
Exploring the influence of working environments' restorative quality on organisational citizenship behaviours

Diego Bellini*

Department of Law,
University of Cagliari,
Cagliari, 09100, Italy
Email: diego.bellini@univr.it
*Corresponding author

Tiziana Ramaci

Faculty of Psychology and Education Sciences,
University "Kore" Enna,
94100, Italy
Email: tiziana.ramaci@unikore.it

Marino Bonaiuto

Faculty of Medicine and Psychology,
Department of Psychology of Developmental
and Socialization Processes,
CIRPA – Interuniversity Research Centre
on Environmental Psychology,
Sapienza University,
Rome, 00185, Italy
Email: marino.bonaiuto@uniroma1.it

Serena Cubico and Giuseppe Favretto

Department of Business Administration,
University of Verona,
37129, Italy
Email: serena.cubico@univr.it
Email: giuseppe.favretto@univr.it

Svein Åge Kjøs Johnsen

Department of Psychology,
Inland Norway University of Applied Sciences,
P.O. Box 400, Elverum, 2418, Norway
Email: svein.johnsen@hil.no

Abstract: The perceived potential for environmental restoration while at work can represent a job resource, given that restoration alleviates stress, which can free resources for both performance and extra-role activities. This study

explores the association between perceived restorativeness (PR) and organisational citizenship behaviours (OCB – helpfulness, loyalty and voice). Further, this study tests the moderating effect of organisational justice (OJ – procedural, distributive and interactional) on the association between PR and OCB because a lack of OJ can be conceived as a job demand (following the job demands–resources model). Employees ($n = 146$) from different organisations responded to a questionnaire. Regression analysis with 1,000 bootstrap samples indicated a moderating effect of OJ (for low levels and the mean value of interactional justice – an OJ sub-dimension) on the PR and OCB (voice) relationship. Generally, the restorative quality of the work environment may play a pivotal part in promoting extra-role behaviour.

Keywords: restorativeness; organisational citizenship behaviour; organisational justice; working environment.

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Biographical notes: Diego Bellini is PhD in Work and Organizational Psychology. After his PhD, he worked at University of Verona as a researcher in the Assessment Center at the University of Verona (Italy) and project manager in the Department of Law at the University of Cagliari (Italy).

Tiziana Ramaci is an Associate Professor in Work and Organizational Psychology at University of Enna "Kore".

Marino Bonaiuto, CIRPA (Interuniversity Research Centre in Environmental Psychology) is Full Professor of Social Psychology (Department of Psychology of Developmental and Socialization Processes, Faculty of Medicine and Psychology, Sapienza University of Rome).

Serena Cubico is an Assistant Professor of Management at Department of Business Administration (University of Verona – Italy) and PhD in Organizational Psychology. Her main research areas are: entrepreneurship (youth and female, education, start up); organisational behaviour in SMEs; family business; entrepreneurial competences and potential (identification, assessment, measurement).

Giuseppe Favretto is a Full Professor of Management (Universities of Verona, Padova, and Urbino – Italy). He is author of more than 340 publications on entrepreneurship; organisational behaviour; organisational well-being, stress, and mobbing; family business. He is Founder and Director of research centres (Mobbing and Organizational Wellbeing Research Center; Youth Entrepreneurial Centre; Assessment Centre).

Svein Åge Kjøs Johnsen is an Associate Professor at Inland Norway University of Applied Sciences (INN), and currently program coordinator for the Master program in Environmental Psychology at INN.

1 Introduction

Many organisations rely on their employees to perform a number of behaviours not directly indicated in their job description; this type of autonomous behaviours is defined as organisational citizenship behaviours (Organ, 1988) and can become less common with higher levels of stress (Eatough et al., 2011). When work demands are high (e.g., all aspects of the job that require prolonged physical and psychological efforts), individuals may attempt to compensate by using the resources available to them for support (physical, psychological, social or organisational job aspects that may be functional when performing work). Organisational researchers have frequently focused on the social environment in this regard; however, the physical work environment may also be a resource for employees. Thus, it is relevant to consider which physical and social features of the workplace are important to replenish workers' resources and autonomous behaviours to improve organisational performance (Organ, 1988).

When examining the working environment, the perceived restorative quality of this environment involves its capacity "to offer a concrete and available means of reducing suffering and enhancing effectiveness" (Kaplan and Kaplan, 1989, p.176). Restorative environments allow the brain to recover (Kaplan and Kaplan, 1989) and restorative processes reduce perceived job stress (Kaplan, 1993), thereby promoting organisational citizenship behaviours through enabling the restoration of resources. Therefore, to promote organisational citizenship behaviours and subsequently improve employees' performance, managers should create a restorative environment that is capable of maintaining or recovering individuals' psycho-physical resources, so they can properly balance job demands.

