were framed as statements of the work-related ability to bounce back, resist illness, adapt to stress, or thrive in the face of adversity, based on the conceptualization by Smith and colleagues (2008). More specifically, the present scale aimed to assess resilience as bouncing back from stress in organizations; hence, contrary to existing broader scales, our items specifically referred to resilience in the job context. The full set of items is provided in the supplemental file. As exploratory factor analysis (EFA) is typically used in the process of scale development and construct validation (Brown, 2006), we conducted a principal factor analyses (PFA) to explore the factorial structure of the work resilience scale, using a sample of 555 employees who participated in the Time 1 survey but were removed from the final sample of the present study. The results showed that the one-factor solution explained 43.96% of the total variance, and the factor loadings of the 9 items on the scale ranged between 0.57 and 0.74, indicating a solid factor (Costello and Osborne, 2005). The Cronbach's alpha coefficient for the scale was 0.87. Additionally, we performed a confirmatory factor analysis (CFA) of the study sample (n = 305), using the Mplus software (Muthén and Muthén, 2012). The results of the CFA suggested that the nine-item scale (one-factor solution) fit the data well: χ^2 (27) = 71.97, Comparative Fit Index (CFI) = 0.94, Tucker Lewis Index (TLI) = 0.92, Standardized Root Mean Square Residual (SRMR) = 0.04 (Hu and Bentler, 1999), and Root Mean Square Error of Approximation (RMSEA) = 0.08 (Browne and Cudeck, 1993). The Cronbach's alpha for this sample was 0.82.

Perception of social context. A 17-item scale was used to assess employees' perceptions of the social context (PoSC) at Time 1. The scale was previously validated in the same organizational context (Borgogni et al., 2010a) and consolidated through a meta-analytic procedure in various organizations (Borgogni et al., 2011a). The full set of items is provided in the supplemental file. The scale consists of three sub-dimensions:

(a) Immediate supervisor. Five items assessed the employees' perceptions of their immediate supervisor related to supporting and assisting co-workers, encouraging their involvement, treating them equally, and taking care of their professional development. The Cronbach's alpha for this dimension was 0.93.

(b) Colleagues. Four items measured the individuals' perceptions of relationships among colleagues in terms of their reciprocal trust, integration of competences, mutual support, and cooperation in facing obstacles. The Cronbach's alpha for this dimension was 0.88.

(c) Top management. Eight items referred to participants' perceptions of top management's actions with regard to attending to employee development, communicating organizational goals, procedures and policies, integrating units, and treating workers fairly. The Cronbach's alpha for this dimension was 0.94.

The three dimensions were aggregated to investigate the employee's perceptions of social context as a composite construct, in order to emphasize the entire set of conditions in which the individual is deeply embedded and whose elements are strictly interrelated. To verify the factorial validity of PoSC as a higher-order construct, a confirmatory factor analysis (CFA) was performed using Mplus (Muthén and Muthén, 2012). A model with a second-order factor grouping the three PoSC sub-dimensions (CFA1) was tested and compared with a one-factor model (CFA2) and a three-factor correlated model (CFA3). To evaluate the model fit, we used the conventional indices (see Table 1), and we also tested the change in chi-square (ΔX^2) across models. The results confirmed the adequacy of the second-order model (CFA1, Table 1), which provided a better fit than the others (CFA1 vs CFA2 ΔX^2 (5) = 274.822, $p < .001$; CFA1 vs CFA3 ΔX^2 (3) = 62.83, $p < .001$), with all fit indices within the recommended criteria (Hu and Bentler, 1999). Moreover, all items loaded significantly on the respective latent variables, with coefficients ranging between .92 and .67, and the three latent variables loaded significantly on the second-order factor (β = .96, .67 and .60). The Cronbach's alpha for the entire scale was 0.78.

Job satisfaction. Three items adapted from the job satisfaction scale by Judge and colleagues (1998) were used to assess employees' job satisfaction at Time 2. We used the positively worded items, that is: '*I feel fairly satisfied with my job*', '*I am enthusiastic about my work*' and '*I am finding real enjoyment in my work*'. The Cronbach's alpha was 0.89.

