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Arnold B. Bakker[a] & Despoina Xanthopoulou[b]

[a] Erasmus University Rotterdam, Department of Work and Organizational Psychology, Rotterdam, The Netherlands

[b] University of Crete, Dept. of Psychology, Rethimno, Greece

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Creativity and charisma among female leaders: the role of resources and work engagement

Arnold B. Bakker[a]* and Despoina Xanthopoulou[b]

[a]*Erasmus University Rotterdam, Department of Work and Organizational Psychology, Rotterdam, The Netherlands;* [b]*University of Crete, Dept. of Psychology, Rethimno, Greece*

In this study among 84 female school principals and 190 teachers, we tested the central process proposed by the Job Demands–Resources model of work engagement. We hypothesized that job resources have a positive impact on creativity and charismatic leadership behavior first through personal resources, and then through work engagement. School principals filled in a questionnaire via a secured website and indicated their levels of job resources, personal resources and work engagement, whereas teachers filled in a questionnaire about their school principal's creativity and charismatic leadership. Results supported the intervening effects of personal resources and work engagement in the job resources–creativity link. In addition, engaged school principals scored highest on charismatic leadership.

Keywords: charismatic leadership; creativity; employee engagement; positive organizational behavior; resources; work engagement

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Introduction

Organizations have become more and more interested in work engagement, since the research evidence shows that engaged workers perform better (Demerouti and Cropanzano 2010; Christian, Garza and Slaughter 2011). However, to the best of our knowledge, there are no studies concerning the effect of engagement on creativity (i.e. a specific aspect of job performance) or leadership qualities (e.g. charisma). In addition, few scholars have made an attempt to offer and empirically test a theoretical framework that investigates the predictors and outcomes of engagement simultaneously in one overall model. The present study among female school principals and their teachers was designed to fill this gap in the literature.

We use Bakker and Demerouti's (2008) and Bakker's (2011) Job Demands–Resources (JD-R) model of engagement to argue that school principals' job resources relate positively to their creativity and charismatic leadership (as rated by their subordinate teachers) through personal resources and work engagement. Given that leadership research has been broadly criticized for relying on single sources of data collection (Avolio, Yammarino and Bass 1991), the use of two sources of information is a clear advantage of the present study. Furthermore, although there are many studies on leadership, this is one of the first to test leaders' work engagement in relation to their own creativity and leadership qualities.

*Corresponding author. Email: bakker@fsw.eur.nl

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Work engagement

A recent review of Macey and Schneider (2008) documented the proliferation of various definitions of engagement. In the present study, we use Schaufeli and Bakker's (2004, 2010) widely used definition. Accordingly, work engagement is a positive, fulfilling, work-related experience that includes three complementary dimensions: an energetic (i.e. vigor), an affective (i.e. dedication) and a cognitive dimension (i.e. absorption). Vigor refers to high levels of energy while working. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work. Thus, engaged workers are highly active, enthusiastic about their work and often fully immersed in their work so that time flies (see also May, Gilson and Harter 2004; Bakker, Schaufeli, Leiter and Taris 2008). Research has confirmed that work engagement is a specific, distinct and properly operationalized psychological construct (Macey and Schneider 2008) that can be distinguished from other constructs including workaholism, organizational commitment and job involvement (Bakker et al. 2008). Moreover, according to the JD-R model of engagement (Bakker 2011) engaged employees perform better. This is attributed to the fact that engaged employees' enjoy better health, which means that they are able to perform better at high levels. In addition, engaged employees experience more frequently positive emotions that widen their thought and action horizons (cf. Bakker and Demerouti 2008).

Job resources and work engagement

Research indicates that external job resources play a key role in facilitating engagement. According to the JD-R model (Bakker and Demerouti 2008), job resources are those characteristics of the job that have the potential to reduce job demands and the associated costs. Moreover, physical, social or organizational aspects of the job can be qualified as job resources if they are functional in achieving work goals and/or stimulate personal growth, learning and development. Hence, job resources (such as performance feedback, autonomy and learning opportunities) not only are necessary to deal with (high) job demands but also play a unique role in determining work engagement (for a meta-analysis, see Halbesleben 2010). Job resources facilitate work engagement because they can act as intrinsic or extrinsic motivators (Bakker and Demerouti 2008). As intrinsic motivators, they fulfill basic human needs, such as the need for autonomy, relatedness and competence (Ryan and Frederick 1997). As extrinsic motivators, job resources are instrumental in achieving work goals (Bakker and Demerouti 2008). In either case, employees become motivated, and engagement is likely to occur.

Evidence for the positive impact of job resources on work engagement is accumulating, and previous research has shown that a range of job resources can facilitate work engagement. Mauno, Kinnunen and Ruokolainen (2007), in a two-year longitudinal study among Finnish health care personnel, showed that job resources predicted work engagement better than job demands and that job control was the best lagged predictor of vigor, dedication and absorption. Furthermore, in their study among more than 2500 Finnish dentists, Hakanen, Perhoniemi and Toppinen-Tanner (2008) found that job resources (e.g. craftsmanship and feedback) were predictive of engagement over a three-year time period. In addition, Schaufeli, Bakker and Van Rhenen (2009), in a one-year follow-up of Dutch telecom managers, demonstrated that changes in job resources (social support, autonomy, opportunities to learn and feedback) were predictive of work engagement.