Work environment characteristics have received little attention in regard to their relationship with psychosocial outcomes that help individuals work within an organisational setting. Therefore, this research attempts to fill this gap in the literature by focusing on the role of the perceived restorative quality of the workplace environment (here considered the main function and process related to job resources). We particularly examine the environment's potentially positive effect on job performance and organisational behaviours, and capability to indirectly reduce the negative effects of job demands. Further, people-environment relationships at the workplace are framed in the organisational context, and one case is offered of employees in the work environment being influenced by organisational policies, such as organisational justice (OJ) (Greenberg, 1986). This concept is directly associated with behaviour in the workplace (e.g., Yang et al., 2014). Thus, this research also addresses the possibility that OJ (here considered another job resource when present, or job demand when absent) moderates the relationship between the perceived restorativeness (PR) of the environment and organisational citizenship behaviours (OCBs). An overview of the conceptual model is provided in Figure 1.

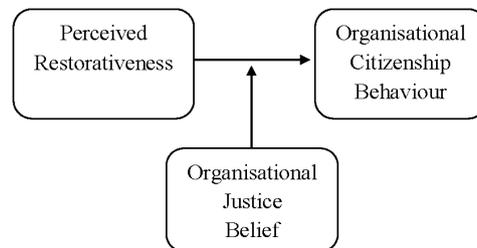
More generally, managerial and business studies do not often consider the role of the perceived work environment and how it can improve organisational performance (OCBs in this case). This study fills this gap in knowledge, particularly with respect to organisational sustainability goals, encompassing economic, environmental and social elements (e.g., see Duany et al., 2000) by considering both environmental (PR) and organisational (OJ) features of the workplace.

As the basis for this research, we integrate theoretical frameworks from environmental and work psychology. Specifically, the attention restoration theory (ART)

(Kaplan, 1995) describes how transactions between a person and a restorative social–physical environment may reduce cognitive work demands and allow cognitive recovery that can then promote positive outcomes (OCBs). Meanwhile, the job demands–resources (JD-R) model (Bakker and Demerouti, 2007, 2014) describes how job resources (such as OJ, when present in the organisational context) can reduce the adverse effect of job demands. A similar pattern may be expected by considering the other major restorativeness theory that is not extensively described here – namely, stress reduction theory (SRT) (Ulrich, 1983). According to SRT, stress reduction arises from a prolonged aesthetic response to the environment.

Below, we first describe the construct of restorative quality in environments. In the subsequent sections, we discuss the JD-R model, the constructs of OCB and OJ, and the ways that OJ may moderate the restorativeness and OCB relationship. Finally, we present the hypotheses of the present research.

Figure 1 Conceptual model



1.1 Restorative environments

Previous studies have shown that restorative qualities of the environment allow an adaptive function – namely, psychological restoration. The concept of ‘restorative environments’ (Kaplan and Talbot, 1983) refers to specific places with certain properties that allow people to relax and be distracted from their normal life and workplace. These properties, described in the ART, support a restorative environment, foster concentration and positive feelings, and reduce stress and fatigue (see e.g., Hartig et al., 2014).

The ART (Kaplan and Kaplan, 1989) describes the restorative process and how the social–physical environment can support psychological restoration. According to the ART, the assumption is that prolonged and/or intensive use of directed attention (such as concentrating on a problem) diminishes a person’s capacity to ward off distractions. Conversely, when people achieve some ‘psychological distance’ from routine mental tasks, they may have some immediate relief from the demands. This experience provides opportunities for the renewal of cognitive resources and psycho-physiological response capabilities (e.g., Hartig, 2004; Kaplan and Kaplan, 1989). According to the ART (Kaplan, 1995), four psychological components support a restorative environment. The first is *fascination*, which can be found in an environment that does not require the expenditure of mental effort. The second is *being away*, which is the feeling, either psychological or physical, of being distant from daily routines and demands, where the capacity for directed attention is used. The third is *extent*, which is the capacity of an environment to provide a scope for exploration and a sense of coherence, referring to the ability to organise and structure a scene in the environment (Hartig et al., 1997). The

fourth is *compatibility*, which is the match between the type of activity the environment supports and the activity the person would like to undertake in the environment (Kaplan, 1995).

Research with ART has focused on these four components in the natural environment (its PR). For instance, Hartig et al. (2003) found that natural environments, compared with urban indoor environments, may reduce stress levels and provide psychological benefits. However, little work has been done with regard to the work setting. For example, the positive effects of specific environmental features on human beings have only recently been studied with respect to the workplace (e.g., Bellini et al., 2015a; Bellini et al., 2015b; Korpela et al., 2015). In any work environment, people can find some subjective elements that, through restorative processes, might reduce perceived job stress or fatigue (e.g., Kaplan, 1993) and offer psychological benefits, such as job satisfaction and work engagement (Bellini et al., 2015a; Bellini et al., 2015b).