Job performance. Data on respondents' performance were drawn from the organizational performance appraisal system at Time 2. The measure reflects the overall job performance ratings by supervisors and refers to the same year as the second survey.

Table 1. Fit indices of alternative perceptions of social context (PoSC) models for confirmatory factor analysis (CFA).

Model	X^2	d.f.	CFI	TLI	RMSEA	SRMR
CFA1. Second-order factor model	184.727	114	0.92	0.90	0.08	.07
CFA2. One-factor model	432.549	119	0.62	0.57	0.20	.14
CFA3. Three-factor model	247.584	117	0.84	0.82	0.13	.27

d.f. = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

The performance appraisal system of the present organization is based on the organizational core-values, which include two overall dimensions assessed in the entire organizational population, and distinct factors that vary according to the professional families. The two general values are 'customer focus' (i.e. anticipate clients' needs and expectations) and 'openness' (i.e. explore new opportunities that contribute to the organizational change process). Additionally, three further behavioral domains are assessed among professionals (i.e. the present sample): 'innovation' (i.e. think up and develop innovative solutions), 'integration' (i.e. build up constructive relationships in order to achieve common goals), and 'problem solving' (i.e. identify problems correctly and find appropriate solutions). Performance is measured on a 10-point scale (from 1 = *Inadequate* to 10 = *Beyond expectations*) once a year. A PFA supported the one-factor structure of the five separate indicators, suggesting that a single performance factor underlies the five behavioral domains. The factor solution explained 81.32% of the variance, and the Cronbach's alpha was 0.94.

Data aggregation

Our data were hierarchically structured so that 305 employee-level cases (level 1) were nested in 67 work-units (level 2). Work resilience, job satisfaction and job performance were used at level 1 (employee). PoSC were aggregated at level 2 (work-unit); according to multilevel theory, this is defined as a *direct consensus model* (Chan, 1998). To evaluate the effect of group membership on parameter estimates, the following tests were conducted: the Average Deviation index ($AD_{M(J)}$; Burke and Dunlap, 2002) was used to assess inter-rater agreement; reliability was assessed using the intraclass correlation coefficient – ICC(1) (Bliese, 2000); and one-way analyses of variance (ANOVA) were used to test for statistically significant differences between work-units (Kenny and LaVoie, 1985). Conventionally, values of 1.2 have been used as the traditional upper-limit cut-off point using a seven-point scale for $AD_{M(J)}$ (Burke and Dunlap, 2002), whereas values greater than .12 for ICC(1) are considered sufficient evidence to justify aggregation (Bliese, 2000). The $AD_{M(J)}$ and ICC(1) indices were 1.03 and 0.18, respectively, indicating an adequate fit. Moreover, one-way ANOVA verified the existence of statistically significant differences between work-units, $F(66, 304) = 2.215$, $p < 0.001$. Taken together, the reported indexes provided empirical justification for aggregating the individual data on PoSC at the work-unit level. Thus, the three dimensions of PoSC were

aggregated at the collective level, by averaging the individual perceptions for all the employees in the same work-unit in order to obtain the final data.

Data analyses

To test our hypotheses, we employed hierarchical linear modeling (Bryk and Raudenbush, 1992) as a statistical framework for our data analyses by using LISREL 8.8 (Jöreskog and Sörbom, 2006). This program can fit models to outcome variables that generate a linear model with explanatory variables which account for variations at each level, utilizing variables specified at each level. Moreover, it not only estimates model coefficients at each level, but it also predicts the random effects associated with each sampling unit at each level. Conventional statistical analyses violate the assumption of independence of observations owing to the hierarchical structure of the data, which may lead to spurious results (Hox, 2002). However, multilevel regression analyses take into account the potential group membership effects when examining the hypothesized level-1 relationships, and when examining the hypothesized cross-level relationships. They allow to make simultaneous inferences about the effects of variations in the independent variables at the individual and work-unit levels on the dependent variables. Using Bryk and Raudenbush's (1992) notation, this is the form of the model:

Level 1: Performance T2ij = β_{0j} + β_{1j}(Resilience T1ij) + β_{2j}(Satisfaction T2ij) + rij
Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(PoSC T1$_j$) + u$_{0j}$
$$\beta_{1j} = \gamma_{10}$$
$$\beta_{2j} = \gamma_{20}$$

In the analyses, all predictor variables were grand-mean centered to facilitate model estimation (Hofmann and Gavin, 1998). As stated in the last two rows of the equation, the slopes between individual-level variables (resilience at Time 1 and satisfaction at Time 2) are fixed; therefore, they are not allowed to randomly vary across groups.

