



Career Development International

What makes employees engaged with their work? The role of self-efficacy and employee's perceptions of social context over time

Chiara Consiglio Laura Borgogni Cristina Di Tecco Wilmar B. Schaufeli

Article information:

To cite this document:

Chiara Consiglio Laura Borgogni Cristina Di Tecco Wilmar B. Schaufeli , (2016), "What makes employees engaged with their work? The role of self-efficacy and employee's perceptions of social context over time", Career Development International, Vol. 21 Iss 2 pp. 125 - 143

Permanent link to this document:

<http://dx.doi.org/10.1108/CDI-03-2015-0045>

Downloaded on: 29 November 2016, At: 01:32 (PT)

References: this document contains references to 75 other documents.

To copy this document: permissions@emeraldinsight.com

The fulltext of this document has been downloaded 815 times since 2016*

Users who downloaded this article also downloaded:

(2016), "Mindfulness at work: resource accumulation, well-being, and attitudes", Career Development International, Vol. 21 Iss 2 pp. 106-124 <http://dx.doi.org/10.1108/CDI-06-2015-0086>

(2014), "Determinants of employee engagement and their impact on employee performance", International Journal of Productivity and Performance Management, Vol. 63 Iss 3 pp. 308-323 <http://dx.doi.org/10.1108/IJPPM-01-2013-0008>

Access to this document was granted through an Emerald subscription provided by emerald-srm:213934 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

What makes employees engaged with their work? The role of self-efficacy and employee's perceptions of social context over time

Self-efficacy
and
employee's
PoSC

125

Received 25 March 2015
Revised 23 November 2015
Accepted 24 December 2015

Chiara Consiglio, Laura Borgogni and Cristina Di Tecco
Department of Psychology, Sapienza University of Rome, Rome, Italy, and
Wilmar B. Schaufeli
*Department of Social and Organizational Psychology, Utrecht University,
Utrecht, The Netherlands and*
Research Unit Occupational and Organizational Psychology and
Professional Learning, KU Leuven, Belgium

Abstract

Purpose – Work engagement represents an important aspect of employee well-being and performance and has been related to both job and personal resources. The purpose of this paper, based on Social Cognitive Theory, is to emphasize the proactive role of self-efficacy which is hypothesized to predict work engagement, not only directly, but also indirectly through positive changes in employee's perceptions of social context (PoSC); namely, perceptions of one's immediate supervisor, colleagues and top management.

Design/methodology/approach – A sample of 741 employees of a communication service company completed two questionnaires, with a time interval of three years. Structural equation modeling was performed in order to test the hypothesized model.

Findings – Results revealed that, as expected: first, initial self-efficacy predicts work engagement three years later; and second, positive changes in employee's perceptions of the social work context across the three year period, mediates the relationship between self-efficacy and work engagement.

Research limitations/implications – Results relied only upon self-report data. Moreover, each variable was only measured at the time in which it was hypothesized by the conceptual model.

Practical implications – The significant role of self-efficacy as a direct and indirect predictor of work engagement suggests the development of training programs centered on the main sources of self-efficacy, specifically focussed on the social work domain.

Originality/value – This research provides evidence of the substantial contribution of self-efficacy to work engagement over time. Moreover, the results also support the beneficial effects of self-efficacy through its influence on the improvements in the individuals' perceptions of their social context.

Keywords Work engagement, Self-efficacy, Perceptions of social context, Two-wave study

Paper type Research paper

Introduction

The need for an inspired and motivated workforce able to go “the extra mile” is an issue of increasing importance in contemporary organizations (Bakker and Demerouti, 2008). For this reason, the study of work engagement (and its antecedents) has become extremely relevant, among both researchers and practitioners. Work engagement refers to a positive, fulfilling, work-related state of mind characterizing employees who work hard and persist despite difficulties, are strongly involved in what they do and feel happily absorbed in their work (Schaufeli and Bakker, 2010).



In the present study, we investigate the factors that contribute to work engagement, by adopting a conceptual framework that stresses the proactive and intentional role of the individual over the work environment, namely, Social Cognitive Theory (SCT; Bandura, 1986, 1997). In line with this view, self-efficacy may represent the key personal resource able to promote both work engagement and a positive (resourceful) social work environment.

According to SCT, the most pervasive mechanism of human agency is perceived self-efficacy, which reflects the perceived control people hold over themselves and over environmental events (Bandura, 1997, 2001). On the basis of self-efficacy beliefs, people choose which activities to undertake or avoid, how much effort to invest and how long to persevere when facing obstacles and failures (Bandura, 2001, 2012). Empirical studies have recognized that because self-efficacy leads to investing more effort and persistence in pursuing goals, it is associated to a positive motivational state toward work, i.e. work engagement (Llorens *et al.*, 2007; Salanova *et al.*, 2011).

However, self-efficacy also influences how the situational environment is perceived, particularly the social work context. Perceptions of the social context (PoSC, Borgogni *et al.*, 2010b) is a new concept that refers to individual's perceptions of the behaviors related to role expectancies enacted by the main structurally defined social components in the organizational social system, namely, one's immediate supervisor, colleagues and top management. PoSC that have been identified across several different organizational contexts (Borgogni *et al.*, 2015), regard both task-related (such as facilitating development and goal attainment) and relational aspects (such as providing support, promoting collaboration and integration) of interactions (Bales, 1950). Different from the notion of social support, which is specifically focussed on the availability and adequacy of reliable others to whom one can turn to receive help if needed (Sarason *et al.*, 1983), PoSC are focussed on perceived behaviors that are able to satisfy important social needs experienced by employees in the workplace, such as belonging, trust and understanding, control, and self-enhancement (Stevens and Fiske, 1995). Therefore, such motives go beyond the individual need of emotional/informational or instrumental help, also comprising the drive to self-fulfillment and development. Together, these three components (i.e. supervisor, colleagues and top management) delineate the social world that surrounds an employee and, as such, they represent an important social "frame of reference" (Lawrence, 2006) that allows an employee to receive information, make sense of events and experiences, and thus, take action in the social work context. Cross-sectional research has found that self-efficacious employees have more positive PoSC (Borgogni *et al.*, 2010b, 2011; Caprara *et al.*, 2003). Moreover, according to SCT: "by exercising self-influence human agents operate generatively and proactively, not just reactively, to shape the character of their social systems. In these agentic transactions, people are producers as well as products of social systems" (Bandura, 2001, p. 15). Following this perspective, employees are active agents able to proactively improve their social environment and build up their level of motivation over time. Here, we investigate the extent to which self-efficacy is related to subsequent positive changes in perceptions of the social work context. Such changes, promoting the fulfillment of basic needs, may have in turn an intrinsic motivational effect (Bakker and Demerouti, 2008) fostering work engagement.

In sum, the aims of the current study are as follows: first, to corroborate the positive relationship between self-efficacy and work engagement across a three year time span; second, to investigate the relationship between self-efficacy and changes in PoSC over time; third, to examine the relationship between changes in PoSC and work engagement; and fourth, to explore the mediating role of improvements in PoSC in partially explaining the link between self-efficacy and work engagement.

Specifically, this study is different from previous research on PoSC in the following ways: first, it goes beyond cross-sectional studies using a two-wave design; second, it examines the extent to which the level of self-efficacy is related to changes in PoSC over time; third, it is the first study to combine PoSC and work engagement; and fourth, it explores the effect of changes in PoSC on work engagement.

The relationship between self-efficacy and work engagement

Self-efficacy is defined as individuals' beliefs in their own capabilities to organize and carry out the course of actions required to achieve successful results and valued attainments (Bandura, 1997; Wood and Bandura, 1989). Since self-efficacious people believe they have the capabilities to achieve success and to produce expected results, they regulate their efforts and persistence in order to pursue their goals and in doing so, they are more persistent when faced with difficulties and stressful situations (Stajkovich and Luthans, 1998). This means that self-efficacy has motivational qualities in that it energizes employees, directs their efforts and promotes persistence. For this very reason, self-efficacy impacts work engagement that basically consists of vigor (energy or vitality), dedication (involvement or focussed effort) and absorption (immersion or persistence), and has also been interpreted as an indicator of intrinsic motivation (Van Beek *et al.*, 2011).

