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Does an intrinsic work value orientation strengthen the impact of job resources? A perspective from the Job Demands–Resources Model

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Based on assumptions of the Job Demands–Resources model and the Person–Environment fit literature, the present research conceptualizes an intrinsic relative to an extrinsic work value orientation as a personal resource. We examine whether such an orientation may strengthen the relations of classical job resources (i.e., autonomy and learning opportunities) with well-being outcomes. The results in a large, representative sample of Dutch employees ($N = 4009$) show that a predominant intrinsic work orientation strengthened the negative association of learning opportunities with emotional exhaustion as well as the buffering role of autonomy for the health-impairing impact of workload. With respect to work engagement, a predominant intrinsic work orientation strengthened the positive association of autonomy, the expected boosting impact of workload on the stimulating association of autonomy, as well as the—rather unexpected—attenuating impact of workload on the positive association of learning opportunities with work engagement. Although not all hypotheses were confirmed, in general, results point at the

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importance and practical relevance of personal resources in the realm of the Job Demands–Resources model.

Keywords: Emotional exhaustion; Extrinsic work values; Intrinsic work values; Job demands–resources model; Personal resources; Work engagement.

Most job characteristics models, such as the encompassing Job Demands–Resources model (JD-R model; Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) consider work characteristics as the most important predictors of stress symptoms and well-being at work. Recently, however, there has been a growing interest in the role of personal resources in the relationships between job characteristics and employees' well-being in general (Grant, 2008) and in the JD-R model in particular (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Personal resources (e.g., hope, optimism) may herein be conceptualized as individuals' strengths or assets that contribute to optimal functioning (Youssef & Luthans, 2007). To date, personal resources have been modelled as (1) antecedents of job demands and job resources, (2) mediators of the association between job resources and emotional exhaustion as well as work engagement, and (3) moderators of the association between job demands and emotional exhaustion (e.g., Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008b; Xanthopoulou et al., 2007).

The present study aims to add to the understanding of the role of personal resources in the JD-R model by examining whether personal resources may also strengthen the impact of job resources. Specifically, building upon the Person–Environment (P-E) fit literature (Kristof-Brown, Zimmerman, & Johnson, 2005; Warr, 1994), we conceptualize a predominant intrinsic work value orientation as a personal resource. A predominant intrinsic work value orientation refers to attaching primary importance to substantive aspects of the work, such as autonomy and learning opportunities (Feather & O'Brien, 1986; Malka & Chatman, 2003). According to the P-E fit literature, the fit between employees' personal values and the characteristics of their jobs may be a crucial determinant of their well-being. Intrinsic work values are considered particularly beneficial as they relate directly to employees' well-being and may strengthen the impact of important intrinsic job resources (e.g., task autonomy).

Although several studies have provided evidence for the significant health-enhancing effects of an intrinsic work value orientation (e.g., Knoop, 1994a, 1994b; Warr, 1992), only few examined its role as a moderator in the relationship between job resources and work-related well-being (Warr, 1994). The present study aims to fill this void. Before detailing the rationales for our hypotheses, we first present the JD-R model and the concept of an intrinsic work value orientation.

PERSONAL RESOURCES IN THE JOB DEMANDS–RESOURCES MODEL

The JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) is a rather recently developed job characteristics model. It builds on previous job characteristics models such as the Job Demands–Control Model (Karasek, 1979) and the Effort–Reward Imbalance model (Siegrist, 1996) by assuming that various work characteristics may influence employees' work-related well-being. This variety of job characteristics can be meaningfully divided into two broad categories: job demands and job resources.

Job demands refer to all physical, psychological, or social job factors that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs, such as emotional exhaustion and strain. Job resources include all physical, psychological, and social job characteristics that (1) reduce job demands and their health-impairing impact, (2) are functional in achieving work goals, and (3) stimulate personal growth and development (Bakker & Demerouti, 2007). Both categories of job characteristics may include aspects of one's task (e.g., cognitive demands, skill utilization), work team (e.g., role conflict, social support), or organization at large (e.g., organizational change, supportive climate).