In order to test Hypotheses 4 and 5 regarding mediation, we used Sobel's (1988) test of indirect effects, which, according to MacKinnon and colleagues (2007), provides a better balance between Type I and Type II errors.

Results

We initially checked our data for normality (Muthén and Kaplan, 1985). The assumption of normality was not violated. The results of the analyses can be obtained from the first author upon request. Table 2 presents the means, standard deviations and correlations among the variables at the individual level. As the table shows, the correlations between work resilience and PoSC were significant and positive, as were their correlations with job satisfaction. In turn, job satisfaction showed a significant and positive correlation with job performance. No significant correlations were found between work resilience and job performance or between PoSC and job performance. We also included demographic variables (i.e. gender, age and organizational tenure) in the correlation table.

Table 2. Means, standard deviations and correlations among variables at individual level (N = 305).

	M	SD	I	2	3	4	5	6
I. PoSC (T1)	4.76	0.91	–					
2. Work Resilience (T1)	5.49	0.65	0.38**	–				
3. Job Satisfaction (T2)	5.03	1.04	0.38**	0.29**	–			
4. Performance (T2)	7.73	1.02	0.04	0.08	0.13*	–		
5. Gender	1.47	0.49	−0.04	−0.04	−0.02	−0.07	–	
6. Age	45.09	8.21	0.01	0.01	0.09	−.21**	−0.09	–
7. Organizational tenure	15.15	10.14	0.01	−0.03	0.13*	−0.22**	0.07	0.79**

M = Mean; SD = standard deviation; PoSC = Perception of Social Context; T1 = Time 1; T2 = Time 2;
Gender: 1 = Male, 2 = Female.
*p < .05, **p < .01.

Multi-level analyses and tests of hypotheses

As Hypothesis 1 proposes, the relation between work-unit PoSC and work resilience was significant and positive ($\beta = 0.25$, $p < 0.01$). Furthermore, supporting Hypotheses 2 and 3, the association between work-unit PoSC and job satisfaction was significant and positive ($\beta = 0.54$, $p < 0.001$), as was the relation between work resilience and job satisfaction ($\beta = 0.45$, $p < 0.001$). Then, several models were estimated, each differing in the number of predictors included in the analyses. In the first model (Model 0), no predictor variables were added, and this model was used to determine the percentage of total variance in the dependent variable (i.e. performance) attributable to between-group variance. Model 0 reveals that a significant proportion of the total variance in individual performance at Time 2 (15%) was explained by work-unit membership (see Table 3). Significant variance between units justifies the inclusion of predictors at the unit-level of analysis.

Once significant between-unit variance had been demonstrated in Model 0, individual-level predictors (i.e. work resilience and job satisfaction) were included in Model 1. As Table 3 shows, job satisfaction was significantly related to performance, while no significant relationship was found between resilience and performance. These results contrast somewhat with our Hypothesis 5, which predicted that employees' job satisfaction partially mediates the relationship between employees' work resilience and performance, because they reveal a non-significant direct relationship between work resilience and job performance. In order to further assess mediation, Sobel's test was performed, and it was significant ($t = 2.20$, $p < 0.05$), thus supporting the job satisfaction link in the mediation process.

Next, a unit-level predictor (i.e. PoSC) was included in Model 2, which included both predictors at the individual and collective levels. As Table 3 shows, there was no significant association between PoSC and performance. These results confirm our Hypothesis 4, which predicted that employees' job satisfaction would fully mediate the relationship between work-unit PoSC and employees' performance. In order to further assess mediation, Sobel's test was performed, and it was significant ($t = 2.31$, $p < 0.05$), supporting the collective PoSC link in the mediation process. Finally, it should

Table 3. Hierarchical linear models results.