Following this reasoning, and according to previous studies (Llorens *et al.*, 2007; Salanova *et al.*, 2010, 2011), we assumed that the motivational process activated by high initial levels of self-efficacy would lead employees to experience a subsequent work-related state of fulfillment, namely, work engagement. Thus, we believe that self-efficacious employees will be more enthusiastic about their work and will pursue their goals with more energy, focus and persistence, fully concentrating on their work as compared to less efficacious people because of this self-regulation mechanism. Hence, the following hypothesis was tested:

H1. Self-efficacy (at Time 1) predicts work engagement (at Time 2).

From self-efficacy to work engagement: the mediating role of perceptions of social context

Self-efficacy → changes in PoSC. According to the reciprocal triadic determinism principle posited by SCT (Bandura, 1986, 1997), self-efficacious employees, having a "control over circumstances" mindset, tend to interpret difficulties as affordable challenges, since they believe they possess the capabilities to handle and learn from them (Bandura, 2001). On the contrary, less efficacious employees tend to emphasize self-hindering constraints and threats, since they anticipate failure (Bandura, 2001). Laboratory and field studies (e.g. Mohammed and Billings, 2002; Consiglio *et al.*, 2013; Borgogni *et al.*, 2016; Vera *et al.*, 2012) have empirically supported the role of self-efficacy in actively shaping the meaning ascribed to situational characteristics by perceiving more situational opportunities (job resources) and less situational threats (job demands). The same process may also apply to the relationship between self-efficacy and the social work environment, such as in the case of PoSC. Indeed, previous studies have demonstrated that higher levels of self-efficacy beliefs are associated with more positive perceptions of the three dimensions of PoSC, namely, one's immediate supervisor, colleagues and top management (Borgogni *et al.*, 2010a, b, 2011).

The present contribution goes beyond this research by investigating the relationship between self-efficacy and changes in PoSC over time. The rationale for this relationship is that self-efficacious employees, as compared to their inefficacious colleagues, not only approach people in their social environment with a more positive frame of mind, but are also more likely to be positively oriented toward other people (Alessandri *et al.*, 2009; Caprara and Steca, 2005) which is conducive in developing more satisfying social relationships (Bandura, 1997). Self-efficacious employees, through self-regulatory social activities, proactively seek out the opportunities offered by their social context which are beneficial for them. Hence, they are prone to actively construe positive relationships with others (i.e. colleagues, immediate supervisors), thus resulting in increasing their positive perceptions. That is, initial self-efficacy is likely to foster a proactive approach in employees toward their social environment by taking action to improve relationships with others that are relevant at work. This is done, for instance, by gaining colleagues' trust and esteem, developing collaboration and cohesiveness with workmates, striving for professional development, and actively participating in decision processes thus reducing the power distance with immediate supervisors and top management (Borgogni *et al.*, 2010a). This mechanism is in line with what has been called the "cultivation hypothesis" (Schwarzer and Knoll, 2007) through which self-efficacy maintains and cultivates social resources. Consequently, self-efficacious employees are likely to develop more positive perceptions of their social context over time. Our focus is on the relationship between self-efficacy and changes over time in PoSC, considered as a comprehensive social frame of reference. Thus, we tested the following hypothesis:

H2. Self-efficacy (at Time 1) is positively related to increases in PoSC (from Time 1 to Time 2).

Changes in PoSC → work engagement. Previous research using the Job Demands-Resources Model (JD-R Model; Bakker and Demerouti, 2007; Schaufeli and Bakker, 2004) have found job resources as the main predictors of work engagement. Job resources may include both task characteristics (e.g. autonomy, development opportunities) as well as social aspects related to interpersonal relationships, leadership and management styles (e.g. social support from colleagues, support from supervisor, supervisory coaching, participation in decision making) (Hakanen *et al.*, 2006; Schaufeli and Bakker, 2004). Although social resources (e.g. social support from co-workers and supervisor, supervisory coaching) have often been included in a composite, general job resources factor, their specific combined influence on work engagement has been rarely investigated to date. May *et al.* (2004) found that rewarding and supportive interpersonal relationships with co-workers and supervisors were indirectly related to work engagement through the mediating role of psychological safety. Hakanen and Lindbohm (2008) found a positive association between social resources (namely, positive organizational climate and social support from one's immediate supervisor and colleagues) and work engagement. At the management level, perceived organizational support has also been linked to work engagement (Kinnunen *et al.*, 2008). However, the three levels of social context (i.e. colleagues, supervisor, management) have never been studied simultaneously.

The notion of PoSC, specifically focussed on these three main social referents of the work context includes, but is not limited to, the concept of social support. In fact, they comprise both task-related behaviors, that are instrumental to goal achievement and

production, and relations-related behaviors, which respond to the inner needs of individuation and belongingness (Bales, 1950). PoSC have been previously associated with the opposite pole of engagement, namely, burnout (Consiglio *et al.*, 2014), and to job satisfaction (Borgogni *et al.*, 2010b). However, PoSC have never been studied in relation to work engagement that, unlike satisfaction which is a passive state, represents an active state of fulfillment which predisposes employees to work hard and to perform well (Christian *et al.*, 2011).

Based on previous studies supporting that it is not only the level but also the “increase” in job resources that predict work engagement one year later (Barbier *et al.*, 2013; Schaufeli *et al.*, 2009), we assume that increases in positive PoSC as a whole will likely lead to higher employee engagement. This is mostly because PoSC, being able to satisfy core social motives (Stevens and Fiske, 1995), may have an intrinsic motivational value, in particular: first, colleagues, by promoting the development of strong and stable relationships and by resolving interpersonal work conflicts, build up a sense of belongingness and trust, thus affecting the level of involvement toward the job; second, the supervisor, by improving positive feedback and support, encourages employees to gain control over the consequences of their behavior and reinforce their self-concepts, thus enhancing the level of employees’ effort and motivation; and third, top management, by clearly defining and communicating organizational goals and strategies and boosting participation in decision processes, builds up understanding, thus aligning employees and increasing their levels of involvement and motivation.

Therefore, we tested the following hypothesis:

H3. Increases in PoSC (from Time 1 to Time 2) are positively related to work engagement (at Time 2).

Self-efficacy → *changes in PoSC* → *work engagement*. Since self-efficacy plays a role in improving employees’ positive perceptions of the social work context, this perceived gain in social resources will, in turn, be related to work engagement. We posit that self-efficacy is indirectly related to work engagement. Essentially, by cultivating social work resources, self-efficacy may be related to improvements in the perceived social context over time, thus promoting work engagement.

Hence, the following hypothesis was tested:

H4. Increases in PoSC (from Time 1 to Time 2) partly mediate the relationship between self-efficacy (at Time 1) and work engagement (at Time 2).

The complete hypothesized model is reported in Figure 1.