In the JD-R model, job demands and job resources relate to employees' well-being via two different processes (Bakker & Demerouti, 2007). First, the presence of job demands is expected to be energy depleting, and to lead to chronic fatigue and burnout over time. Second, job resources are assumed to be intrinsically or extrinsically motivating and therefore to enhance work engagement (Bakker & Demerouti, 2007). Work engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication and absorption" (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p. 74). It is considered to be complementary to, yet different from, the absence of burnout (González-Romá, Schaufeli, Bakker, & Lloret, 2006). In addition, the JD-R model specifies that job resources may also decrease the probability of burnout (Schaufeli & Bakker, 2004). This is in line with the assumption that motivation and energy may be closely intertwined (Van den Broeck et al., 2008b) and the ample empirical research in the burnout literature (Halbesleben & Buckley, 2004).

Apart from their main effects, job demands and job resources may also interact in the prediction of burnout and work engagement. Whereas job demands may boost the impact of job resources on work engagement (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007), job resources may assist to offset the health-impairing impact of job demands on burnout (Bakker, Demerouti, & Euwema, 2005). Extant research has provided support for the relationships between job demands, job resources, burnout,

and work engagement as hypothesized in the JD-R model (see Bakker & Demerouti, 2007, for an overview). These results have been found both concurrently and over time, in different professional groups and sectors, and when job-specific as well as more common job demands and job resources were examined.

In addition to the focus on job demands and job resources, recent research has started paying attention to the role of personal characteristics in the JD-R model (e.g., Xanthopoulou et al., 2007). It has been argued that employees not only rely on *job* resources (e.g., learning opportunities) to achieve work goals, but might also benefit from having *personal* resources (e.g., eagerness to learn). The framing of personal characteristics as resources is founded on the Conservation of Resources (COR) theory which includes, besides objects, conditions, and energies, also personal characteristics as potential resources (Hobfoll, 1989, 2002). According to the COR theory, personal characteristics may be resources to the extent that they are highly valued aspects of the self or to the extent that they provide access to other valued objects. Personal resources may thus be defined as all personal characteristics that are positively related to resilience and contribute to individuals' potential to successfully control and influence the environment (Hobfoll, Johnson, Ennis, & Jackson, 2003).

Previous theoretical and empirical research has focused upon three different roles of personal resources in the relationships between job demands, job resources, and employees' well-being as specified in the JD-R model. First, personal resources are assumed to reduce job demands and increase job resources, as personal resources might influence employees' awareness and comprehension of both job characteristics categories (Judge, Locke, & Durham, 1997).

Second, personal resources are assumed to attenuate the relationship between job demands and burnout (Xanthopoulou et al., 2007). This assumption is based on the postulate of the COR theory that individuals strive to build and protect a resource pool that enables them to cope with threatening circumstances and protect them against the aversive effects of negative events such as job demands (Hobfoll, 2002). In this view, personal resources may thus play a similar role as job resources in preventing the negative impact of job demands on employees' well-being. Different studies have found empirical evidence for the role of personal resources as buffers for job demands. Mäkikangas and Kinnunen (2003), for example, showed that self-esteem and optimism may moderate the relationship between job demands such as time pressure and psychological distress. Similar results have been obtained for, among others, positive affect and organizational based self-esteem (e.g., Hui & Lee, 2000; Lu, 1999).

Third, personal resources are considered to mediate the association between job resources on the one hand and burnout and work engagement

on the other hand. This assumption also aligns with COR theory, which assumes that the availability of resources will facilitate the accumulation of resources. Various studies supported this assumption empirically. For instance, Xanthopoulou and colleagues (2007) confirmed that self-efficacy, organizational based self-esteem, and optimism mediated the relationships between job resources, emotional exhaustion, and work engagement. Similar results have been found for basic psychological need satisfaction, as defined in Self-Determination Theory (Van den Broeck et al., 2008b). Together these findings add to previous research supporting the mediating role of self-efficacy as a personal resource in the relation between job resources and work engagement (Llorens, Schaufeli, Bakker, & Salanova, 2007).

To date, no studies in the realm of the JD-R model have however theorized or examined the moderating influence of personal resources in the association between job resources and employees' well-being. Such an influence could however be derived from the Person-Environment (P-E) fit literature (Kristof-Brown et al., 2005; Warr, 1994), which suggests that employees' values may alter the impact of job characteristics. The current study aims to frame an intrinsic work value orientation as a personal resource to examine this issue.

INTRINSIC WORK VALUE ORIENTATION AS A PERSONAL RESOURCE

Employees may value work for various reasons. Some employees hold an extrinsic work value orientation and highly value external aspects of work, such as income, status, and favourable working conditions. Others are intrinsically oriented and value work predominantly for intrinsic aspects, such as autonomy, variety, or skill utilization. Still others may hold both an extrinsic and intrinsic work value orientation (Feather & O'Brien, 1986; Malka & Chatman, 2003).