In the present study, we focus on four specific external job resources (i.e. autonomy, social support, performance feedback and opportunities for professional development). We chose these specific job resources because they are able to satisfy people's basic psychological needs for autonomy, relatedness and competence (Van den Broeck, Vansteenkiste, De Witte and Lens 2008), and thus foster personal growth, psychological adjustment and well-being (Deci and Ryan 1985; Ilardi, Leone, Kasser and Ryan 1993). Furthermore, in his meta-analysis of the work engagement literature, Halbesleben (2010) has shown that autonomy, social support and performance feedback are among the most important antecedents of work engagement. In addition, opportunities for professional development have been found as an important antecedent of work engagement in several studies (e.g. Xanthopoulou, Bakker, Demerouti and Schaufeli 2007, 2009b; Schaufeli et al. 2009; Bakker and Bal 2010).

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Personal resources and work engagement

Although job resources are crucial determinants of work engagement, a prerequisite for an individual to reach engagement is that the self is involved (Sonnentag, Dormann and Demerouti 2010). In order for employees to be vigorous, dedicated and absorbed in their work, it is important that they first feel that they possess the energetic, affective and cognitive potential required to deal with their work tasks. Therefore, the beliefs that one is resilient and able to deal with the work tasks successfully seem the most proximal drivers of engagement that explain the job resources–engagement relationship.

Consistent with this view, Xanthopoulou et al. (2007) extended the JD-R model by arguing that *personal resources* are important in explaining the transition from job resources to work engagement. Personal resources refer to individuals' sense of their ability to control and influence their environment successfully (Hobfoll, Johnson, Ennis and Jackson 2003). Xanthopoulou et al. used the conservation of resources (COR) theory (Hobfoll et al. 2003) to argue that autonomy, social support, supervisory coaching and opportunities for development influence work engagement through personal resources. According to the COR theory, individuals strive not only to protect their resources but also to accumulate them. Resources tend to generate other resources, thus creating resource caravans, which may result in positive outcomes such as better coping and well-being (Hobfoll 2002). Employees who work in a resourceful work environment are likely to have all the required means to perform their work tasks. Consequently, they are confident that they can manage these tasks. In turn, the more positive the employees' self-regard, the more goal self-concordance is likely to be experienced (Judge, Bono, Erez and Locke 2005). Individuals with goal self-concordance are intrinsically motivated to pursue their goals, and as a result they are likely to be engaged in what they do (Luthans and Youssef 2007).

In their cross-sectional study, Xanthopoulou et al. (2007) implemented this assumption of the COR theory in the motivational process of the JD-R model, and found that the availability of job resources leads to personal resources (self-efficacy, organizational-based self-esteem and optimism) and thus to higher work engagement. Consistently, Llorens, Schaufeli, Bakker and Salanova (2007) found that task resources foster efficacy beliefs, which in turn increase levels of engagement, while Xanthopoulou, Bakker, Demerouti and Schaufeli (2009a) also provided preliminary support for the mediating role of personal resources in the relationship between job resources and engagement on a day-to-day basis.

In the present study, we examine two specific personal resources, self-efficacy and resiliency, because they encompass the core qualities of personal resources (Luthans and Youssef 2007). Self-efficacy is the belief about one's capabilities to control events that

affect one's life (Bandura 1997) and has been related positively to performance (for meta-analyses, see Stajkovic and Luthans 1998; Judge and Bono 2001). Ego-resiliency is the ability to adapt one's level of control temporarily up or down as circumstances dictate (Block 2002). As a result of this adaptive flexibility, individuals with high levels of resiliency are more likely to experience positive affect. In addition, they have high self-confidence and better psychological adjustment than those with low levels of resiliency (Block and Kremen 1996; Klohnen 1996), and consequently, they perform better (Luthans, Avolio, Walumbwa and Li 2005). It should be noted that although scholars recognize optimism as a core personal resource (e.g. Luthans and Youssef 2007), in the present study, we did not measure this personal resource. This decision is supported by Wanberg and Banas (2000), who reported a strong relationship between optimism and resilience ($r = 0.83$, $p < 0.05$), suggesting that optimism functions largely like resiliency.

Taken together, JD-R theory and empirical findings suggest that job resources have a positive relationship with work engagement through the perception of personal resources. Despite the fact that previous studies focused on the direct effects of both job and personal resources on work engagement (e.g. Xanthopoulou et al. 2009b), we propose that treating personal resources as a mediator helps to better explain the job resources–work engagement link. As Sonnentag et al. (2010) suggested, personal resources refer to the internal drive of employees that allows them to transform the opportunities provided by a resourceful environment (i.e. job resources) into action (i.e. work engagement). Thus, personal resources can be perceived as the most proximal predictors of engagement that may help explain why job resources relate to vigor, dedication and absorption. Considering the strong direct effect of job resources on engagement, as well as the fact that other critical psychological states (e.g. meaningfulness, responsibility; Hackman and Oldham 1980) may mediate the job resources–engagement relationship, we expect partial instead of full mediation.

Hypothesis 1: Personal resources partially mediate the job resources–work engagement relationship.

Engagement–creativity link

Previous studies have provided evidence for the positive link between work engagement and performance (Demerouti and Cropanzano 2010; Christian et al. 2011). The present study focuses on a specific aspect of task performance that has not been related to engagement before but is crucial for leaders, namely creativity. According to Amabile (1997), creativity is the production of novel and appropriate ideas that may occur in any domain of everyday life. Creative ideas have to be different from what has been done before, and to be appropriate for the problem or the situation at hand. As such, creativity is a requirement for innovation (i.e. the actual implementation of the creative ideas) that has substantial and lasting benefits for organizations (Oldham 2003).