Variables	DV = Performance (T2)		
	Model 0	Model 1	Model 2
	β (SE)	β (SE)	β (SE)
Intercept	7.75*** (.08)	7.04*** (.29)	6.99*** (.30)
Resilience (T1)		0.06 (.09)	0.06 (.09)
Job satisfaction (T2)		0.14* (.06)	0.15* (.06)
Work-unit PoSC (T1)			−0.12 (.17)
Pseudo R-squared	.15	.17	.17
Variance level 2	0.16* (.07)	0.17* (.07)	0.17* (.07)
Variance level 1	0.89*** (.08)	0.84*** (.08)	0.84*** (.08)
−2 * log (likelihood)	846.57	822.94	822.38
d.f.	3	5	6

DV = dependent variable; SE = standard error. Pseudo R-squared was calculated as the sum of total variance attributable to within and between variance components (Singer, 1998). PoSC = Perception of social Context; T1 = Time 1; T2 = Time 2; d.f. = degrees of freedom.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

be noted that the final complete model explains 17% of the variance in job performance (see Figure 1).

Discussion

The study suggests that collective PoSC represent an important social environment component, affecting individual work resilience (supporting Hypothesis 1). Second, our results offer an innovative perspective on the multilevel antecedents of job satisfaction. In fact, collective PoSC and individual work resilience were shown to have a positive effect on individual job satisfaction at the individual and cross levels, respectively (supporting Hypotheses 2 and 3). Finally, PoSC and work resilience were found to be indirectly and positively related to employees' performance through job satisfaction. That is, job satisfaction is the pathway through which collective PoSC and individual resilience promote employees' performance (supporting Hypothesis 4 and partially Hypothesis 5). Our findings provide implications for research and practice.

Research implications

As first research implication, we discussed the relevance of advancing the theory at the individual level by adding a multilevel perspective to social context analysis. Thus, we provided evidence about the power of the PoSC variable at the collective level of analysis.

Second, we found that collective PoSC are representative of contextual factors or resources that may better prepare employees to quickly 'bounce back' after setbacks. In this light, PoSC can be considered a supportive context that acts as a source of strength
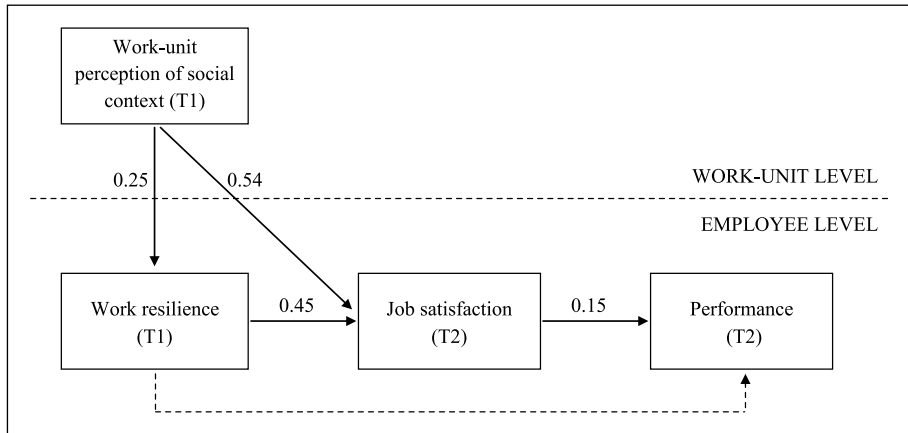
Figure 1. The final model with standardized path coefficients (*N* = 305). Dotted lines show no significant path.

during times of stress through high-quality relationships with salient organizational constituents. The idea that supportive environments may create the necessary positive conditions for the development of resilience has been established in the literature (e.g. Luthans et al., 2008); however, to our knowledge, no other studies have provided evidence for the relationship between shared work-unit perceptions of social context and individual work resilience. Thus, researchers need to account for the influence of both individual and work-unit level predictors, in order to more fully explain the variance in employees' resilience.