Holding an intrinsic (as opposed to an extrinsic) work value orientation is considered particularly beneficial: Employees valuing intrinsic job aspects are oriented towards being creative, learning new skills, and self-direction, which may contribute to their job satisfaction and enthusiasm and may prevent them from becoming stressed or depressed (Knoop, 1994a, 1994b; Tuch & Martin, 1991; Warr, 1992). This may be because an intrinsic work value orientation allows for the fulfilment of the basic needs for autonomy, competence, and relatedness as suggested in Self-Determination Theory (Vansteenkiste et al., 2007). An extrinsic work value orientation, in contrast, is less likely to satisfy these needs (Vansteenkiste et al., 2007), and therefore adds little to employees' optimal functioning (Knoop, 1994a, 1994b; Tuch & Martin, 1991).

An intrinsic work value orientation might however not only affect employees' functioning directly. According to Expectancy-Value Theory (EVT; Feather, 1990; Vroom, 1964), values may also affect how people feel attracted to and behave in particular situations (Feather, 1990). They may therefore assist employees to control and influence the environment as outlined in the definition of personal resources (Hobfoll et al., 2003). The P-E fit literature (French, Kaplan, & Harrison, 1982; Kristof-Brown et al., 2005) maintains that such an influence is most likely when employees' personal characteristics fit the environment.

According to the P-E fit literature, different types of P-E fit may exist, including the congruence between (1) the values of the employees and the organization, (2) the environmental demands and the employees' abilities, and (3) the environmental supplies and the employees' values. The latter, also called supply-value fit, has particular resonance for this study. It pertains to a form of complementary fit: The environmental supplies match with individuals' orientation and vice versa. According to French et al. (1982), organizational supplies may refer to all intrinsic and extrinsic resources and rewards available in the organization. Complementary to employees' intrinsic work values, the current study focuses upon intrinsic job resources, and more specifically, upon learning opportunities and task autonomy, as these job resources are arguably most frequently studied in the JD-R model.

The P-E fit literature holds that stress may arise when the environmental supplies fall short of employees' values. The match between the environments' supplies and employees' values may instead contribute to employees' optimal functioning (Edwards & Shipp, 2007). This is because values may shape the way in which employees view and use the available organizational supplies (Roe & Ester, 1999; Warr, 1987), which may then assist employees in attaining their goals (Schneider, 1987) and fulfilling their needs (Cable & Edwards, 2004). Intrinsic oriented employees may, for instance, view the implementation of a new computer programme as an opportunity to learn. They may therefore put additional effect in getting accustomed with the particular programme. As such, they move forward in achieving their goal of self-development, which fulfils their need for competence.

Similar assumptions about the beneficial effects of a match are held in various other work and organizational theories. The cybernetic approach, for instance, considers ill-being to result from a discrepancy between actual and desired end states (Cummings & Cooper, 1979). Furthermore, the COR theory regards the lack, the loss, or the potential loss of highly valued resources as primary causes of stress (Hobfoll, 2002). Locke (1976) assumes job satisfaction to result from the fulfilment of important job values. The importance of fit between environmental supplies and individuals' values is equally acknowledged in some older job characteristics models. Hackman

and Oldham (1976), for instance, suggests that job enrichment is particularly beneficial for employees' valuing growth; an assumption that was supported in the meta-analysis of Fried and Ferris (1987).

Despite the central role of the supply–value fit in the P-E fit literature (Edwards & Shipp, 2007), surprisingly little research examined this type of fit (Kristof-Brown et al., 2005). We could identify only one study in this regard. Specifically, Taris and Feij (2001) showed that the interaction between employees' intrinsic work values (e.g., autonomy, task variety, and responsibility) and the matching job characteristics was predictive for employees' job satisfaction and reduced turnover intention. This study, however, did not take job demands into account, which may also have a profound impact on employees' functioning (Bakker & Demerouti, 2007). Consequently, Taris and Feij also failed to examine whether an intrinsic work value orientation may also strengthen the impact of job resources as a buffer for the health-impairing impact of job demands and whether job demands boost the stimulating effect of job resources more strongly among intrinsically oriented employees. The current study, therefore, aims to extend this research, by integrating the match between intrinsic work values and intrinsic job resources in the broader perspective of the JD-R model.