In reducing stress, the restorative experience may help people replenish or gain internal resources that are necessary to face workplace demands by restoring mental resources spent during job activities and then promoting positive outcomes. For example, OCBs can become less common with higher levels of stress (Eatough et al., 2011). OCB is regarded an employee's autonomous behaviour and can improve organisational performance (Organ, 1988). The relationship between resources and demands and the process that fosters positive outcomes in the workplace, such as OCB, can be described by the JD-R model as follows. Moreover, in general, OCB and OJ are important variables to study because they can improve the effectiveness of organisations, as described in the two sections following the JD-R model, which also consider employees' perceptions of OJ, since these perceptions can influence employees' emotions, attitudes and behaviours in the workplace (e.g., Yang et al., 2014).

1.2 The job demands–resources model (JD-R)

A first proposition of JD-R theory is that all job characteristics can be modelled by using two different categories – namely, job demands and job resources. Job resources are characteristics of the job and refer to “physical, psychological, social or organisational job aspects that may be functional in achieving work-related goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth and development” (Demerouti et al., 2001, p.501). In contrast, job demands (e.g., work overload and emotional and physical demands) “represent those aspects of the job that require prolonged physical and psychological effort and that are linked to physiological and psychological costs” (Demerouti et al., 2001, p.501).

The JD-R model (Bakker and Demerouti, 2007) assumes that two processes operate in work behaviour. The first process relates to job demands, while the second process relates to job resources. In the first process, to deal with high demands, employees may increase effort and expend energy, which eventually leads to exhaustion, or may adopt a passive coping response that is characterised by work disengagement. In contrast, the second process may be viewed as a motivational process, in which job resources can be intrinsically motivating and can foster employees' growth and learning.

Within the JD-R model, job demands have been shown to lead to stress (Häusser et al., 2010). For example, they relate to negative outcomes, such as anxiety, depressive symptoms, ill health and negative work–family spillover (Bakker and Demerouti, 2008; Bakker et al., 2003). Conversely, job resources have been shown to be

linked to wellbeing-related outcomes, such as job satisfaction, good health and work engagement (Halbesleben, 2010). Job resources may directly influence work engagement, which subsequently influences organisational outcomes, such as in-role performance, extra-role performance and financial outcomes (Bakker and Demerouti, 2008). Recently, Simon (2012) expanded the JD-R model to indicate the relationship between job resources and work engagement, which subsequently positively influences wellbeing, commitment and extra-role behaviour. Other studies have found a positive relationship between work autonomy (a job resource in the JD-R model) and extra-role behaviour performance (Piccolo and Colquitt, 2006). Many studies have supported the dual pathway leading to employees' wellbeing proposed by the JD-R theory, and have shown that the model can predict important organisational outcomes (Bakker and Demerouti, 2014).

According to the job resources definition given by Demerouti et al. (2001), the motivational process (recovering a person's psycho-physical resources) and its effect on job performance are compatible with the restorative properties of the work environment and their restorative effect, as discussed above. Based on described previous findings (Bakker and Demerouti, 2014), different types of psycho-physical and organisational resources and demands can be considered contrasting factors whose relationships may be associated with organisational development. For example, on one side, based on ART and/or SRT, PR is a specific process activated by physical environmental features and their effect on a person, which is capable of restoring an employee's resources (reducing perceived stress) and promoting workplace behaviours, such as performance and OCBs in the organisational setting. On the other side, organisational contextual features play a role in terms of job demands. For example, among them, perceived lack of OJ could be considered a job demand when low levels of OJ lead to stress (see Robbins et al., 2012). OCB and OJ variables are described in detail in the following two sections.

1.3 Organisational citizenship behaviour and performance in the organisation

Researchers consider OCB a multidimensional construct referring to different facets of discretionary behaviour that is not directly associated with in-role job tasks or the traditional job description (for a review, see Podsakoff et al., 2000). These forms of behaviour are self-initiated extra-role types of behaviour (e.g., Jacqueline et al., 2003) and may lead to organisationally relevant outcomes. OCB is a facet of job performance that aims at benefiting organisations (Bolino et al., 2002; Podsakoff et al., 2009). Borman and Motowidlo (1993) viewed OCB as an explicit part of the job performance domain. In the literature, at least three different dimensions of citizenship behaviour have been identified: helpful behaviour, voice behaviour and organisational loyalty behaviour. Helpful behaviour is "voluntarily helping others with or preventing the occurrence of work-related problems" (Organ et al., 2006, p. 308) and includes several types of behaviour, such as altruism, courtesy, peacekeeping, cheerleading (Organ, 1990) and interpersonal facilitation (Van Scotter and Motowidlo, 1996). Voice behaviour emphasises the expression of constructive challenges that are intended to improve, and not necessarily to criticise (Van Dyne and LePine, 1998). Finally, organisational loyalty behaviour relates to identification with the organisation as a whole, transcending the individual's own interests.