The componential theory of creativity (Amabile 1997) proposes that all human beings are capable of creative performance, if three necessary conditions are met: expertise, creative thinking and intrinsic task motivation. While the first two factors determine individuals' ability to perform creatively, the latter is important as well because it determines actual behavior. A person who is not engaged (i.e. not intrinsically motivated) is not going to use his/her skills and expertise in the service of creative performance, even if he/she holds the expertise and ability to perform creatively. It is likely that employees who are energetic, dedicated and absorbed in their work will be inclined to use their skills or to acquire new skills to be creative. Engaged employees are open to new experiences

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and are motivated to invest all the effort needed to realize excellent performance (Demerouti and Cropanzano 2010).

Furthermore, positive mood seems important for creativity (Oldham 2003). According to Fredrickson's (2001) broaden-and-build theory, positive affect broadens peoples' momentary thought–action repertoires and builds personal resources. Positive mood makes individuals more prone to make connections between divergent stimuli (Isen 1999). This leads to a better integration of resources during problem solving that results in higher creativity. Similarly, Salanova, Schaufeli, Xanthopoulou and Bakker (2010) suggested that work engagement, as a distinct positive affective–motivational experience, may broaden by creating the urge to expand the self through learning and goal fulfillment. As such, engagement is likely to result in creativity.

In line with these assumptions, Amabile, Barsade, Mueller and Staw (2005), in their quantitative and qualitative longitudinal diary study among more than 200 employees, found a positive relationship between positive affect and creativity. Similarly, Estrada, Isen and Young (1994), in an experiment among physicians, found that participants assigned to the experimental group (that received positive affect induction) scored better on creativity than the control group. Finally, next to positive affect, previous studies suggest that job resources (e.g. autonomy, supervisory encouragement and team support; Amabile, Conti, Coon, Lazenby and Herron 1996), as well as personal resources (e.g. self-efficacy; Tierney and Farmer 2002; Prabhu, Sutton and Sauser 2008) relate positively to creativity. These findings indicate that creativity may be explained by the expanded JD-R model of engagement (Bakker and Demerouti 2008; Bakker 2011). A resourceful work environment may enhance employees' feelings of control and resiliency that will motivate them intrinsically, which is a prerequisite for creative performance. Despite the significance of this psychological process, there are no previous studies linking job resources, personal resources and engagement to creative performance.

Engagement–charismatic leadership link

Next to creativity, this study considers charismatic leadership as an outcome of work engagement. Charismatic leaders transform the needs and aspirations of followers from self-interests to collective interests, enhance their involvement and commitment to the goals of the organization and motivate them to perform above and beyond their own expectations and the call of duty (Bass 1985; Yukl 1989; Shamir, House and Arthur 1993; Conger and Kanungo 1998). Indeed, previous empirical studies showed that charismatic leaders have a positive effect on followers' motivation, satisfaction, performance (for a review see Bass 1997) and work engagement (Babcock-Roberson and Strickland 2010; Tims, Bakker and Xanthopoulou 2011). According to Shamir et al.'s (1993) motivational theory of charismatic leadership, such leaders use role modeling to recruit and engage their followers. The leader becomes a symbol and shows to the followers what kinds of beliefs and behaviors are legitimate to develop, and as such constitutes a point of reference for vicarious learning. On the basis of this, it may be suggested that leaders first need to be engaged themselves in the work goals to get their followers engaged in the goals of the organization. Put differently, leaders who are vigorous, dedicated and absorbed are more likely to behave in a charismatic way that engages followers to the organizational goals. In this context, Dvir and Shamir (2003) showed that active engagement to the task had a positive lagged effect on transformational leadership. However, in this particular study, engagement concerned the followers and not the leaders.

Despite the significance of charismatic leadership, little is known about its antecedents for the leader himself or herself. Past research has emphasized the role of personality

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(Judge, Bono, Ilies and Gerhardt 2002), while resourceful work environments (e.g. flexible, and rich in opportunities for development) have also been suggested to play a role (De Hoogh, Den Hartog and Koopman 2005). The present study comes to fill in this void in the literature by proposing that the motivational process, which explains work engagement (Bakker and Demerouti 2008; Bakker 2011), may be applied to understand the behavior of charismatic leaders. Namely, leaders who have the means to deal effectively with their work demands are more likely to feel self-efficacious and resilient, which in turn enhances their engagement with the task. Engaged leaders are absorbed in their goals, are enthusiastic and have the energy to inspire their followers, and thus are likely to behave in a charismatic manner.

The present study

The theoretical analysis and empirical evidence presented suggest that: (1) job and personal resources are important drivers of engagement, with personal resources being the most proximal antecedents; and (2) there is a positive link between resources, work engagement and positive organizational behaviors (e.g. creativity and quality leadership; Bakker and Demerouti 2008; Bakker 2011). Nevertheless, all previous studies have tested only certain parts of the process from job resources to positive outcomes first through personal resources and then through work engagement (Bakker, Demerouti and Verbeke 2004; Salanova, Agut and Peiró 2005). For instance, Xanthopoulou et al. (2007) supported the mediating role of personal resources in the job resources–engagement relationship but did not test any performance outcomes. Xanthopoulou et al.'s (2009a) daily diary study showed that daily job resources, such as coaching, autonomy and team atmosphere, fostered daily personal resources and indirectly contributed to daily work engagement and financial results. However, the latter study did not include leaders' effective behaviors as outcomes and did not test a sequential mediation model. Moreover, to the best of our knowledge, there is no published research that proposes and tests a theoretical model that explains two crucial aspects of leaders' behavior, namely creativity and charisma (Bass 1985; Oldham 2003) as a function of leaders' (job and personal) resources and engagement.