PRESENT STUDY

The present study aimed to contribute to the understanding of the role of personal resources in the JD-R model by examining whether an intrinsic work value orientation may strengthen the associations of intrinsic job resources with emotional exhaustion, the main component of burnout (Maslach, Schaufeli, & Leiter, 2001) and work engagement. This assumption aligns with the notion of the P-E fit literature that a match between personal and job characteristics may lead to beneficial outcomes, as much as a misfit may result in unfavourable consequences (Parkes, 1994).

Specifically, based on the literature reviewed here, we first advocate that holding an intrinsic work value orientation may fortify the main effects of task autonomy and learning opportunities on emotional exhaustion and work engagement (i.e., two-way interactions between an intrinsic work value orientation and job resources). As regards task autonomy, this may be because an intrinsic work value orientation may encourage employees to really make use of the possibilities to take initiative and to actively participate in the decision making process, which in turn assists them in attaining the value of self-direction. In line with this view, it was shown that intrinsically oriented employees attaching high importance to being creative and learning new things refer predominantly to their own autonomous opinion in persuading others. Individuals valuing extrinsic job aspects, such as job security or economic returns, rely in the first place on their supervisors

(Blickle, 2000). Similarly, a match between an intrinsic work value orientation and the availability of learning opportunities may fuel employees learning process. Indeed, an intrinsic work value orientation has previously been found to relate positively to the willingness to follow additional training (Van den Broeck, Vansteenkiste, Lens, & De Witte, 2010) and to contribute to the learning process and the quality of learning (Baker, 2004). When employees are not provided with the resources they value, they might in contrast experience their job as energy depleting, which eventually results in emotional exhaustion and burnout (Maslach et al. 2001). Accordingly, we hypothesize:

Hypothesis 1a: A strong intrinsic work value orientation strengthens the negative relationships between job resources and emotional exhaustion; that is, for highly intrinsically oriented employees an increase in job resources is associated with a stronger decrease in emotional exhaustion than for less intrinsically oriented individuals.

Hypothesis 1b: A strong intrinsic work value orientation strengthens the positive association of job resources with work engagement; that is, for highly intrinsically oriented employees, an increase in job resources is associated with a stronger increase in work engagement than for less intrinsically oriented individuals.

We furthermore aim to explore whether an intrinsic work value orientation may also impact the interactions between job demands and job resources (i.e., three-way interactions between a predominant intrinsic value orientation, job resources, and job demands). First, we investigate whether an intrinsic work value orientation may strengthen the buffering role of job resources in the relation between job demands and burnout. Predominantly intrinsic oriented employees may indeed be particularly oriented towards managing intrinsic job resources to overcome obstacles and to offset the health-impairing impact of job demands on burnout. Previous research has provided evidence for such an effect of employees' motivation (Fernet, Guay, & Senécal, 2004). Moreover, some findings suggest that the buffering hypothesis *only* occurs when job resources match employees' personal characteristics (for a discussion on job control, see Burger, 1989). Indeed, a fit between personal resources, such as an active coping style and self-efficacy, has been indicated as a necessary condition for job control to attenuate the relationship between job demands and emotional exhaustion, whereas a misfit intensified the health-impairing impact of job demands (Rijk, Le Blanc, De Jonge, & Schaufeli, 1998; Schaubroeck, Jones, & Xie, 2001).

Second, a fit between a predominant intrinsic work value orientation and job resources may also fortify the boosting impact of job demands on the

association between job resources and work engagement. This may be because job demands may particularly prompt the use of job resources among predominantly intrinsically oriented employees as they already have a strong desire to act upon intrinsic job resources. This then results in particularly high levels of work engagement. Parker, Jimmieson, and Amiot (2010) recently found evidence for such intensifying impact of employees' motivation for the interaction among job control and role overload in the prediction of absorption, one of the components of work engagement. The present study aims to expand this research with respect to an intrinsic work value orientation. Accordingly, we hypothesize:

Hypothesis 2a: A strong intrinsic work value orientation strengthens the interaction between job resources and job demands on emotional exhaustion; that is, for highly intrinsically oriented employees, job resources play a stronger buffering role in the health-impairing association between job demands and emotional exhaustion than for less intrinsically oriented employees.