Research has shown that OCB enhances co-workers' and supervisors' productivity, helps coordinate activities, increases the stability of organisational performance and helps the organisation attract and retain employees (Borman, 2004). Further, some studies have shown the positive effect of employees' OCB on performance, organisational effectiveness and profitability (e.g., Podsakoff et al., 2009). A recent meta-analysis (Eatough et al., 2011) studied the association between role ambiguity and role conflict (which are job stressors) with OCB as an indicator of job performance, and found that these job stressors were negatively associated with OCB. Job stressors represent impairment to employees' ability to achieve their goals at work (Gilboa et al., 2008). Studies on OCB are consistent with social exchange theory (Settoon et al., 1996; Wayne et al., 1997), which states that the organisation's ability to manage its relations with employees increases the probability that employees will engage in OCB (Jacqueline et al., 2003). In this regard, altruism and civic virtue are important constructs and antecedents of OCB. Altruism refers to going beyond job requirements to help other employees, while civic virtue refers to types of behaviour that demonstrate concern for the image and wellbeing of the organisation (Redman and Snape, 2005).

Other determinants of OCB include personality <http://www.psych-it.com.au/personality.asp> traits (Borman et al., 2001; Konovsky and Organ, 1996), commitment to the organisation (e.g., Watts and Levy, 2004), job satisfaction (e.g., Gonzalez and Garazo, 2006), perceived organisational support (e.g., Moorman et al., 1998) and characteristics of the task (e.g., autonomy) (Piccolo and Colquitt, 2006). In addition, it has been demonstrated that emotional exhaustion (a type of stress) is negatively associated with OCB (Cropanzano et al., 2003), thereby indicating a potential role of restoration in this regard.

1.4 Organisational justice theory

OJ refers to employees' perceptions of whether the organisation treats them fairly (Greenberg, 1988; Greenberg and Colquitt, 2005). There are several types of justice commonly researched: distributive, procedural and interactional. Distributive justice describes the perceived fairness of the outcomes the employees receive (Folger and Cropanzano, 2001). Procedural justice refers to the perceived fairness of the means used to determine those outcomes (Folger and Cropanzano, 2001). Interactional justice refers to the quality of interpersonal treatment received from decision makers (Colquitt et al., 2001; Cropanzano and Greenberg, 1997). OJ theory focuses on structural elements, such as process control and opportunities for voicing concerns, as the major determinants of fairness perceptions (e.g., Thibaut and Walker, 1975). Bies and Moag (1986) proposed that individuals' base their fairness judgements on the quality of interpersonal treatment received during the execution of a procedure, and further hypothesised that interactional justice perceptions primarily affect attitudes and behaviour towards the person enacting the treatment, unlike procedural justice perceptions, which were thought to affect reactions to the employing organisation.

Masterson and Taylor (1996) reported field study findings indicating that employees respond differently to procedural justice and justice associated with interpersonal treatment. They demonstrated that interactional justice perceptions may predict supervisor-related outcomes, while procedural justice perceptions may predict organisational commitment and intentions to leave the employing organisation. Malatesta and Byrne (1997) found that employees' interactional justice perceptions were positively

related to their commitment and citizenship behaviour towards supervisors, whereas procedural justice perceptions were directly related to their attitudes and behaviours towards the organisation (e.g., Settoon et al., 1996; Wayne et al., 1997). OJ perceptions, identified as organisation-related outcomes, are predictors of job satisfaction and organisational commitment (Bakhshi et al., 2009). Further, OJ has been shown to lead to the development of better employer–employee relationships (Andrews and Kacmar, 2001), lower levels of stress (Ferris et al., 1996) and more productive employee behaviour (Colquitt et al., 2001). Generally, justice perceptions are based on the organisation's adherence to distributive justice rules (i.e., equity, equality or need) and the valence of outcomes. Accordingly, employees' perceptions of outcomes as positive or negative can affect justice perceptions, which may be termed an 'egocentric bias' (e.g., Diekmann et al., 1997). Overall, the results from the above studies support the concept of an interaction effect of OJ and PR on OCB, as argued in the next section.

1.5 Interaction effect of organisational justice and restorativeness on organisational citizenship behaviour

Restorativeness and justice perceptions may functionally interact on outcomes such as OCB. In this regard, previous studies have supported the relationship between organisational behaviour and performance (Organ, 1988), and that employees' behaviour in the workplace can be influenced by perceived OJ (e.g., Balogun et al., 2012; Yang et al., 2014).