According to the JD-R model (Bakker and Demerouti 2008; Bakker 2011), job resources are functional in achieving work goals and can stimulate personal growth, learning and development. Job resources may indirectly influence outcomes such as creativity and charisma first through personal resources and then through work engagement because job resources satisfy people's basic psychological needs for competence, autonomy and relatedness (Van den Broeck et al. 2008). The increase in personal resources, which is the consequence of job resources (Xanthopoulou et al. 2009b), fuels the enthusiasm and vitality that is characteristic of work engagement. Work engagement, in turn, facilitates creativity and charisma because engaged individuals are open to new experiences (see Figure 1).

Hypothesis 2: Job resources lead indirectly to (a) creativity and (b) charismatic leadership through the subsequent mediation first of personal resources and then of work engagement.

Method

Procedure and participants

The present study was conducted in close collaboration with the Dutch association for female school principals, as they wished to investigate the drivers and consequences of

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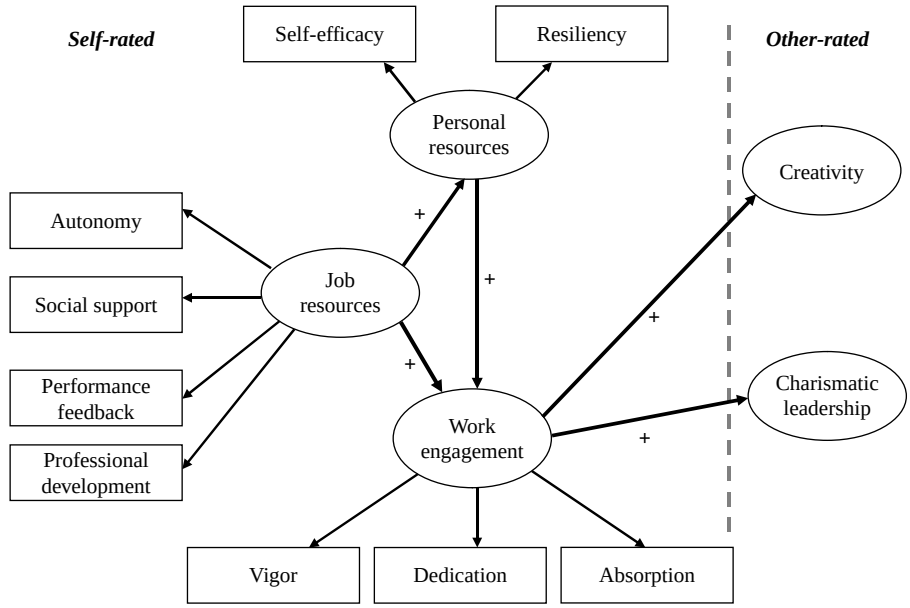

Figure 1. The hypothesized model.

work engagement. A survey was published on a secured part of the association's website for a period of four weeks. Female visitors of the website were invited to learn more about their work engagement by filling in a questionnaire. The confidentiality of the data was emphasized. After filling in the survey, participants were informed about their personal engagement scores, which were calculated online, and they received customized feedback. Furthermore, the participants were asked to approach a maximum of four teachers randomly from their school to rate their performance and leadership qualities through a separate website. Data were matched by using a unique code for each school principal.

After four weeks, 84 female school principals and 190 teachers had responded. The mean age of the school principals was 48 years (SD = 6.4) and their job tenure was 8 years (SD = 7.2) on average. All participants were highly educated, while the majority of the sample (48%) was living with a partner and children. Researchers were allowed approaching teachers to rate principals' creativity and charisma, only if teachers' anonymity was totally secured. Thus, demographic information of the 190 teachers is missing. Each school principal was rated on average by 2.3 teachers. Twenty-six principals were rated by one teacher (31%), 25 by two teachers (30%), 18 by three teachers (21%), while the remaining 15% of the principals were rated by four teachers.

Measures

Job resources

Autonomy was assessed with the three-item scale developed by Bakker et al. (2004) (e.g. 'Do you have control over how your work is carried out?'). *Social support* was measured with another three-item scale developed by the same authors, including 'If necessary, can you ask your colleagues for help?' *Performance feedback* was assessed with a four-item scale developed by Bakker, Demerouti, Taris, Schaufeli and Schreurs

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(2003; e.g. 'I receive sufficient information about my work objectives'). Finally, *opportunities for professional development* were assessed with three items from Bakker et al.'s (2003) scale. An item is 'My work offers me the possibility to learn new things'. All job resources items were scored on a five-point scale, ranging from 1 (never) to 5 (always), except for the opportunities for professional development items, where the scale ranged from 1 (totally disagree) to 5 (totally agree).

Personal resources

Self-efficacy was measured with the 10-item generalized self-efficacy scale (Schwarzer and Jerusalem 1995; e.g. 'I can always manage to solve difficult problems if I try hard enough'). Items were scored on a scale ranging from 1 (absolutely wrong)' to 4 (absolutely right). *Resiliency* was measured with Block and Kremen's (1996) 14-item scale. An example item of this scale is 'I quickly get over and recover from being startled' (1 = disagree very strongly, 4 = agree very strongly).

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Work engagement

Work engagement was assessed with the nine-item version of the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker and Salanova 2006). This version includes three items for each engagement dimension: *vigor* (e.g. 'At my work, I feel bursting with energy'), *dedication* (e.g. 'My job inspires me') and *absorption* (e.g. 'I get carried away when I am working'). Items were scored on a scale ranging from 0 (never) to 6 (always).