Method

Participants and procedures

A two-wave study was conducted in one of the largest organizations in Italy, operating in communication services. The organizational context is relatively stable with prescribed roles and well-defined procedures. Employees are hired with permanent contracts and typically work in steady workgroups. A sample of white-collar staff and line employees filled out a self-report questionnaire twice, within a three year period. At both waves, employees received a presentation letter by the company explaining the project’s aims and inviting them to fill out the questionnaire. Participation was voluntary, and the research team guaranteed confidential data processing. Data from the two waves were matched using a personal encrypted code that ensured the privacy

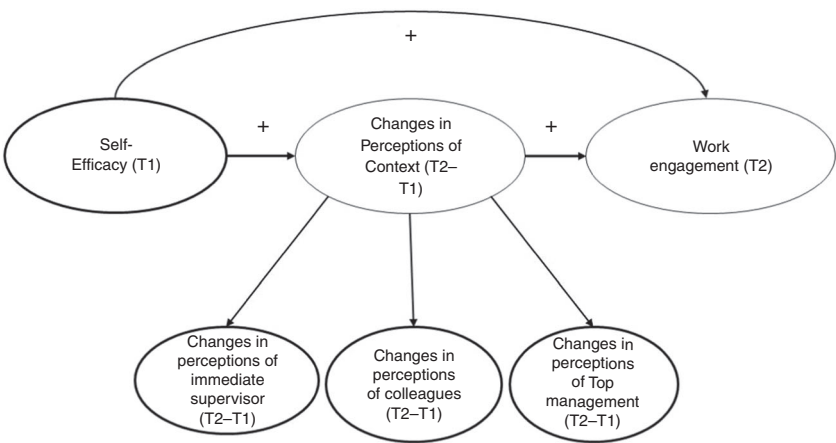


Figure 1.
The posited model

of the respondents. A three year time lag was chosen in order to adequately examine the expected variability in PoSC over time. Since there are no existing longitudinal studies on this construct, we considered similar constructs such as perceived social support that appear to be highly stable over a period of up to three years (Sarason *et al.*, 1986).

In the first wave (T1), 1,712 employees were involved in the study. Of these, 1,172 filled out the questionnaire (response rate 68 percent). Three years later (T2), 857 employees answered the questionnaire (response rate 74 percent).

All in all, 741 professionals (64 percent of the initial sample) completed questionnaires at Time 1 and Time 2. Of these, 54.4 percent were males and 45.6 percent were females. All participants had a permanent contract. The mean age of the sample was 44.3 (SD = 8.6) and the mean organizational tenure was 14.5 years (SD = 10.5). In total, 57 percent of the respondents had a university degree, whereas, 41 percent had a high school degree (educational level was missing in 2 percent of participants).

Measures

Self-efficacy (T1). A validated work self-efficacy scale (Borgogni *et al.*, 2010b) composed of seven items was used to measure work self-efficacy beliefs. Sample items included: "In my work I am confident I can solve all the conflicts that may occur with my colleagues" and "In my work I am confident I can overcome all frustrations related to my failures." All items were measured with a seven-point Likert scale, where 1 corresponded to "strongly disagree" and 7 to "strongly agree."

Perceptions of social context (T1 and T2). To assess PoSC, we used 14 items from a validated scale used in a previous study (Borgogni *et al.* 2010b). Four items were used to measure the perceptions of colleagues, referring to their supportiveness, trust and cohesiveness (e.g. "In my office my colleagues deal with difficulties by supporting each other"). Five items were used to measure the perceptions of one's immediate supervisor's behavior, related to giving support and feedback, and facilitating professional development (e.g. "My immediate supervisor encourages ideas and proposals from co-workers"). Five items were used to measure the perceptions of top management, related to defining and communicating goals, fostering participation in

decision making and creating opportunities for development (e.g. "Top management clearly communicates organizational strategies and policies"). The answering scale for all items ranged from 1, corresponding to "strongly disagree," to 7, corresponding to "strongly agree."

Work engagement (T2). This concept was measured by the Italian version (Balducci *et al.*, 2010) of the nine-item Utrecht Work Engagement Scale (UWES; Schaufeli *et al.*, 2006), that taps the three components of work engagement, namely, vigor, dedication and absorption (e.g. "I feel happy when I am working intensively"). Items were assessed with a seven-point frequency rating scale ranging from 1 (never) to 7 (always). The nine items of the UWES were used as observed indicators of a single latent factor of work engagement (see Schaufeli *et al.*, 2006).

Statistical analyses

Before evaluating the extent to which self-efficacy and overall improvements in PoSC predicted work engagement, we investigated the measurement properties of PoSC dimensions by performing two steps. First, the three-factor model of PoSC (including colleagues, immediate supervisor and management) was specified separately at T1 and at T2. Then, the fit of these models were compared with the fit of two plausible alternative models, namely, the uncorrelated three-factor model and the one-factor model. Second, a test of configural, metric and scalar invariance was implemented to investigate the stability of the scale's psychometric properties across time. Then, according to Schaufeli *et al.* (2009) and Smith and Beaton's (2008) recommendations, the change score of each PoSC was computed by regressing T2 scores of each PoSC item on its corresponding T1 score. The resulting standardized residual scores were included in the analyses. According to Cronbach and Furby (1970), the use of residual scores avoids errors that might occur when the differences between scores are considered. It is important to note that positive residual scores indicate an increase in PoSC, whereas negative scores suggest a decrease. Subsequently, since we were interested in the overall changes in PoSC from T1 to T2, a second order factor was fitted on residual scores in which changes in perceptions of one's immediate supervisor, changes in perceptions of colleagues and changes in perceptions of top management were considered first order dimensions. This approach has been supported by findings of previous studies (Borgogni *et al.*, 2010a, b) in which these three dimensions were found to be strongly interrelated across different work settings. We explored the dimensionality of the changes in PoSC by comparing the second order three-factor model with two alternative models. Then, a measurement model including changes in PoSC (T1-T2), self-efficacy T1 and work engagement T2 was performed.

Next, we tested the theoretical model by adding the hypothesized structural paths (see Figure 1). Structural equation modeling was performed by means of MPLUS, using the Maximum Likelihood estimation method (Muthén and Muthén, 1998). Multiple fit indices were included to evaluate the goodness-of-fit of each model, namely, χ^2 , the Root Mean Square Error of Approximation (RMSEA; Steiger and Lind, 1980) and its 90 percent confidence interval (90 percent CI). According to Steiger and Lind (1980), values included in the 90 percent confidence interval indicate an acceptable fit. Moreover, we calculated the Tucker-Lewis index (TLI; Tucker and Lewis, 1973) and the comparative fit index (CFI; Bentler, 1990). Values greater than 0.90 for TLI and CFI are usually considered acceptable (Jöreskog and Sörbom, 1993). More recently, Williams *et al.* (2009) have suggested that a good model fit is indicated by CFI values greater than

0.95 and/or RMSEA below 0.08. To compare the hypothesized models with nested alternative models, the $\Delta\chi^2$ was calculated. In addition, to test the mediation hypothesis, we conducted a bootstrapping analysis with MPLUS. This method, by repeatedly resampling the data set and estimating the indirect effect in each resampled data set, provides a powerful and bias-corrected 95 percent CI for mediation effects. If the 95 percent CI of mediation effect excluded 0, it suggests that the mediation is statistically significant. The bootstrap estimate presented in our study was based upon 1,000 bootstrap samples.

Results

Descriptive statistics

Table I presents means, standard deviations, scale internal consistencies (Cronbach’s α), and correlations of all study variables. Since the mean values of the standardized residual scores are zero by definition, we included the scores for the three PoSC facets at Times 1 and 2 in Table I. Cronbach’s α coefficients ranged between 0.81 and 0.94 ensuring a good internal consistency for all scales (Nunnally and Bernstein, 1994). The zero-order correlations among the variables were all significant and in the expected direction ($p < 0.01$).

Measurement models

Dimensionality of PoSC at Time 1 and Time 2. First of all, a three-factor model (M0) was tested separately at T1 and T2, wherein each indicator loaded on the posited latent variables (namely perceptions of immediate supervisor, perceptions of colleagues and perceptions of top management). This model fit the data well (see Table II), with item loadings ranging from 0.66 to 0.88 at T1 and from 0.63 to 0.92 at T2. We then compared these models with two competing models, separately at T1 and T2: a one-factor model, in which all indicators loaded on a unique factor (M1), and an uncorrelated three-factor model, in which the three latent factors were not permitted to correlate with each other (M2). As reported in Table II, model comparison supported the hypothesized three-factor model, which fit the data better than the competing models at both waves.