Further, according to the JD-R model, job resources have a positive effect on employees, while job demands lead to stress. With respect to the job resources' process, restoration provides psychological recovery and subsequent benefits (e.g., Hartig et al., 2003; Health Council of The Netherlands, 2004), and OJ is considered an antecedent of employees' wellbeing (Judge and Colquitt, 2004; Ndjaboué et al., 2012). When employees are treated fairly by their organisation, their behaviour seems to be more predictable, providing them with feelings of confidence and control. The fairness perception in turn has been shown to be associated with wellbeing (Lind and Van den Bos, 2002). Longitudinal justice-health studies have investigated the effects of negative perceptions of OJ on both somatic and mental health (for a review, see Robbins et al., 2012). In addition, wellbeing is related to organisational effectiveness (Wright and Cropanzano, 2004). Consequently, these studies and the positive effect of OJ on different outcomes show that OJ may be considered a job resource within the JD-R model. Previous research has indicated that job resources become salient and have the strongest positive effect on work engagement when job demands are high. Particularly when an employee is confronted with challenging job demands, job resources become valuable and foster dedication to the tasks at hand (Bakker et al., 2007; Hakanen et al., 2005). However, perceived lack of justice could be considered a job demand when low levels of OJ lead to stress (for a review, see Robbins et al., 2012).

In the JD-R model, different job resources should interact and buffer against various job demands. Generally, the restorative influence on various outcomes, such as OCB, can be negatively moderated by job-related social-psychological dimensions, such as low levels of OJ. Therefore, an interaction between restorativeness and OJ and a positive relationship between restorativeness and OJ with OCB may be expected.

2 Objective and hypotheses

The objective of this study is to investigate the relationship between PR and OCB (Hypothesis 1) and the moderating effect of OJ on the association between restorativeness and OCB (Hypothesis 2). The JD-R model forms the theoretical basis for this study, integrated with ART/SRT to hypothesise the significant effect of PR on OCB. Within the model, job resources (such as environmental-induced restoration) should foster positive organisational behaviours, particularly under conditions of a positive organisational context (namely, in the presence of OJ).

Therefore, the following two hypotheses are tested:

Hypothesis 1: Restorativeness is positively related to OCB (helpfulness, loyalty and voice dimensions).

Hypothesis 2: OJ (interactional, procedural and distributive dimensions) moderates the relationship between restorativeness and OCB (negatively for lower levels).

3 Method

3.1 Participants

In this study, 151 workers from different organisations were invited to complete a questionnaire. Given that 3% ($N = 5$) refused to participate in the survey, the tool was administered to 146 workers (97% response rate). Workers were invited by the researcher to participate on a voluntary basis and were informed about the aim of the study. The researchers personally visited the participants and urged them to participate, and waited until they had completed the questionnaire. This may explain the high response rate. The names of the organisations involved have been anonymised. The respondents were asked not to mention their name or the name of their organisation anywhere in the questionnaire to ensure privacy and anonymity. Data were collected in the south of Italy from May to September 2016. Participants were given 20 minutes to complete the questionnaire, while the researchers remained at a distance.

The participants comprised 54.8% women and 45.2% men. The mean age was 42.5 years old ($SD = 10.6$), and the participants represented various sectors: administrative (41.8%), commerce (15.8%), agriculture (6.8%), public administration (6.8%), personal services (5.5%), insurance (3.4%), handicraft (1.4%), advertising (1.4%), freelancing (1.4%), electronics and energy (2.1%) and training/education (1.6%). The respondents also worked across a range of roles: manager (9.7%), employee (54.5%), worker (13.8%), consultant (8.3%) and other (13.8%). Tenure included less than four years (9%), four to 10 years (29.1%), 11 to 20 years (33.5%) and more than 20 years (28.4%).

3.2 Measures

PR scale (PRS) (Hartig et al., 1997): this study used a 16-item version of the scale extracted from the Italian PRS (Pasini et al., 2009). The general instruction for the scale in this study stated: "Imagine being in your workplace (considering activities, people and physical environmental features) and answer the following statements". Each item was rated on a seven-point scale, ranging from 'strongly disagree' (0) to 'strongly agree' (6).

Two examples of items are: "It is an escape experience" and "I have a sense of oneness with this setting". The reliability of the scale, as measured with Cronbach's alpha, was 0.88.

OCB scale (Podsakoff et al., 1990): this study used an Italian translation of the scale (24 items) validated by Argentero et al. (2008). Each item was rated on a seven-point response scale, ranging from 'never' (0) to 'always' (6). Two examples of items from this scale are: "I help others who have heavy workloads" and "I am one of the most conscientious employees". The coefficient alpha reliabilities for the scales were 0.70 for helpful behaviour, 0.63 for loyal behaviour and 0.65 for voice behaviour.

OJ scale (Colquitt, 2001): OJ was measured using a scale with 19 items validated in Italy by Magnavita and Bergamaschi (2008). The Italian version measures three factors, and each item is rated on a five-point scale, ranging from 'very little' (1) to 'very much' (5). Two examples of items from the measure are: "Does your outcome reflect the effort you have put into your work?" and "Has (he/she) treated you with respect?". The coefficient alpha reliabilities for the scales were 0.95 for interactional justice, 0.89 for procedural justice and 0.90 for distributive justice.