Creativity was assessed with six items developed by Janssen (2001). Teachers indicated how often school principals performed innovative activities including 'creating new ideas for difficult issues', and 'transforming innovative ideas into useful applications' (1 = never, 5 = often).

Charisma

Charisma was assessed with six items from the respective subscale of the Multifactor Leadership Questionnaire (MLQ; Bass and Avolio 1989). The items were adapted so as to refer to the work of school principals. Teachers were asked to evaluate their school principal's charisma by responding to items such as 'Your principal communicates a challenging vision regarding the future of the school' (1 = not characteristic at all, 5 = highly characteristic).

Data aggregation

The study design may be viewed as a two-level design, with teachers (Level 1) nested within school principals (Level 2). However, given that dependent variables at the lower (i.e. teacher) level have the highest level as a reference point (i.e. concern the principals and not the teachers themselves), we used aggregated scores for creativity and charisma. Following LeBreton and Senter (2008), to justify aggregation of principals' scores across teachers, we calculated values of inter-rater agreement (r_{wg}; James, Demaree and Wolf 1993; average deviation (AD) index (Burke and Dunlap 2002) and inter-rater reliability (ICC; Shrout and Fleis 1979) for all cases that had been rated by more than one teacher ($N = 58$). Results supported the criteria for aggregation (i.e. $r_{wg} > 0.70$; AD < 0.80 for a five-point scale; and a minimum of 0.12 for ICC; James 1982; LeBreton and Senter 2008) for both the dependent variables. Specifically, for creativity the ICC was 0.17, the average

r_{wg} was 0.83 and the average AD was 0.35, indicating very strong agreement among the raters. Similarly, for charismatic leadership the ICC was 0.19, the average r_{wg} was 0.80 and the average AD was 0.38, suggesting strong agreement. Thus, we aggregated teachers' responses on creativity and charisma per principal, and we used these aggregated scores in further analyses.

Analytic strategy

To test our mediation hypotheses, we performed path analyses with the AMOS software (Arbuckle 2005). The covariance matrix was analyzed using maximum-likelihood estimation. To reduce the complexity of the examined models, given our small sample size ($N = 84$), we used manifest variables for all constructs. This is a common technique followed in studies with small sample sizes and/or complex models (e.g. Taris, Schreurs and Van Iersel-Van Silfhout 2001; Xanthopoulou et al. 2009b). Guidelines regarding power issues suggest that a minimum of five observations per parameter is required in path analysis (Bentler and Chou 1987). By using manifest variables, a maximum of 14 parameters had to be estimated in our models, meaning that we had sufficient power to perform our analyses ($14 \times 5 = 70 < 84$).

Considering that in our study 'job resources', 'personal resources' and 'work engagement' are conceptualized as higher-order factors with four, two and three underlying lower-order factors, respectively, we used their factor scores as manifest variables. First, we standardized the total score of each lower-order factor. Then, we conducted factor-level principal axis factoring (PAF) analysis on the four job resources, the two personal resources and the three work engagement dimensions separately. PAF analyses resulted in one job resources factor (42% of explained variance), one personal resources factor (76% of explained variance) and one work engagement factor (77% of explained variance). Factor loadings of the lower-order factors are presented in Table 1. The advantage of PAF is that it takes into account the degree to which each lower-order factor contributes to the overall factor (i.e. factor loadings), when calculating factor scores. In our models, the manifest 'job resources' variable represented the factor score of the four job resources scales, the manifest 'personal resources' variable represented the factor score of the two personal resources scales and the manifest 'engagement' variable represented the factor score of the three work engagement subscales. Note that Xanthopoulou et al. (2007) also provided evidence for these higher-order factors. Since creativity and

Table 1. Results of principal axis factoring analyses: standardized factor loadings of the second-order factors of each higher-order factor ($N = 84$).

Higher-order factors	*Job resources*	*Personal resources*	*Work engagement*
Opportunities for professional development	0.76		
Social support	0.62		
Autonomy	0.61		
Feedback	0.59		
Self-efficacy		0.87	
Resiliency		0.87	
Dedication			0.93
Vigor			0.85
Absorption			0.84

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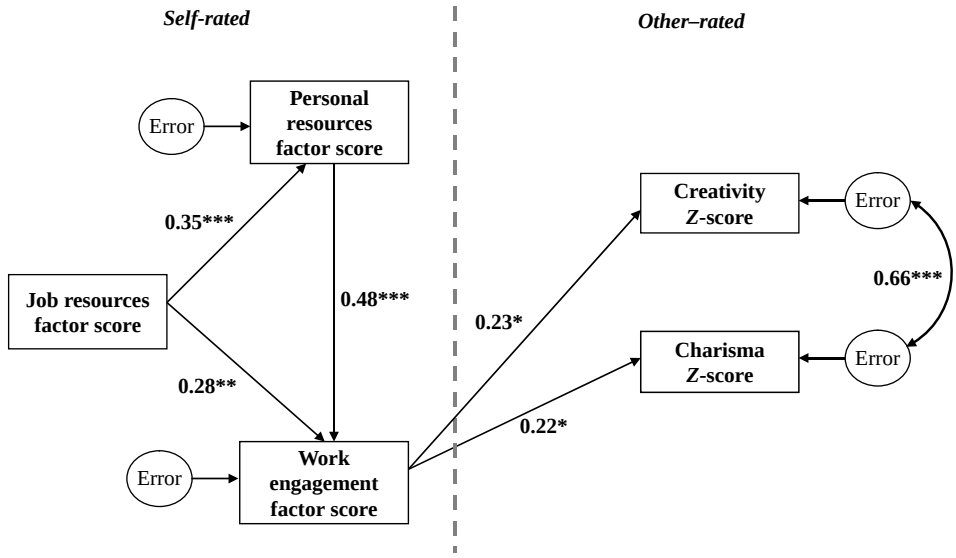

Figure 2. Standardized path coefficients of the final model. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

charismatic leadership are unidimensional constructs, we used their standardized scores as manifest variables. Figure 2 depicts the path model.