Invariance of PoSC. In performing test of measurement invariance, we started from the three-factor model (in which each item loaded on the posited factor, namely, perceptions of immediate supervisor, perceptions of colleagues and perceptions of top management) and examined the overall structure of the two waves of data

Table I.
Means, standard
deviations, internal
consistencies and
correlations

	Means	SD	1	2	3	4	5	6	7	8
1. Self-efficacyT1	5.42	0.66	(0.812)							
2. PoSC_supervisorT1	4.89	1.27	0.355**	(0.904)						
3. PoSC_colleaguesT1	5.12	1.02	0.460**	0.580**	(0.884)					
4. PoSC_top_managementT1	3.99	1.11	0.359**	0.585**	0.413**	(0.836)				
5. PoSC_supervisorT2	5.02	1.25	0.204**	0.445**	0.286**	0.343**	(0.936)			
6. PoSC_colleaguesT2	5.16	1.08	0.212**	0.296**	0.470**	0.197**	0.567**	(0.903)		
7. PoSC_top_managementT2	4.04	1.18	0.180**	0.375**	0.209**	0.499**	0.676**	0.451**	(0.896)	
8. Work engagementT2	6.34	0.078	0.298**	0.232**	0.183**	0.240**	0.450**	0.312**	0.453**	(0.874)

Notes: $n = 741$. Values on the diagonal show scales’ Cronbach’s α . **Correlation is significant at $p < 0.01$

Table II.
Comparison between
alternative models
for PoSC at
T1 and T2

Models	χ^2	df	CFI	TLI	RMSEA	90% CI
M0: three correlated factor model T1	280.926	63	0.961	0.952	0.069	0.061-0.078
M1: one-factor model T1	1,596.461	65	0.729	0.675	0.181	0.173-0.189
M2: uncorrelated three factors model T1	906.070	65	0.851	0.821	0.134	0.126-0.142
	$\Delta\chi^2$	Δdf	p			
M1 vs M0	1,315.535	2	< 0.001			
M2 vs M0	625.144	2	< 0.001			
M0: three correlated factor model T2	279.736	63	0.971	0.964	0.070	0.62-0.078
M1: one-factor model T2	2,180.353	65	0.714	0.657	0.215	0.208-0.223
M2: uncorrelated three factors model T2	974.757	65	0.877	0.852	0.141	0.133-0.149
	$\Delta\chi^2$	Δdf	p			
M1 vs M0	1,900.617	2	< 0.001			
M2 vs M0	695.021	2	< 0.001			

simultaneously, by fitting a “configural invariance model” (M1). This model fit the data well (see Table III) and was used as a baseline model against which two subsequently more restrictive models were compared. These models imposed successive restrictions on parameters examining the equivalence of factor loadings (M2: metric invariance model) and intercepts (M3: scalar invariance), respectively. The nested models were compared by using the chi-square difference test ($\Delta\chi^2$) and the difference in CFI (ΔCFI). As noted by Cheung and Rensvold (2002), a difference larger than 0.01 in CFI indicates a meaningful change in model fit. As reported in Table III, ΔCFI tests supported configural, metric and scalar invariance, whereas $\Delta\chi^2$ did not, since it was significant in all cases. However, as suggested by Cheung and Rensvold (2002), this test has substantial power in large samples and assumes that a less restricted model is properly specified. The ΔCFI , instead, is robust in many circumstances. Thus, relying on the observed values for the ΔCFI (which were far from the recommended criterion of -0.01) both metric and scalar invariance appear to be sufficiently supported.

Dimensionality of the changes in PoSC. After calculating the standardized residual score for each PoSC, we specified a second order factor model on residual scores, in which the second order factor was loaded by the three facets of changes in PoSC (i.e. changes in perceptions of colleagues, changes in perceptions of one's immediate supervisor and changes in perceptions of top management). This model showed an acceptable fit: $\chi^2(63) = 383.216$, $p < 0.0001$; CFI = 0.948; TLI = 0.936; RMSEA = 0.084. All first order factor loadings were significant and ranged from 0.66 to 0.89, whereas the second order loadings were 0.93 (immediate supervisor), 0.75 (colleagues) and 0.81 (top management). This model was compared with a one-factor model (M1) and an

Table III.
Invariance models

Models	χ^2	df	CFI	TLI	RMSEA	90% CI
M1 configural invariance	981	284	0.949	0.942	0.058	(0.054, 0.062)
M2 metric invariance	1.012	294	0.948	0.942	0.058	(0.054, 0.062)
M3 scalar invariance	1.123	303	0.940	0.936	0.061	(0.057, 0.065)
	$\Delta\chi^2$	Δdf	p		ΔCFI	
M2 vs M1	31	10	< 0.01		-0.001	
M3 vs M1	111	9	< 0.01		-0.008	

uncorrelated three-factor model (M2). As reported in Table IV, the second order model fit the data better than the two alternative models, namely, the one-factor model ($\Delta\chi^2 = 1,028.04$; $df = 2$; $p < 0.001$) and the uncorrelated three-factor model ($\Delta\chi^2 = 866.010$; $df = 2$; $p < 0.001$). The first order model with three correlated factors was mathematically equivalent to the second order model. Our choice for the second order model was made for conceptual reasons, since we intended to examine the contribution of the changes in the perceptions of the three social components as a whole.

Model of changes in PoSC, self-efficacy and work engagement. Finally, a measurement model including changes in PoSC, T1 self-efficacy and T2 work engagement was specified, in which each item loaded on the hypothesized latent factor. This model yielded a fit of: $\chi^2(370) = 1,281.334$, $p < 0.001$; CFI = 0.925; TLI = 0.918; RMSEA = 0.060, which was very good according to the RMSEA, but slightly missed the cut off value of 0.95 for CFI. Nonetheless, these values suggested an adequate fit of this model, given that, as suggested by Williams *et al.* (2009, p. 585) the RMSEA was at least one value below the suggested threshold while the CFI value was close to the cutoff. On the basis of these considerations, we retained the above model without attempting further modifications. The factor loadings were all significantly different from zero and greater than 0.40, ranging from 0.46 to 0.89.

Structural model

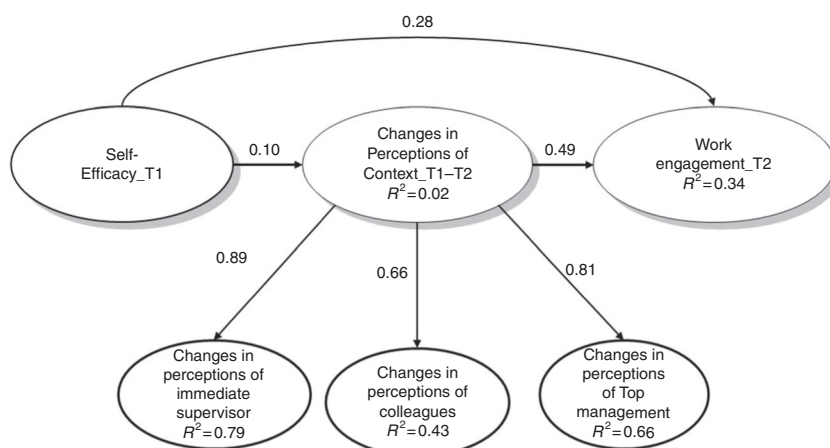
The hypothesized model fit the data well, $\chi^2(370) = 1,152.810$; $p < 0.001$; CFI = 0.925; TLI = 0.918; RMSEA = 0.055, and provided support for all four hypotheses. Parameter estimates of the structural model are presented in Figure 2. In particular, the posited link between self-efficacy at Time 1 and work engagement at Time 2 was strongly significant ($\beta = 0.28$; $p < 0.01$) (*H1* confirmed); self-efficacy at Time 1 was significantly related to subsequent increases in the PoSC ($\beta = 0.10$; $p < 0.01$) (*H2* confirmed), which, in turn, positively predicted work engagement at Time 2 ($\beta = 0.49$; $p < 0.01$) (*H3* confirmed). Hence, changes in PoSC seem to be a partial mediator of the relationship between T1 self-efficacy and T2 work engagement. Overall, the model explained 2 percent of the variance in changes of PoSC and 34 percent in work engagement. In particular, the total variance explained in work engagement by the tested model (34 percent) can be partitioned into the variance that is explained by the direct link between self-efficacy and work engagement (27 percent) and the variance that is explained by the indirect link, via changes in PoSC (7 percent).