3.3 Sociodemographic variables

In the final section of the questionnaire, the participants provided information on the usual sociodemographic characteristics, such as gender, age, work sectors (the work sectors in which the person was employed), role in the organisation (six categories: director, manager, employees, workers, consultant and other) and organisational tenure (six categories: from one year to over 16 years).

Table 1 Descriptive statistics and bivariate correlations ($N = 146$)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1 Gender	–	–	1											
2 Age	45.5	10.6	-0.035	1										
3 Work Sectors	–	–	0.151	-0.072	1									
4 Role	–	–	131	–	0.019	1								
5 Tenure	–	–	-0.107	0.646**	-0.072	-0.260**	1							
6 PR	4.07	1.31	0.183*	-0.019	0.031	0.104	-0.026	1						
7 Helpful B	4.72	1.14	0.040	0.064	0.144	0.066	0.061	0.420*	1					
8 Loyalty B	3.63	1.59	-0.056	0.044	0.079	0.061	-0.128	0.299**	0.259**	1				
9 Voice B	4.08	1.42	-0.071	-0.015	0.071	0.051	-0.126	0.224**	0.339**	0.608**	1			
10 I. Justice	3.62	1.06	0.053	-0.130	0.044	0.122	-0.020	0.304*	0.212**	0.047	0.124	1		
11 P. Justice	2.94	0.960	0.008	-0.126	0.034	-0.036	0.013	0.418**	0.336**	0.211*	0.190*	0.484**	1	
12 D. Justice	3.30	1.04	0.123	-0.028	-0.059	0.138	0.039	0.437**	0.269**	0.191	0.151	0.381**	0.462**	1

For gender, work sectors, role and tenure, the means and standard deviations are not reported because these variables were categorical in the questionnaire.

* $p < 0.05$. ** $p < 0.01$.

4 Data analysis

Before testing the two main hypotheses with moderated regression analyses, confirmatory factor analysis (CFA) was conducted to test the assumed factorial structure of the three main measures, using maximum likelihood estimation. To evaluate convergent validity, factor loadings lower than 0.06 (see Comrey and Lee, 1992) were excluded from the analysis. To estimate the models' goodness of fit, we assumed that an adequate fit of the factor models existed when we obtained a comparative fit index (CFI) (Bentler, 1990) of 0.90 or higher, and a root mean square error of approximation (RMSEA) (Hu and Bentler, 1999) of 0.08 or lower. Other indexes were also considered: the Tucker–Lewis index (TLI) (Tucker and Lewis, 1973), which should have values similar to the CFI, and the standardised root mean residual (SRMR), which should have values less than 0.05 (Diamantopoulos and Siguaw, 2000); however, values up to 0.08 are deemed acceptable (Hu and Bentler, 1999). Based on the CFA results, aggregates of the selected items were computed for the analyses. Descriptive analyses (means, standard deviations and Bravais–Pearson's correlation coefficients) were calculated to pre-investigate the data (Table 1). Data analyses were performed using SPSS 22.0 and AMOS statistical packages.

5 Results

Confirmatory factor analyses

- PRS: CFA supported a one-factor structure ($\chi^2 = 25.301$, $df = 15$, $p = 0.046$, $\chi^2/df = 1.69$, CFI = 0.982, TLI = 0.967, SRMR = 0.027, RMSEA = 0.039).
- OCB scale: CFA supported a three-factor structure ($\chi^2 = 18.832$, $df = 11$, $p = 0.064$, $\chi^2/df = 1.71$, CFI = 0.956, TLI = 0.916, SRMR = 0.018, RMSEA = 0.070).
- OJ scale: CFA supported the three-factor structure ($\chi^2 = 161.562$, $df = 111$, $p = 0.001$, $\chi^2/df = 1.45$, CFI = 0.976, TLI = 0.971, SRMR = 0.048, RMSEA = 0.056).

5.1 Zero-order correlations

Correlation coefficients between sociodemographic indexes (gender, age, work sectors, role and organisational tenure) and social-psychological variables only indicated positive significance correlation between gender and PR. All other relationships between sociodemographic variables were non-significant (sociodemographic variables were not examined as control variables in the multivariate regression analyses because their correlations with the outcomes were not significant).

Regarding inter-correlations among the considered constructs, the results showed significant positive relationships between PR and all three dimensions of OCB. In addition, the results showed that PR was significantly associated with all three dimensions of OJ (see Table 1). Regarding OJ and OCB, the results showed that interactional justice was significantly and positively related to helpful behaviour, procedural justice was significantly and positively related to all three OCB dimensions (helpfulness, loyalty and voice), and distributional justice was significantly and positively related to helpfulness and loyalty.