To test our hypothesis, a series of nested models were fit to the data. The fit of these models was assessed with the chi-square (χ^2) statistic, the goodness of fit index (GFI) and the root mean square error of approximation (RMSEA). In addition, two other, less sensitive to sample size, fit indices were used: the comparative fit index (CFI) and the incremental fit index (IFI). For the RMSEA, values up to 0.08 represent reasonable errors of approximation (Browne and Cudeck 1993). For the other statistics, values of 0.95 or higher indicative good fit (Hu and Bentler 1999).

Results

Descriptive statistics

Means, standard deviations, correlations among standardized scores of the variables, as well as Cronbach's α values of the scales are presented in Table 2. The skewness and kurtosis values of all variables were below 1.0, suggesting normal distribution. Table 2 shows that demographic variables were not significantly related to any of the study variables. These were therefore excluded from further analyses.

Test of hypotheses: path analyses

To test the hypothesized mediation effects, Baron and Kenny's (1986) approach was followed. Accordingly, there are four steps in establishing a significant mediation effect. First, the predictor and the outcome should be significantly related. Second, the predictor must be significantly related to the mediator. Third, the mediator should be significantly related to the dependent variable. Finally, mediation is supported when the relationship between the predictor and the outcome becomes significantly weaker (partial mediation) or nonsignificant (full mediation), after the inclusion of the mediator. Considering that the mediation effect of Hypothesis 1 is part of the process of Hypothesis 2 (a and b), we examined both the hypotheses simultaneously.

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Table 2. Means, standard deviations, standardized Cronbach's α values (on the diagonal) and correlations[a] among the study observed variables ($N_{principals} = 84$, $N_{teachers} = 190$).

	Observed variable	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1	Age	48.31	6.41	–													
2	Tenure	8.09	7.25	0.54**	–												
3	Marital status	1.80	0.98	−0.15	−0.17	–											
4	Autonomy	4.07	0.64	−0.02	0.05	−0.02	(0.84)										
5	Social support	3.84	0.82	−0.16	0.02	−0.06	0.40**	(0.71)									
6	Feedback	3.59	0.76	0.20	0.08	−0.10	0.37**	0.32**	(0.81)								
7	Opportunities for professional development	4.28	0.62	−0.04	0.04	−0.06	0.43**	0.48**	0.47**	(0.85)							
8	Self-efficacy	3.33	0.40	0.15	0.05	−0.02	0.26*	0.16	0.31**	0.13	(.88)						
9	Resiliency	3.14	0.39	−0.04	−0.01	−0.07	0.20	0.32**	0.20	0.34**	0.52**	(0.80)					
10	Vigor	4.49	0.78	−0.02	−0.06	−0.03	0.30*	0.49**	0.25*	0.37**	0.43**	0.56**	(0.80)				
11	Dedication	4.81	0.89	0.05	0.06	−0.04	0.23*	0.47**	0.29**	0.45**	0.34**	0.57**	0.72**	(0.88)			
12	Absorption	3.95	0.94	0.07	−0.05	−0.05	0.06	0.20	0.14	0.18	0.26*	0.48**	0.53**	0.71**	(0.73)		
13	Creativity[b]	3.71	0.49	−0.06	−0.10	0.14	0.13	0.11	0.07	0.29**	0.11	0.17	0.26*	0.14	0.22*	(0.87)	
14	Charisma[b]	3.74	0.61	0.01	−0.11	0.12	0.16	0.13	0.19	0.29**	0.14	0.23*	0.14	0.17	0.27*	0.68**	(0.87)

*$p < 0.05$, **$p < 0.01$.
[a] Correlations are based on standardized scores.
[b] Creativity and charisma scores are aggregated.

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Preliminary analyses regarding the above-mentioned prerequisites for mediation showed that job resources related positively to all other variables (personal resources: $\gamma = 0.35, p < 0.001$; work engagement: $\gamma = 0.44, p < 0.001$; creativity: $\gamma = 0.23, p < 0.05$; charisma: $\gamma = 0.27, p < 0.01$). Next, personal resources related positively to work engagement ($\gamma = 0.57, p < 0.001$) and charismatic leadership ($\gamma = 0.21, p < 0.05$), but not to creativity ($\gamma = 0.16, p = 0.14$). Finally, work engagement related positively to both creativity ($\gamma = 0.23, p < 0.05$) and charismatic leadership ($\gamma = 0.22, p < 0.05$). These results satisfy the prerequisite conditions for both the mediation hypotheses with the exception of the effect from personal resources to creativity through engagement. This effect is rejected since personal resources are not significantly directly related to creativity. However, following the recommendation by Mathieu and Taylor (2006), in that case we may examine the alternative hypothesis of the indirect effect of personal resources to creativity via engagement.