Hypothesis 2b: A strong intrinsic work value orientation strengthens the interaction between job resources and job demands on work engagement; that is, for highly intrinsically oriented employees, job demands play a stronger boosting role in the stimulating association between job resources and work engagement than for less intrinsically oriented employees.

Based on the P-E fit literature, a correspondence between extrinsic work values and extrinsic job resources (e.g., financial rewards; Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003; Demerouti et al., 2001) may be equally beneficial as the match between intrinsic work values and resources. In a first attempt to shed light on this issue in the realm of the JD-R model, we focus however upon intrinsic work values and intrinsic job resources: Intrinsic work values have been shown to be most beneficial (e.g., Knoop, 1994a, 1994b) and intrinsic job resources are most examined in the JD-R model (Bakker & Demerouti, 2007).

Intrinsic and extrinsic work value orientations generally do not exclude each other. From a theoretical point of view, employees can be both intrinsically and extrinsically oriented at the same time. Methodologically, however, the positive correlation between intrinsic and extrinsic work value orientations might also be due to the importance employees attach to work values in general (De Witte, 2000; Vansteenkiste et al., 2007). To examine the level of an intrinsic work value orientation as accurately as possible, it is therefore important to control for individuals' extrinsic work value orientation when analysing the effects of their intrinsic work value orientation.

METHOD

Procedure and participants

The data were obtained from the TNO Work Situation Survey of 2002. This survey is a written (“paper and pencil interviewing”) cross-sectional survey that measures the work situation in a random sample of the Dutch active working population between 15 and 65 years (Smulders, Andries, & Otten, 2001). The starting point was the large database of more than 45,000 working respondents from The Netherlands, operated by Intomart, a marketing agency. A stratified (by province, age, gender, and educational level) random sample of 8500 subjects was drawn from this database, and were contacted for participation. In total, 4009 respondents returned their questionnaire, resulting in an overall response rate of 45%. The sample was representative for the Dutch working population as respects gender, age, and sector of employment.

The total sample represented various sectors of employment including industry (18%), trade, hotel, and catering (18%), healthcare (14%), finance and services (12%), government (7%), and education (5%). It comprised 58% male participants. Participants’ age varied between 20 and 64 years ($M = 37.51$ years, $SD = 11.93$ years). Working experience in the current function varied between 1 month and 43 years ($M = 6.01$ years, $SD = 7.46$ years). The majority of the participants had completed secondary school (72%). About half of the participants worked full-time (44%). Most had a permanent contract (82%).

Measurements

All questionnaires were administered in Dutch, using well-validated translations of the applied measures (Smulders et al., 2001). All scales had an acceptable internal consistency (Table 1).

Job characteristics. We selected two task-related job demands (i.e., workload and emotional demands) and two job resources (i.e., job autonomy and learning opportunities) that are generally examined in the JD-R model (Bakker & Demerouti, 2007) and are common throughout different professions. Respondents rated to which degree they encountered each of the job characteristics on a 4-point Likert scale, ranging from 1 (“never”) to 4 (“always”).

Workload was measured with five items such as “I have a lot of work to do” (Van der Doef & Maes, 1999). Emotional demands were assessed with three items borrowed from Kristensen, Hannerz, Hogh, and Borg (2005). A sample item is “My job requires me to hide my feelings”. Job autonomy was assessed with five items in line with the decision latitude-questions from the

TABLE 1
Means, standard deviations, and correlations between job resources, emotional exhaustion, and work engagement (Cronbach alphas on the diagonal)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	0.57	0.49												
2. Age	37.50	11.93	.08***											
3. Education	3.94	1.08	-.06***	-.02										
4. Contract type	5.29	2.15	.49***	.26***	.13***									
5. Workload	2.41	0.58	.00	.17***	.13***	.20***								
6. Emotional demands	2.24	0.84	-.19***	.04*	.09***	-.09***	.18***							
7. Autonomy	2.84	0.67	.03	.23***	.15***	.22***	.05***	-.03*						
8. Learning opportunities	2.87	0.62	.13***	.26***	.18***	.35***	.24***	.11***	.31***					
9. Intrinsic values	3.33	0.46	.01	.10***	.10***	.15***	.15***	.04*	.20***	.35***				
10. Extrinsic values	3.45	0.44	-.09***	.07***	-.28***	-.06***	.01	0	-.11***	.02	.36***			
11. Emotional exhaustion	2.56	1.34	-.01	.04*	.05***	.10***	.33***	.17***	-.10***	-.01	.01	.03		
12. Work engagement	3.42	0.82	.03*	.28***	.02	.15***	.12***	.04**	.30***	.54***	.24***	.03*	-.30***	(.92)

* $p < .05$, ** $p < .01$, *** $p < .001$.