5.2 Hypotheses testing

Regression analysis with 1,000 bootstrap samples (see Table 2) was used to test Hypotheses 1 and 2 (H1 and H2). The results of the moderated regression analysis for H1 confirmed that the expected positive effect of restorativeness existed for all three dimensions of OCB: helpful behaviour ($\beta = 0.126$, 95% CI = 0.066 to 0.186, $t = 4.164$, $p < 0.001$), loyal behaviour ($\beta = 0.095$, 95% CI = 0.037 to 0.153, $t = 3.2691$, $p < 0.05$) and voice behaviour ($\beta = 0.054$, 95% CI = 0.009 to 0.100, $t = 2.3946$, $p < 0.05$).

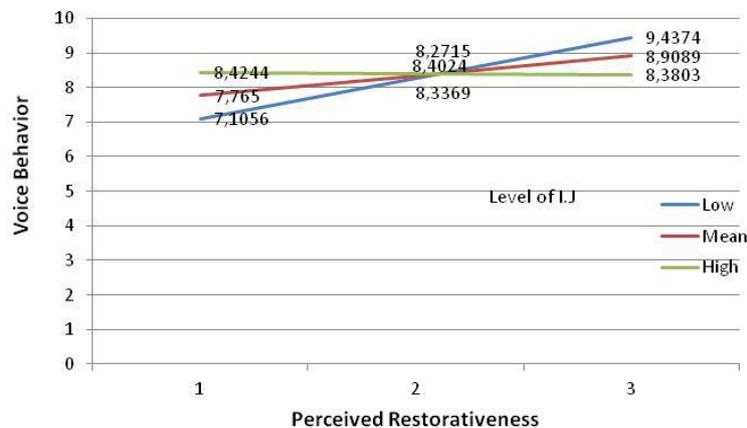
Table 2 Linear model of predictors of OCB dimensions (using 1,000 bootstraps) ($N = 146$)

	Helping behaviour				Loyalty behaviour				Voice behaviour			
	β	SE B	t	p	β	SE B	t	p	β	SE B	t	p
Constant	14.3	0.271	52.9	<0.001	7.30	0.260	28.0	<0.001	8.34	0.232	35.9	<0.001
PR	0.126	0.030	4.16	<0.001	0.095	0.029	3.26	<0.05	0.054	0.055	0.023	<0.05
IJ	0.030	0.040	0.7491	ns	-0.024	0.040	-0.604	ns	0.008	0.034	0.257	ns
PR \times IJ	-0.006	0.004	-1.59	ns	-0.002	0.004	-0.445	ns	-0.007	0.003	-2.18	<0.05

IJ = interactional justice.

Regarding H2, the analyses showed that the expected interaction effect between restorativeness and OJ was significant only for voice behaviour. Specifically, this latter interaction was negative and significant (see Figure 2) only between restorativeness and interactional justice ($\beta = -0.0076$, 95% CI = -0.014 to -0.000, $t = -2.1853$, $p < 0.05$). This result indicated that the relationship between restorativeness and voice behaviour appeared to be negatively moderated by interactional justice. Particularly when interactional justice was low and at its mean value, there was a significant positive relationship between restorativeness and voice behaviour: $\beta = 0.111$, 95% CI = 0.041 to 0.182, $t = 3.1635$, $p < 0.01$ and $\beta = 0.054$, 95% CI = 0.009 to 0.100, $t = 2.3946$, $p < 0.05$. Conversely, with higher levels of interactional justice, there was no significant relationship between restorativeness and voice behaviour.

Figure 2 Interaction between PR and interactional justice predicting voice behaviour ($N = 146$) (see online version for colours)



These results confirmed a significant positive general main effect of restorativeness on OCB (helpful, loyal and voice behaviour). However, the relationship between restorativeness and voice behaviour appeared to be moderated by a buffering effect of interactional justice. In fact, by splitting the sample into higher- and lower-than-mean scores for interactional justice, the results indicated that only when interactional justice was weak or at the mean value did restorativeness have a positive effect on voice behaviour. Thus, overall, the results fully supported H1 and partially supported H2.

6 Discussion

This study investigated the role of PR in relation to social-psychological variables in the workplace – namely, OCB – with consideration of OJ. The JD-R model (Bakker and Demerouti, 2007) supplied the theoretical grounding to test these relationships, complemented by models such as the ART and SRT, which advocate the role of PR as a resource potentially available in the workplace and able to buffer job demands' negative effects on employees. In light of such an integrated model, restorativeness and OJ may be considered job resources because they help achieve work goals and reduce job demands (Demerouti et al., 2001).

Existing research has demonstrated that job resources are predictors of positive outcomes, while job demands negatively moderate the relationship between job resources and positive outcomes (e.g., Bakker and Demerouti, 2007; Halbesleben, 2010), thereby implying that workplace restorativeness effects could interact with other job-related resources or demands.