Results of bootstrapping tests (Hayes, 2009) demonstrated that the bias-corrected 95 percent CI did not include 0 (0.001, 0.094) and suggested a total indirect effect of self-efficacy and work engagement through Changes in PoSC of 0.08 (*H4* confirmed), indicating a significant mediation effect.

Table IV.

Comparison between second order factor model and alternative ones for changes in PoSC (T1–T2)

Model	χ^2	df	CFI	TLI	RMSEA	90% CI
Second order factor model	383.216	63	0.948	0.936	0.084	0.076-0.092
One-factor model	1,411.256	65	0.782	0.739	0.169	0.162-0.177
Uncorrelated three factors model	1,249.226	65	0.809	0.770	0.159	0.151-0.167



Notes: $n = 741$. All parameters estimates are standardized and significant at $p < 0.01$

Figure 2.
The posited model:
parameters estimates

Discussion

Our findings confirmed the hypothesized relationships among the study variables. First of all, a significant relationship was found between self-efficacy and work engagement even three years later. This result corroborates previous findings that considered a shorter period of time (Salanova *et al.*, 2010, 2011) supporting the notion that self-efficacy “fuels work engagement” (Schaufeli and Salanova, 2008, p. 386) and its beneficial effect seems long-lasting. Consistent with SCT (Bandura, 2012), self-efficacy activates a motivational process that leads people to approach their job with effort and persistence, also in the face of obstacles and difficulties, and consequently, to be more engaged with their work (Llorens *et al.*, 2007; Salanova *et al.*, 2010, 2011).

Second, self-efficacy was significantly related to improvements in the PoSC over time. This result expanded the line of research that showed a positive relationship between efficacy beliefs and the PoSC (Borgogni *et al.*, 2010b, 2011; Caprara *et al.*, 2003) providing preliminary support for the idea that self-efficacious employees may proactively build up their social work environment, as proposed by SCT (Bandura, 2001). Indeed, it seems that efficacy beliefs help employees to figure out ways of exercising control over their social environment (Caprara and Steca, 2005), thus fostering positive relationships with the immediate supervisor, colleagues and top management over time. According to the “cultivation hypothesis” (Schwarzer and Knoll, 2007), self-efficacy is likely to be instrumental in building up social networks (Borgogni *et al.*, 2016) and in recruiting social support from such networks (e.g. taking initiative in order to expand their social contacts, to keep and increase their valuable work relationships). Even if we did not measure this proactive process, but only the positive changes in perceptions over time, we know from the literature that self-efficacious employees may spontaneously use job crafting strategies in order to proactively change certain aspects of their job to improve person-job fit (Tims *et al.*, 2014). Specifically, self-efficacious employees use relational job crafting behaviors (Berg *et al.*, 2008; Tims and Bakker, 2010), such as building, expanding and strengthening job relationships in order to create a more fitting social environment.

Even if the percentage of explained variance of changes in perceptions of context attributable to self-efficacy is low (2 percent), it is noteworthy. In fact, considering the

long time interval of three years, self-efficacy still contributes significantly to improving the PoSC.

Increases in the PoSC strongly contributed to work engagement, meaning that employees who experience an increase in PoSC are likely to be more engaged than employees who do not experience such an increase. Even if, within the JD-R model (Schaufeli and Bakker, 2004), the role of some social aspects (resources) as determinants of work engagement has been studied, our study simultaneously encompasses the three levels of social context (supervisor, colleagues and top management), providing support that improvements in the perceived levels of collaboration with colleagues, and in the perceived support and opportunities offered by the supervisor and top management are likely to promote a positive work-related state of fulfillment, namely work engagement. This result contributes to previous research (e.g. Schaufeli *et al.*, 2009) supporting the importance of a “gain” in social resources to enhance work engagement.

Moreover, self-efficacy showed an indirect relationship with work engagement through improvements in PoSC. Since self-efficacy likely improves PoSC, it satisfies the employee's core social motives, thus leading them to experience a state of fulfillment with their work, namely, work engagement (Van den Broeck *et al.*, 2008). This effect can also be interpreted in the light of social exchange theories (Emerson, 1976; Gouldner, 1960) that assume the reciprocal interdependence of work interactions: relationships develop over time on the basis of reciprocal exchanges between both parties (Cropanzano and Mitchell, 2005). It may be speculated that a reciprocity effect might occur starting from self-efficacy. That is, self-efficacy and prosocial agency may, in turn, engender reciprocal, prosocial and cooperative behaviors in other people, keeping work relationships balanced. This may have produced an improvement in the strength of social relationships over time. Therefore, employees may become engaged in their work through the perception of building mutual reciprocity in organizational relationships. This mechanism can be interpreted as a kind of “enactment process” (Weick, 1979) by which the individual may proactively shape his/her work context through a bottom-up influence. However, an alternative explanation may also be possible: rather than actually building a more positive social work environment, by taking action to improve relationships with relevant others at work, it should not be ruled out that self-efficacy may have only changed employees' “perceptions” (i.e. becoming more aware of the positive behaviors of supervisors, colleagues and management). Only the analysis of external indicators of such contextual factors (e.g. including the colleagues, supervisor and management perspective) could resolve this issue.

Furthermore, in line with the JD-R model, we cannot exclude the possibility that the position of self-efficacy and PoSC could be interchanged. In fact, the JD-R model emphasizes job resources as the root cause of both work engagement and personal resources (including generalized self-efficacy, self-esteem and optimism) providing some evidence that personal resources mediate the relationship between job resources and work engagement (e.g. Llorens *et al.*, 2007; Xanthopoulou *et al.*, 2007, 2009). Therefore, following this approach, it is a resourceful social environment that may promote work engagement, by fostering self-efficacy. On the other hand, SCT ascribes this pivotal role to self-efficacy. Unfortunately, our study did not use a cross-lagged panel design, therefore, we cannot say which of the two theories is best supported by the data.

All in all, we may speculate about the different mechanisms that, in line with SCT, are able to explain why self-efficacious people are also more engaged, even across a relatively lengthy period of three years. The first one is a self-regulation mechanism by

which self-efficacious people better regulate their efforts and persistence to pursue their goals (represented by the direct link between self-efficacy and engagement); the second one is a sense-making mechanism (already tested in previous studies, e.g. Borgogni *et al.*, 2010b) by which self-efficacious employees may have a more positive view of their social context. The third-one is a cultivation mechanism, by which self-efficacious employees proactively take action to improve their social environment (objectively), which results in more positive perceptions over time (that was tested by the link between self-efficacy and changes in PoSC). These improvements likely provide the necessary social resources to self-efficacious individuals, consequently resulting in increased work engagement over time.

Limitations and future perspectives

The first limitation of the study is related to the fact that we did not control for the stability of self-efficacy beliefs and work engagement. Consistent with McArdle's (2009) suggestions regarding the usefulness of latent change models to study reliable variable changes and their possible determinants and consequences, each variable was measured only at the time in which it was hypothesized by our conceptual model. Specifically, our focus was on the extent through which changes in PoSC were predicted by efficacy beliefs, and in turn, whether these changes predicted work engagement. Indeed, by the use of latent variable modeling, our study takes into account the effect of measurement error in lowering the reliability of the observed change scores (Cronbach and Furby, 1970). On the other hand, we are aware of the fact that a research design with repeated measures could have helped to further investigate the hypothesized (or reverse and reciprocal) relationships among the variables. Future longitudinal studies using cross-lagged structural equation models could explore if changes in PoSC may actually produce an improvement in the levels of work engagement (compared to the baseline) and if such improvement may, in turn, relate to an improvement in self-efficacy over time. Consistent with a line of research investigating "gain spirals" between job resources, personal resources, and engagement (Salanova *et al.*, 2010, 2011), future studies should investigate if a positive "spiral of improvement" exists between self-efficacy, PoSC and engagement and if self-efficacy plays a pivotal role in such a process, as posited in SCT.