To test our hypotheses, we compared the full mediation model (job resources → personal resources → work engagement → creativity and charismatic leadership) with the partial mediation model (similar to the full mediation model with additional paths from job resources to work engagement, creativity and charisma; and from personal resources to charisma). Table 3 shows that the partial mediation model (M2) fit significantly better than the full mediation model (M1) implying that the data supports partial mediation. However, it should be noted that M2 is an almost saturated model. It is therefore not surprising to find that this model fits very well to the data. Furthermore, the only direct effect that remained significant was the effect from job resources to work engagement ($\gamma = 0.28, p < 0.01$), which is in line with Hypothesis 1. The rest of the direct effects turned to nonsignificance after the inclusion of the mediators. Specifically, the effects from job resources to creativity ($\gamma = 0.16, p = 0.19$), from job resources to charisma ($\gamma = 0.21, p = 0.07$) and from personal resources to charisma ($\gamma = 0.08, p = 0.41$) were no longer significant, suggesting full mediation. Therefore, we examined a final model without these nonsignificant direct paths. As shown in Table 3, this final model (M3) had an acceptable fit and did not fit significantly better than the partial mediation model (M2). This result is in line with the support of full mediation because the inclusion of the direct paths does not seem to improve the fit of the model (Holmbeck 1997). The standardized path coefficients of the final model are presented in Figure 2.

The results of the SEM analyses in combination with the Sobel test suggest that (1) personal resources partially mediated the relationship between job resources and work engagement ($t_a = 3.40, t_b = 5.25, z = 2.85, p < 0.01$) supporting Hypothesis 1; (2) work engagement fully mediated the relationship between job resources and creativity ($t_a = 4.49, t_b = 2.19, z = 1.97, p < 0.05$), but not between job resources and charisma ($t_a = 4.49, t_b = 2.03, z = 1.85, ns$); (3) personal resources had an indirect effect on creativity through work engagement ($t_a = 6.40, t_b = 2.19, z = 2.07, p < 0.05$); and (4) work engagement fully mediated the relationship between personal resources and charisma ($t_a = 6.40, t_b = 2.03, z = 1.94, p = 0.05$). Thus, these findings also provide evidence for Hypothesis 2 (a and b) by showing that job resources facilitate school principals' creativity and charismatic leadership behavior through their subsequent effect on personal resources and work engagement.

Additional analyses

Given the small sample size of the present study, we performed additional bootstrap analyses (Shrout and Bolger 2002) to control for the robustness of our findings.

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Table 3. Results of path analyses (maximum-likelihood estimates; $N = 84$).

Model	χ^2	*df*	*GFI*	*RMSEA*	*CFI*	*IFI*	*Model comparison*
M1: Full mediation (JR → PR → WE → creativity/charisma)	12.84	5	0.95	0.14	0.92	0.93	–
M2: Partial mediation (JR → PR → WE → creativity/charisma and JR → WE /creativity/charisma and PR → charisma)	0.02	1	1.00	0.00	1.00	1.00	M1–M2: $\Delta\chi^2$ (4) = 12.82*
M3: Final (JR → PR → WE → creativity/charisma and JR → WE)	4.18	4	0.98	0.02	0.99	0.99	M1–M3: $\Delta\chi^2$ (1) = 8.66* M2–M3: $\Delta\chi^2$ (3) = 4.16

Note: JR, job resources; PR, personal resources; WE, work engagement; Df, degrees of freedom; GFI, goodness-of-fit index; RMSEA, root mean square error of approximation; CFI, comparative fit index; IFI, incremental fit index. *$p < 0.01$.

We reexamined the final model that resulted from our previous analyses by using bootstrap maximum-likelihood estimation with 2000 resamples and 95% confidence intervals (CIs) around indirect effects. Mediation is supported when CIs do not contain zero. Analyses supported the effect of job resources on work engagement via the partial mediation of personal resources. The CIs of the indirect effect of job resources on work engagement ranged from 0.055 to 0.291 (standardized estimate $= 0.17$; $p = 0.005$), while the effect of job resources on work engagement was also significant (standardized estimate $= 0.28$; CIs ranged from 0.306 to 0.623; $p = 0.001$). Furthermore, the indirect effects of job resources on creativity (standardized estimate $= 0.10$; CI ranged from 0.011 to 0.237; $p = 0.03$) and charisma (standardized estimate $= 0.10$; CI ranged from 0.001 to 0.245; $p = 0.05$) via personal resources and work engagement were also supported.

Discussion

The present study among female school principals provides evidence for an overall model that examines simultaneously the main antecedents and outcomes of work engagement. Furthermore, this is one of the first studies that examined the role of engagement for creative task performance and charismatic leadership – important characteristics of successful leaders (Bass 1985; Oldham 2003). Although the results are not informative about the direction of the effects, our findings are based on theoretical assumptions and do suggest that job resources facilitate employees' sense of self-efficacy and resiliency, and consequently foster work engagement. In addition, the results clearly show that engaged school principals are considered by their subordinate teachers as charismatic and creative.

Theoretical contributions

The present study makes three main theoretical contributions. First, as far as we know, this is the first study that tested a full process model in which job resources are positively related to creative performance and quality leadership through personal resources and work engagement. Previous studies examined only parts of this motivational process (e.g. Salanova et al. 2005; Xanthopoulou et al. 2008, 2009b), used other job resources and did not use resiliency as a personal resource in such a process model. School principals, who reported a relative high number of job resources in their work environment, including autonomy, social support, performance feedback and opportunities for professional development, were more self-efficacious and resilient. These self-beliefs were positively related to their work engagement. Finally, their teachers perceived engaged principals as more creative and more charismatic.