In alignment with such expectations – that is, in accordance with the JD-R model, as integrated with ART/SRT regarding the work environment's restorative effects – a moderated regression analysis showed that restorativeness is significantly and positively associated with all three dimensions of OCB (helpfulness, loyal and voice behaviours). Meanwhile, interactional justice, one of the three OJ dimensions, moderated the relationship between PR and voice behaviour, showing a positive association only for low levels of interactional justice. This second result shows that, in one case, interactional justice plays a pivotal moderating role – that is, when promoting voice behaviour (facilitating the expression of constructive views intended to improve, rather than merely criticise). In fact, with low or moderate levels of interactional justice, restorativeness becomes particularly important, and, with high levels, can buffer against low and moderate levels of interactional justice by increasing voice behaviour, compared with the rate of the same behaviour occurring when both OJ levels are low or moderate (not high).

Therefore, generally speaking, when the organisation provides members with a restorative environment, discretionary behaviours related to job performance (such as helping colleagues and being job-involved) increase and may lead to benefits for the organisation (Bolino et al., 2002; Podsakoff et al., 2009). However, some constructive types of behaviour, such as expressing oneself, often occur only when organisational members perceive that the rules of the organisation have been explained to them and are clear. Such behaviours may occur when this perception is missing or low if a good degree of restorativeness is facilitated in the workplace environment. Thus, a good relationship with one's work environment (namely, PR) may buffer a suboptimal interpersonal relationship regarding workplace justice. Conceptually, these results align with findings from previous studies that indicated that individuals' base their fairness judgements on

the quality of interpersonal treatment received during the execution of a procedure (Bies and Moag, 1986).

Similarly, in this study, it is important to stress that interactional justice showed the highest level ($M = 3.62$ on a scale from 1 to 5), as well as a slightly greater variation ($SD = 1.06$), compared with the other two forms of justice. This may have facilitated the resulting significant moderation, which does not appear when considering other forms of justice. Moreover, the obtained moderation result highlights the exclusive importance of restorativeness in exerting its buffering effect not always, but rather regarding the damaging effect of lack of specific form of justice (interactional justice) over a specific form of OCB (voicing behaviour). This seems to suggest that PR may enact its buffering effect exclusively for interpersonal and communicative features of the workplace, rather than for features that are more organisational (justice's outcome and process). This interpretation needs further corroboration and testing in future studies. Further, looking at the overall results of the regression analysis, OJ did not significantly predict OCB. However, in the literature, results show that employees' behaviour can be influenced by perceived OJ (e.g., Balogun et al., 2012; Yang et al., 2014).

More generally, these findings indicate the importance of focusing on job resources (restorativeness in this case) to indirectly reduce the negative effects of job demands on positive outcomes. In addition, the results underline that individuals can find restorative quality not only in the natural environment, but also in the normal work environment – at least in some cases. These findings highlight the still limited knowledge characterising the research field of restorativeness in the workplace (Bellini et al., 2015a; Bellini et al., 2015b; Korpela et al., 2015). Thus, they contribute to filling a gap in the literature and help suggest future research directions.

7 Limitations of this research

Generally, this study found support for the research hypotheses; however, some limitations need to be addressed in future research. The results should be interpreted with caution because of the participants involved and the small sample size, which render generalisations difficult. Further, the use of a cross-sectional design is insufficient to establish a causal relationship. In this sense, future research may conduct studies towards other organisational contexts, aiming to enrich the database and facilitate the identification of further job resources that contribute to generating positive outcomes in the workplace. In particular, environmental and restorative research in real-life work and organisational contexts requires field experimental designs to increase generalisability and external validity, and strengthen the internal validity of the conclusions that can be inferred from the specific empirical results.

8 Conclusions

This research's results offer potential ideas to be used in management practice. There may be opportunities for the next generation of research on social and economic behaviours to focus on studying the perceived restorative quality of the environment to enhance future organisational behaviour, and to try to increase any workplace features that may be associated with PR. For example, managers could be given operational tools

to support innovative behaviours at work by improving environmental quality (such as improving environmental characteristics in offices by relying on the four psychological components of the ART). Moreover, these results indicate that there may be an opportunity for future research to focus on variables concerning the perceived environment in an organisational setting, perhaps in combination with social-psychological variables – particularly the way that environmental quality is related to organisational development, and the way that social and environmental variables may interplay and compensate or boost each other. This may develop into a new pathway for organisational research, yielding a broader and more global perspective on the working environment.

In this study and other research – for instance, in the workplace setting – the PR scale shows a monofactorial structure (see also Bellini et al., 2015a; Bellini et al., 2015b). The conceptualisation of the measure and the fact that the factors can be expected to correlate strongly in some circumstances or contexts – thereby blurring the hypothesised four components of restoration quality of the workplace environment – is still compatible with this specific result. It is possible that, in the workplace, the four specific facets of PRS are not clearly identified by users (employees). Again, this requires further more detailed study, specifically to address this subtle conceptual–methodological issue.

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