Another potential concern related to the study is that the analyses rely exclusively on self-reported data. Even if the concern over common method bias has been overstated (Spector, 2006; Conway and Lance, 2010), the occurrence of common method bias (Podsakoff *et al.*, 2003) cannot entirely be excluded. It is worth noting that the constructs included in our study are subjective by definition (Caprara and Cervone, 2000), given that individuals are the most appropriate source of information on individual beliefs (self-efficacy), perceptions (PoSC) and (work-related) state of mind (work engagement). Moreover, procedures to reduce inflated correlations were also adopted in our research, such as protecting the privacy of respondents by using an individual code and reducing evaluation apprehension by giving extensive information on the research purposes (Podsakoff *et al.*, 2003). Nonetheless, we cannot exclude the influence of individual factors that, being related to self-efficacy, perceived context and work engagement, might act as potential biasing variables in these relationships (Spector, 2006). Together with self-efficacy, future studies should also include positive or negative affectivity, in order to reduce the risk of omitted variable-bias.

Moreover, we were unable to account for the turnover of supervisor or colleagues in each work group. As anticipated, the research context is quite stable (all employees had

a permanent contract and long tenure), hence, considering also the large sample size, we presume a limited impact of these changes. However, future research should carefully monitor the actual changes of colleagues and supervisors within the workgroups. Research may also benefit from other sources of data, such as colleagues or supervisor ratings, not only in order to reduce the possible influence of the common method bias, but also to acknowledge others' perspective regarding interpersonal and social dimensions, namely, PoSC.

We are also aware that the hypothesized mechanisms linking self-efficacy to work engagement need closer investigation. Future studies should explore the variables that are likely to mediate the hypothesized self-regulation mechanism, and that were not measured in the present study (such as goal choice, effort and persistence). It is also recommended that future research shed light on the cultivation mechanism linking self-efficacy to changes in PoSC, exploring for example the putative mediating role of (relational) job crafting behaviors (Berg *et al.*, 2008). Finally, it could be useful to investigate the extent to which the changes in the perceptions are related to "objective" changes of the social context.

Practical implications

Since work engagement represents a crucial dimension of individual well-being that is also relevant for organizational performance (e.g. Christian *et al.*, 2011), several practical implications arise from the study of its determinants. The role of self-efficacy as a predictor of work engagement suggests the development of training programs aimed at building and enhancing self-efficacy beliefs at work. Increasing employees' beliefs in their abilities to master their job is likely to result in higher levels of work engagement. Well-developed strategies exist to promote self-efficacy through its main sources (Bandura, 1997), such as mastery experience, social persuasion and vicarious experience, all of which have extensively demonstrated their effectiveness in organizational contexts (e.g. Bresò *et al.*, 2011; Ouwenel *et al.*, 2013). In this case, special attention has to be given to the social work domain, in order to increase employees' confidence to be able to produce changes in their social work environment. This could be done by setting goals that test their abilities to interact with the work social context, for example managing critical situations, such as negative feedback from their supervisor, a conflict with co-workers or participating in a management meeting (mastery experience). At the same time, supervisors could also be trained to support employees and encourage them, for instance by utilizing constructive feedback (social persuasion). Moreover, sharing information, experiences and behavioral strategies among co-workers should also be promoted (vicarious learning).

In order to increase employees' awareness of the possibility of enhancing the strength and range of work interactions with the three main components of the social context (supervisor, colleagues, top managers), relational job crafting techniques (Berg *et al.*, 2008) could be used as well. For example, training programs could encourage and support colleagues in asking supervisors and managers for feedback as a way to nurture and increase the extent and quality of their social connections (Petrou *et al.*, 2015).

Individual confidence in mastering the social work context and awareness on how to proactively change it will facilitate employees to take action and build more meaningful, helpful and energizing work relationships contributing to shaping a more positive and comfortable social environment, thereby enhancing work engagement in the long run.

References

- Alessandri, G., Caprara, G.V., Eisenberg, N. and Steca, P. (2009), "Reciprocal relations among self-efficacy beliefs and prosociality across time", *Journal of Personality*, Vol. 77 No. 4, pp. 1229-1259. doi: 10.1111/j.1467-6494.2009.00580.x.
- Bakker, A.B. and Demerouti, E. (2007), "The job demands-resources model: state of the art", *Journal of Managerial Psychology*, Vol. 22 No. 3, pp. 309-328. doi: 10.1108/02683940710733115.
- Bakker, A.B. and Demerouti, E. (2008), "Towards a model of work engagement", *Career Development International*, Vol. 13 No. 3, pp. 209-223. doi: 10.1108/13620430810870476.
- Balducci, C., Fraccaroli, F. and Schaufeli, W.B. (2010), "Psychometric properties of the Italian version of the Utrecht Work Engagement Scale (UWES-9): a cross-cultural analysis", *European Journal of Psychological Assessment*, Vol. 26 No. 2, pp. 143-149. doi: 10.1027/1015-5759/a000020.
- Bales, R.F. (1950), *Interaction Process Analysis: A Method for the Study of Small Groups*, Addison-Wesley, Reading, MA.
- Bandura, A. (1986), *Social Foundations of Thought and Action: A Social Cognitive Theory*, Prentice-Hall, Englewood Cliffs, NJ.
- Bandura, A. (1997), *Self-Efficacy: The Exercise of Control*, Freeman, New York, NY.
- Bandura, A. (2001), "Social cognitive theory: an agentic perspective", *Annual Review of Psychology*, Vol. 52 No. 1, pp. 1-26. doi: 10.1146/annurev.psych.52.1.1.
- Bandura, A. (2012), "On the functional properties of perceived self-efficacy revisited", *Journal of Management*, Vol. 38 No. 1, pp. 9-44. doi: 10.1177/0149206311410606.
- Barbier, M., Hansez, I., Chmiel, N. and Demerouti, E. (2013), "Performance expectations, personal resources, and job resources: how do they predict work engagement?", *European Journal of Work and Organizational Psychology*, Vol. 22 No. 6, pp. 750-762. doi: 10.1080/1359432X.2012.704675.
- Bentler, P.M. (1990), "Comparative fit indexes in structural models", *Psychological Bulletin*, Vol. 107 No. 2, pp. 238-246. doi: 10.1037/0033-2909.107.2.238.
- Berg, J.M., Dutton, J.E. and Wrzesniewski, A. (2008), "What is job crafting and why does it matter?", available at: www.bus.umich.edu/Positive/POS-Teaching-and-Learning/ListPOS-Cases.htm (accessed August 11, 2014).
- Borgogni, L., Consiglio, C. and Di Tecco, C. (2016), "Temporary workers' satisfaction: the role of personal beliefs", *Journal of Career Assessment*, Vol. 24 No. 1, pp. 86-98. doi: 10.1177/1069072714565105.
- Borgogni, L., Dello Russo, S. and Latham, G.P. (2011), "The relationship of employee perceptions of the immediate supervisor and top management with collective efficacy", *Journal of Leadership & Organizational Studies*, Vol. 18 No. 1, pp. 5-13. doi: 10.1177/1548051810379799.
- Borgogni, L., Petitta, L. and Mastrorilli, A. (2010a), "Correlates of collective efficacy in the Italian Air force", *Applied Psychology: An International Review*, Vol. 59 No. 3, pp. 515-537. doi: 10.1111/j.1464-0597.2009.00410.x.
- Borgogni, L., Dello Russo, S., Petitta, L. and Vecchione, M. (2010b), "Predicting job satisfaction and job performance in a privatized organization", *International Public Management Journal*, Vol. 13 No. 3, pp. 275-296. doi: 10.1080/10967494.2010.504114.
- Borgogni, L., Dello Russo, S., Di Tecco, C., Alessandri, G. and Vecchione, M. (2015), "Social cognitive theory as reference frame for perceptions of context", unpublished manuscript.
- Bresó, E., Schaufeli, W.B. and Salanova, M. (2011), "Can a self-efficacy-based intervention decrease burnout, increase engagement, and enhance performance? A quasi-experimental study", *Higher Education*, Vol. 61 No. 4, pp. 339-355. doi: 10.1007/s10734-010-9334-6.