These findings illustrate the importance of a resourceful work environment. Furthermore, our findings shed light on the process through which personal resources translate into enhanced performance. Meta-analyses have shown that modifiable personal resources (including optimism, hope, self-efficacy and resiliency) are positively related to performance (Judge and Bono 2001; Luthans, Avolio, Avey and Norman 2007). Our results illustrate that work engagement explains this effect. Individuals who are highly efficacious and resilient are more likely to become vigorous, dedicated and absorbed by their work – the motivational experience that brings out the best in people.

A second contribution of this study is the evidence for a positive relationship between work engagement and other-ratings of creative task performance. The engagement–creativity relationship may be ascribed to both the ability and motivation to excel. Considering that engagement is an affective–motivational experience, the positive

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relationship between work engagement and creativity is in line with Fredrickson's (2001) broaden-and-build theory. Accordingly, positive affect broadens individuals' thought–action repertoires, which is a prerequisite for creative performance (Isen 1999). In addition, happy people are in possession of past skills and other resources, which they have built over time during previous pleasant moods. This engagement–creativity relationship offers support for Salanova et al.'s (2010) view that work engagement may broaden people's thought–action repertoires by creating the urge to expand the self through learning and goal fulfillment (cf. Fredrickson 2001).

Third, for the first time the present study examined charismatic leadership as a possible outcome of work engagement. The findings indicate that engaged leaders are considered by their subordinates to be charismatic leaders. Charismatic leaders develop a view of the future that will excite and convert potential followers. This vision is constantly sold to followers – a process that takes energy and commitment, as few people will immediately get into a vision that is different from their own. Charismatic leaders take every opportunity to convince their employees to get involved with the goals of the organization (Bass 1985). Therefore, it is more likely for leaders to engage their followers, when they are themselves highly engaged. Thus, our findings underscore important correlates of leader engagement. Previous studies have shown that employees with transformational leaders are more satisfied and more motivated, and they perform better (Judge and Piccolo 2007). Moreover, a recent study suggests that transformational leadership fosters follower work engagement (Babcock-Roberson and Strickland 2010; Tims et al. 2011). Our findings suggest that leaders' work engagement may influence followers' engagement through charismatic leadership behaviors. It would be interesting to expand our process model in future research with such a crossover link to employee engagement.

Limitations, strengths and avenues for future research

Some limitations of our study should be noticed. One limitation is the use of self-reports for the first part of our hypothesized model, implying a risk of common method variance. However, our findings were in line with theoretical predictions and with earlier findings, while the moderate correlations among the study variables suggest that common method variance should not be a serious threat in our study. Also, the use of other-ratings of creativity and charismatic leadership is a strong point of this study that adds to the robustness of our findings.

Another limitation of the present study is that the participating school principals chose the teachers who reported about their performance themselves. Although participants were explicitly asked to choose randomly among the teachers with whom they interacted on a regular basis, we cannot rule out the possibility that they asked the teachers they liked to coparticipate in the study. Mutual liking was not measured in the present study and thus it is not possible to evaluate its potential effect on our findings. However, the mean scores of creativity and charisma (which are not extremely high) and the standard deviations on both variables (which are not extremely low) suggest that biased effects due to liking are not a likely problem in this study. Nevertheless, the role of mutual liking in the link between work engagement and other-ratings of performance should be taken into account in future studies.

Furthermore, our sample included female school principals only. This restricts the generalizability of our findings. Future studies should try to replicate our study among male and female employees of several other occupational groups. Finally, due to the cross-sectional nature of the study, conclusions regarding causality should be considered with

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caution, while certain reversed effects may also stand theoretically. For instance, one may correctly suggest that charismatic and engaged leaders are able to create their own job resources, and this could be the reason why they are engaged (see Babcock-Roberson and Strickland 2010). However, we do believe that engagement is mainly the initiator of quality leadership because leaders who are not engaged cannot act as role models of engagement (i.e. a prerequisite of charisma) for their followers.

Sonnentag et al. (2010) and Salanova et al. (2010) have argued that engagement is not just 'happening' to employees, but rather that employees can actively create their own engagement experiences. As Grant and Ashford (2008, p. 3) put it, 'Employees do not just let life happen to them. Rather, they try to affect, shape, curtail, expand and temper what happens in their lives'. Thus, employees may actively change the design of their jobs by choosing tasks, negotiating different job content and assigning meaning to their tasks or jobs (Parker and Ohly 2008). It is our view that particularly engaged employees will manifest such behavior.

Wrzesniewski, McCauley, Rozin and Schwartz (1997) suggest that employees who view their work as a calling (i.e. focus on enjoyment or fulfillment) are more likely to engage in such 'job crafting' behaviors because work is more central to their lives. In a similar vein, engaged employees may be more inclined to proactively mobilize their job resources so that their performance is optimal. It would be interesting to expand our process model and to examine the strategies employees use to increase or conserve their own work engagement. Are engaged employees better able to mobilize their job resources? Do they search actively for feedback about their performance? Future studies on engagement and job crafting may answer the question whether engaged employees create gain spirals.

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Practical implications

Schools in particular and organizations in general should be interested in work engagement, since engaged leaders are perceived by their followers to be creative performers. The present study offers a theoretical framework with which management can build engagement in their organizations. The findings indicate that management may facilitate engagement by offering sufficient job resources (such as feedback and opportunities for development), since job resources foster self-efficacy and resiliency. Moreover, our findings clearly show that engaged leaders are not only creative but also perceived as charismatic. This may suggest that the engagement of leaders may encourage the engagement and job performance of followers through vicarious learning and the communication of a clear vision. In other words, engaged leaders themselves may represent a crucial resource for their followers.

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