The third implication underscores the relevance of job satisfaction as mediator between multilevel antecedents (i.e. collective PoSC and individual resilience) and individual performance. First, we found that high levels of work-unit PoSC provide a shared positive organizational context that supports employees' job satisfaction over time, and in this way affect job performance. Although studies have shown that employees are more satisfied when they perceive organizational constituents positively (e.g. Borgogni et al., 2010a), our result is noteworthy because it extends this link to the work-unit level, while previous research focused on the individual level. Second, the role of job satisfaction as mediator in the relationship between work resilience and performance over time suggests that resilience works indirectly on performance via job satisfaction. This result is remarkable because, to our knowledge, this is the first study to explicitly examine the relationship between work resilience and job performance rated by supervisors over time, and it failed to demonstrate a direct link. Although further investigation is needed, this finding seems to challenge the widely acknowledged statement that higher resilience predicts higher performance (Sutcliffe and Vogus, 2003).

Practical implications

Owing to the prominent role played by collective PoSC in generating work resilience, job satisfaction and subsequent job performance, we propose practical suggestions for

activities or interventions designed to support the engendering or maintenance of a positive social context at work. Although the operationalization of collective PoSC as a high-order construct that includes the three organizational social constituents allows us to uncover the influence of the complete and broader social context, in order to address these perceptions it is necessary to disentangle the main social actors and account for each of them separately. To enhance the immediate supervisor's positive perceptions, interventions are recommended to support leadership. A coaching program could be implemented to train supervisors to: (a) diagnose individuals' characteristics and the activities that best match them; (b) understand the opportunities and boundaries of each employee in order to support the expression of personal talents; (c) set challenging goals for each employee; (d) deliver constructive feedback that facilitates employees' growth; and (e) understand and manage the relationship with employees (Borgogni et al., 2010a). To improve the perceptions of relationships among colleagues, managers should promote a prosocial orientation characterized by cooperativeness and sharing, developing strong and stable within-group interactions and ensuring feelings of belonging and trust. Managers can use strategies to promote group cooperation and cohesion (e.g. team building and team development). Finally, given their global position, managers can take advantage of opportunities to proactively influence and shape the PoSC related to themselves and the other constituents. Accordingly, top management needs to transmit a clear mission, provide transparency in communications, convey equity and trust, and integrate different units. For this purpose, an organizational analysis could be conducted to avoid overlaps in roles and positions, increase interdependence among leaders of the different units, and establish group goals (Borgogni et al., 2011b).

Additionally, given the importance of work resilience in engendering job satisfaction and performance, organizations may want to set up interventions to support employees' resilience. A proactive approach can be adopted (Luthans et al., 2006), which would involve structuring the organization around the anticipation of the need for resilience through two strategies: (a) proactive prevention and reduction of risk or stress; and (b) enhancement of personal and available organizational resources. A reactive approach can also be used to enhance individual resilience (Luthans et al., 2006) by reinforcing positive emotional experiences at work (Fredrickson, 2001).

Limitations and research directions

The study presents some limitations that highlight important avenues for future research. First, our operationalization of collective PoSC did not quantify differences in the effects of each of the three social constituents. However, taken together, PoSC represent the contextual conditions shaped by organizational members' actions and become an overall construct. Thus, our initial results suggest that PoSC can be an important contextual condition affecting individual self-evaluations and attitudes. Moreover, the impact of the group variable above and beyond the individual-level measure may be tested. Second, measures taken from the same source at the same time are potentially at risk of common method bias (Podsakoff et al., 2003), which could only affect our independent variables. However, the use of self-reports was justified by the nature of the constructs because employees are the most accurate source of their

own internal perceptions (i.e. PoSC) and self-evaluations (i.e. work-resilience). Moreover, the mediator (i.e. job satisfaction) was collected at a different point in time, and the outcome (i.e. job performance) was derived from a different source, reducing the risk of common method variance. Another limitation is related to the construction of the items. In our study, all variables were assessed at the individual level and had the individual as their referent. An explicit work-unit referent might have been more appropriate for those items that referred to PoSC because they tend to produce less disagreement within groups and more variability among groups (Klein et al., 2001). However, our aggregation indices (i.e. ICC(1) and $AD_{M(J)}$) meet the criteria to justify consensus. Another related issue has to do with the tailor-made scale used for work resilience. Although this measure has the strength to be specific for the particular work context, making it applicable to other work contexts might be more challenging. Future studies are needed to compare our measure with other well-established work resilience scales to determine its suitability or use it in different contexts.