- Caprara, G.V. and Cervone, D. (2000), *Personality: Determinants, Dynamics, and Potentials*, Cambridge Press, New York, NY.
- Caprara, G.V. and Steca, P. (2005), "Self-efficacy beliefs as determinants of prosocial behavior conducive to life satisfaction across ages", *Journal of Social and Clinical Psychology*, Vol. 24 No. 2, pp. 191-217. doi: 10.1007/s10902-011-9312-4.
- Caprara, G.V., Barbaranelli, C., Borgogni, L. and Steca, P. (2003), "Efficacy beliefs as determinants of teachers' job satisfaction", *Journal of Educational Psychology*, Vol. 95 No. 4, pp. 821-832. doi: 10.1016/j.jsp.2006.09.001.
- Cheung, G.W. and Rensvold, R.B. (2002), "Evaluating goodness-of-fit indexes for testing measurement invariance", *Structural Equation Modeling*, Vol. 9 No. 2, pp. 233-255. doi: 10.1207/S15328007SEM0902_5.
- Christian, M.S., Garza, A.S. and Slaughter, J.E. (2011), "Work engagement: a quantitative review and test of its relations with task and contextual performance", *Personnel Psychology*, Vol. 64 No. 1, pp. 89-136. doi: 10.1111/peps.12070.
- Consiglio, C., Borgogni, L., Alessandri, G. and Schaufeli, W.B. (2013), "Does self-efficacy matter for burnout and sickness absenteeism?", *The Mediating Role of Demands and Resources at the Individual and Team Levels, Work & Stress*, Vol. 27 No. 1, pp. 22-42. doi: 10.1080/02678373.2013.769325.
- Consiglio, C., Borgogni, L., Vecchione, M. and Maslach, C. (2014), "Self-efficacy, perceptions of context, and burnout: a multilevel study on nurses", *La Medicina del Lavoro*, Vol. 105 No. 4, pp. 255-268.
- Conway, J.M. and Lance, C.E. (2010), "What reviewers should expect from authors regarding common method bias in organizational research", *Journal of Business & Psychology*, Vol. 25 No. 3, pp. 325-334. doi: 10.1007/s10869-010-9181-6.
- Cronbach, L.J. and Furby, L. (1970), "How we should measure 'change': or should we?", *Psychological Bulletin*, Vol. 74 No. 1, pp. 68-80. doi: 10.1037/h0029382.
- Cropanzano, R. and Mitchell, M.S. (2005), "Social exchange theory: an interdisciplinary review", *Journal of Management*, Vol. 31 No. 6, pp. 874-900. doi: 10.1177/0149206305279602.
- Emerson, R. (1976), "Social exchange theory", *Annual Review of Sociology*, Vol. 2, pp. 335-362.
- Gouldner, A.W. (1960), "The norm of reciprocity: a preliminary statement", *American Sociological Review*, Vol. 25 No. 2, pp. 161-178. doi: 10.2307/2092623.
- Hakanen, J.J. and Lindbohm, M.L. (2008), "Work engagement among breast cancer survivors and the referents: the importance of optimism and social resources at work", *Journal of Cancer Survivors*, Vol. 2 No. 4, pp. 283-295. doi: 10.1007/s11764-008-0071-0.
- Hakanen, J.J., Bakker, A.B. and Schaufeli, W.B. (2006), "Burnout and work engagement among teachers", *Journal of School Psychology*, Vol. 43 No. 6, pp. 495-513. doi: 10.1016/j.jsp.2005.11.001.
- Hayes, F.A. (2009), "Beyond Baron and Kenny: statistical mediation analysis in the new millennium", *Communication Monographs*, Vol. 76 No. 4, pp. 408-420. doi: 10.1080/03637750903310360.
- Jöreskog, K.G. and Sörbom, D. (1993), *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language*, Scientific Software International.
- Kinnunen, U., Feldt, T. and Mäkikangas, A. (2008), "Testing the effort-reward imbalance model among finnish managers: the role of perceived organizational support", *Journal of Occupational Health Psychology*, Vol. 13 No. 2, pp. 114-127. doi: 10.1037/1076-8998.13.2.114.
- Lawrence, B. (2006), "Organizational reference groups: a missing perspective on social context", *Organization Science*, Vol. 17 No. 1, pp. 80-100. doi: 10.1287/orsc.1050.0173.

- Llorens, S., Schaufeli, W.B., Bakker, A.B. and Salanova, M. (2007), "Does a positive gain spiral of resources, efficacy beliefs and engagement exist?", *Computers in Human Behavior*, Vol. 23 No. 1, pp. 825-841. doi: 10.1016/j.chb.2004.11.012.
- McArdle, J.J. (2009), "Latent variable modeling of differences and changes with longitudinal data", *Annual Review of Psychology*, Vol. 60, pp. 577-605. doi: 10.1146/annurev.psych.60.110707.163612.
- May, D.R., Gilson, R.L. and Harter, L.M. (2004), "The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work", *Journal of Occupational and Organizational Psychology*, Vol. 77 No. 1, pp. 11-37. doi: 10.1348/096317904322915892.
- Mohammed, S. and Billings, R.S. (2002), "The effect of self-efficacy and issue characteristics on threat and opportunity categorization", *Journal of Applied Social Psychology*, Vol. 32 No. 6, pp. 1253-1275. doi: 10.1111/j.1559-1816.2002.tb01435.x.
- Muthén, L. and Muthén, B.O. (1998), *Mplus User's Guide*, Muthén & Muthén, Los Angeles, CA.
- Nunnally, J.C. and Bernstein, I.H. (1994), *Psychometric Theory*, 3rd ed., McGraw-Hill, New York, NY.
- Ouweneel, E., Le Blanc, P. and Schaufeli, W.B. (2013), "Do-it-yourself: an online positive psychology intervention to promote positive emotions, self-efficacy, and engagement at work", *Career Development International*, Vol. 18 No. 2, pp. 173-195. doi: 10.1108/CDI-10-2012-0102.
- Petrou, P., Demerouti, E. and Schaufeli, W.B. (2015), "Job crafting in changing organizations: antecedents and implications for exhaustion and performance", *Journal of Occupational Health Psychology*, Vol. 20 No. 4, pp. 470-480. doi: 10.1037/a0039003.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903. doi: 10.1037/0021-9010.88.5.879.
- Salanova, M., Llorens, S. and Schaufeli, W.B. (2011), "'Yes, I can, I feel, I just do it!' On gain cycles and spirals of efficacy beliefs, affect and engagement", *Applied Psychology: An International Review*, Vol. 60 No. 2, pp. 255-285. doi: 10.1111/j.1464-0597.2010.00435.x.
- Salanova, M., Schaufeli, W.B., Xanthopoulou, D. and Bakker, A.B. (2010), "Gain spirals of resources and work engagement", in Bakker, A.B. and Leiter, M.P. (Eds), *Work Engagement: A Handbook of Essential Theory and Research*, Psychology Press, New York, NY, pp. 118-131.
- Sarason, I.G., Levine, H.M., Basham, R.B. and Sarason, B.R. (1983), "Assessing social support: the social support questionnaire", *Journal of Personality and Social Psychology*, Vol. 44 No. 1, pp. 127-139.
- Sarason, I.G., Sarason, B.R. and Shearin, E.N. (1986), "Social support as an individual difference variable: Its stability, origins, and relational aspects", *Journal of Personality and Social Psychology*, Vol. 50 No. 4, pp. 845-855. doi: 10.1037/0022-3514.50.4.845.
- Schaufeli, W.B. and Bakker, A.B. (2004), "Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study", *Journal of Organizational Behavior*, Vol. 25 No. 3, pp. 293-315. doi: 10.1002/job.248.
- Schaufeli, W.B. and Bakker, A.B. (2010), "Defining and measuring work engagement: bringing clarity to the concept", in Bakker, A.B. and Leiter, M.P. (Eds), *Work Engagement: A Handbook of Essential Theory and Research*, Psychology Press, New York, NY, pp. 10-24.
- Schaufeli, W.B. and Salanova, M. (2008), "Enhancing work engagement through the management of human resources", in Näswall, K., Sverke, M. and Hellgren, J. (Eds), *The Individual in the Changing Working Life*, Cambridge University Press, Cambridge, pp. 380-404.

- Schaufeli, W.B., Bakker, A.B. and Salanova, M. (2006), "The measurement of work engagement with a short questionnaire: a cross-national study", *Educational and Psychological Measurement*, Vol. 66 No. 4, pp. 701-716. doi: 10.1177/0013164405282471.
- Schaufeli, W.B., Bakker, A.B. and Van Rhenen, W. (2009), "How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism", *Journal of Organizational Behavior*, Vol. 30 No. 7, pp. 893-917. doi: 10.1002/job.
- Schwarzer, R. and Knoll, N. (2007), "Functional roles of social support within the stress and coping process: a theoretical and empirical overview", *International Journal of Psychology*, Vol. 42 No. 4, pp. 243-252. doi: 10.1080/00207590701396641.
- Smith, P. and Beaton, D. (2008), "Measuring change in psychosocial working conditions: methodological issues to consider when data are collected at baseline and one follow-up time-point", *Occupational & Environmental Medicine*, Vol. 65 No. 4, pp. 288-296. doi: 10.1136/oem.2006.032144.
- Spector, P.E. (2006), "Method variance in organizational research: truth or urban legend?", *Organizational Research Methods*, Vol. 9 No. 2, pp. 221-232. doi: 10.1177/1094428105284955.
- Stajkovich, A.D. and Luthans, F. (1998), "Self-efficacy and work-related performance: a meta-analysis", *Psychological Bulletin*, Vol. 124 No. 2, pp. 240-261. doi: 10.1037/0033-2909.124.2.240.
- Steiger, J.H. and Lind, J.C. (1980), "Statistically based tests for the number of factors", paper presented at the annual meeting of the Psychometric Society, Iowa City, IA, May 28-30.
- Stevens, L.E. and Fiske, S.T. (1995), "Motivation and cognition in social life: a social survival perspective", *Social Cognition*, Vol. 13 No. 3, pp. 189-214.
- Tims, M. and Bakker, A.B. (2010), "Job crafting: towards a new model of individual job redesign", *SA Journal of Industrial Psychology/SA Tydskrif vir Bedryfsielkunde*, Vol. 36 No. 2, pp. 841-850. doi: 10.4102/sajip.v36i2.841.
- Tims, M., Bakker, A.B. and Derks, D. (2014), "Daily job crafting and the self-efficacy – performance relationship", *Journal of Managerial Psychology*, Vol. 29 No. 5, pp. 490-507. doi: 10.1108/JMP-05-2012-0148.
- Tucker, L.R. and Lewis, C. (1973), "A reliability coefficient for maximum likelihood factor analysis", *Psychometrika*, Vol. 38 No. 1, pp. 1-10. doi: 10.1007/BF02291170.
- Van Beek, I., Hu, Q., Schaufeli, W.B., Taris, T.W. and Schreurs, B.H.J. (2011), "For fun, love, or money: what drives workaholic, engaged, and burned-out employees at work?", *Applied Psychology: An International Review*, Vol. 60 No. 1, pp. 30-55. doi: 10.1111/j.1464-0597.2011.00454.x.
- Van den Broeck, A., Vansteenkiste, M., De Witte, H. and Lens, W. (2008), "Explaining the relationships between job characteristics, burnout and engagement: the role of basic psychological need satisfaction", *Work & Stress*, Vol. 22 No. 3, pp. 227-294. doi: 10.1080/02678370802393672.
- Vera, M., Salanova, M. and Lorente, L. (2012), "The predicting role of self-efficacy in the job demands-resources model: a longitudinal study", *Estudios de Psicología*, Vol. 33 No. 2, pp. 167-178. doi: 10.1174/021093912800676439.
- Weick, K.E. (1979), *The Social Psychology of Organizing*, 2nd ed., Addison-Wesley, Reading, MA.
- Williams, L.J., Vandenberg, R.J. and Edwards, J. (2009), "Structural equation modeling in management research: a guide for improved analysis", *Academy of Management Annals*, Vol. 3 No. 1, pp. 543-605. doi: 10.1080/19416520903065683.

- Wood, R.E. and Bandura, A. (1989), "Social cognitive theory of organizational management", *Academy of Management Review*, Vol. 14 No. 3, pp. 361-384. doi: 10.5465/AMR.1989.4279067.
- Xanthopoulou, D., Bakker, A.B., Demerouti, E. and Schaufeli, W.B. (2007), "The role of personal resources in the job demands-resources model", *International Journal of Stress Management*, Vol. 14 No. 2, pp. 121-141. doi: 10.1037/1072-5245.14.2.121.
- Xanthopoulou, D., Bakker, A.B., Demerouti, E. and Schaufeli, W.B. (2009), "Reciprocal relationships between job resources, personal resources, and work engagement", *Journal of Vocational Behavior*, Vol. 74 No. 3, pp. 235-244. doi: 10.1016/j.jvb.2008.11.003.

Further reading

- Bollen, K.A. (1989), *Structural Equations with Latent Variables*, Wiley, New York, NY.
- Schaufeli, W.B. and Salanova, M. (2010), "How to improve work engagement?", in Albrecht, S. (Ed.), *The Handbook of Employee Engagement: Perspectives, Issues, Research and Practice*, Edwin Elgar, Northampton, MA, pp. 399-415.
- Schaufeli, W.B. and Taris, T.W. (2014), "A critical review of the job demands-resources model: implications for improving work and health", in Bauer, G.F. and Hämmig, O. (Eds), *Bridging Occupational, Organizational and Public Health*, Springer, Amsterdam, pp. 43-68.
- Xanthopoulou, D., Bakker, A.B. and Fischbach, A. (2013), "Work engagement among employees facing emotional demands. The role of personal resources", *Journal of Personnel Psychology*, Vol. 12 No. 2, pp. 74-84. doi: 10.1027/1866-5888/a000085.

About the authors

Chiara Consiglio is an Assistant Professor in Work and Organizational Psychology at the Sapienza, University of Rome, Italy. Her main research topics concerns burnout, work engagement, personal resources and psychosocial risk factors. Within the area of personnel psychology, she worked on the development of tools to assess individual characteristics (i.e. work competencies, values). Chiara Consiglio is the corresponding author and can be contacted at: chiara.consiglio@uniroma1.it

Laura Borgogni is a Full Professor of Work and Organizational Psychology at the Sapienza, University of Rome, Italy. Her main topics of expertise concern perceptions of social context, self- and collective efficacy, and job burnout. She also conducted research on goal setting and its applications, particularly related to performance management process.

Cristina Di Tecco has a PhD in Work Psychology at the University of Rome Sapienza. She is currently a Researcher at the Department of Occupational and Environmental Medicine, Epidemiology and Hygiene of the Italian Workers' Compensation Authority (INAIL) in Rome. Member of the European Academy of Occupational Health Psychology (EAOHP) and EAOHP's Executive Officer since 2014.

Wilmar B. Schaufeli is distinguished Research Professor at the Leuven University, Belgium and a Full Professor of Work and Organizational Psychology at the Utrecht University, The Netherlands (www.wilmarschaufeli.nl). He published extensively on issues related to occupational health psychology. Dr. Schaufeli is a Fellow of the European Academy of Occupational Health Psychology.