We encourage researchers to expand the focus from within-person studies to the team and/or organizational level in order to enrich our understanding of organizational processes in a more comprehensive way. For example, it would be worthwhile to find out whether the satisfaction-performance relationship is stronger at the collective (vs individual) level of analysis, although some efforts have been made in this direction (Whitman et al., 2010). Finally, although our initial findings are encouraging, they are based on a sample taken from a large service company in Italy. Thus, it is important to extend the generalizability of our results to different organizational contexts, such as small and medium-sized enterprises.

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Note

1. Presented in previous studies with the acronym PoC, Perception of Context (Borgogni et al., 2011a, 2011b).

Supplemental material

The online supplemental file is available at http://hum.sagepub.com/supplemental.

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Isabella Meneghel is a postdoctoral researcher at the Universitat Jaume I of Castellón, Spain. She is a member of the research team WONT_Work Organization Network. Her main research interests lie in the field of positive organizational psychology and occupational health psychology with a special focus on resilience, psychological capital, positive emotions, coping strategies and positive interventions. Her research has been published in journals including *Journal of Happiness Studies* and *Personnel Review*. [Email: meneghel@uji.es]

Laura Borgogni is Professor of Work and Organizational Psychology at Sapienza University of Rome, Italy, where she teaches 'Appraisal and talent management'. Her main interests concern perceptions of social context, self- and collective efficacy, job crafting, job satisfaction and job burnout. She has led research in both private and public organizations in which she studied the

relationship among these variables and their impact on job performance and absenteeism. Her research has been published in journals including *Work and Organizational Psychology*, *Applied Psychology: An International Review* and *Journal of Vocational Behavior*. She is co-author of several tools on motivation, values, personality and leadership. [Email: laura.borgogni@uniroma1.it]

Mariella Miraglia is a lecturer in Organizational Behaviour at Norwich Business School, University of East Anglia, UK. Her main research interests lie in the field of organizational behaviours, human resource management and occupational health psychology, with a special focus on absenteeism and presenteeism, performance appraisal and management, job crafting, psychological capital and self-efficacy. She has published in journals as *Journal of Vocational Behavior*, *Journal of Occupational Health Psychology* and *Human Resource Management*. [Email: m.miraglia@uea.ac.uk]

Marisa Salanova Soria is Professor of Positive Organizational Psychology at the Universitat Jaume I of Castellón, Spain. She is director of the research team WONT_Work Organization Network. Her current interests include positive organizations, work engagement, organizational resilience, positive leadership and positive interventions in companies. She has published in journals such as *Journal of Applied Psychology*, *Applied Psychology: An International Review*, *Anxiety, Stress & Coping*, *European Journal of Work and Organizational Psychology*, *Group & Organization Management* and *Work & Stress*, among others. She is currently President of the Spanish Society of Positive Psychology. She has also provided scientific advice to public and private sector organizations. [Email: salanova@uji.es]

Isabel M Martínez is Associate Professor specialized in Work and Organizational Psychology at University Jaume I of Castellón, Spain, and she is member of WONT_Work Organization Network Research Team. Her research interests are focused on work stress, burnout of people in work and cooperative work groups. Her research is currently directed toward Positive Psychology, specifically positive aspects of work (engagement, flow, resilience, PsyCap) and 'healthy and resilient organizations'. She is a member of EAWOP (European Association on Work and Organizational Psychology), IAAP (International Association of Applied Psychology) and SOHP (Society for Occupational Health Psychology). [Email: imartine@uji.es]