Job Content Questionnaire of Karasek (Goudswaard, Dhondt, & Kraan, 1998). A sample item is “Can you decide how to execute your tasks?” Learning opportunities was assessed with five items building on Karasek’s skill discretion scale, indicating to what extent work stimulated employees’ growth and development (Goudswaard et al., 1998; Houtman et al., 1995). A sample item is “Does your job give you the opportunity to learn new things?” Confirmatory Factor Analysis (CFA) using maximum likelihood estimation (Bollen, 1989) in Amos 5 (Arbuckle, 2005), favoured the four-factor model; $SBS-\chi^2(135) = 2410.59$, $p < .001$, $RSMEA = .06$, $CFI = .92$, which had better fit to the data than the one-factor model, $\Delta SBS-\chi^2(3) = 17120.93$, or the two-factor model differentiating between job demands and job resources, $\Delta SBS-\chi^2(2) = 9547.06$, all $ps < .001$.

Intrinsic and extrinsic work value orientation was measured with 11 items based on Herzberg (1959). Respondents were asked to indicate to what extent they valued each of the listed job aspects in general on a 4-point Likert scale ranging from 1 (“not very important”) to 4 (“very important”). The five items for an intrinsic work value orientation referred to intrinsic aspects of the job; that is, job autonomy, task variation, opportunities for learning and growth, and interesting work. Extrinsic work orientation was measured with six items referring to external aspects of the job; that is, rewards, favourable working conditions, job security, appropriate working hours, and social support from colleagues and supervisors. CFA confirmed the two-factor structure of these items: The two-factor model presented satisfactory fit to the data, $SBS-\chi^2(38) = 926.12$, $p < .001$, $RSMEA = .07$, $CFI = .90$, which was better than the fit of the one-factor model, $\Delta SBS-\chi^2(1) = 1196.90$, $p < .001$.

Well-being. Work engagement was measured using the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002), which includes nine items such as “At my work, I feel that I am bursting with energy”. Responses were given on a 7-point Likert scale, ranging from 0 (“never”) to 6 (“every day”). Emotional exhaustion was assessed using five items of the Utrecht Burnout Scale (UBOS; Schaufeli & Van Dierendonck, 2000). Response alternatives could be given on a 7-point Likert scale, ranging from 0 (“never”) to 6 (“every day”). The two-factor model differentiating emotional exhaustion from work engagement presented adequate fit to the data, $SBS-\chi^2(90) = 3393.46$, $p < .001$, $RSMEA = .09$, $CFI = .91$, which was better than the fit of the one-factor model, $\Delta SBS-\chi^2(1) = 10708.80$, $p < .001$.

Control variables. As gender, age, educational level, and weekly working hours have been shown to correlate significantly with work orientations as well as work outcomes (Van Ruysseveldt & Smulders, 2008; Warr, 2008), we controlled for these social-demographics when testing the hypotheses.

Gender was dummy-coded (0 = female, 1 = male). Age, educational level, and weekly working hours were treated as continuous variables with increasing numbers indicating that participants were older, more highly educated, and worked more hours per week, respectively.

Analyses

The hypotheses were examined through a series of multiple regression analyses (SPSS, Version 17), following the procedure of Aiken and West (1991). In a first step of the regression analyses predicting emotional exhaustion and work engagement, we entered the control variables to rule out alternative explanations. In a second step of the regression analyses, we included the main effects of job demands and job resources, in line with the propositions of the JD-R model. The third step included the interactions between job demands and job resources. Fourth, we added an intrinsic relative to an extrinsic work value orientation. Different approaches have been suggested to achieve such a relative score. For example, some scholars included a summary score of intrinsic and extrinsic values before entering intrinsic values in the regression analyses (Kasser & Ryan, 1996; Vansteenkiste et al., 2007). Others subtracted an extrinsic from an intrinsic work value orientation to control for their positive relation (Duriez, Vansteenkiste, Soenens, & De Witte, 2007; Sheldon & Kasser, 1998). We aligned with the latter approach, as we needed a single score reflecting the relative importance of intrinsic and extrinsic values to be able to examine its interaction effects.

The fifth step of the regression analyses included the two-way interaction terms between the job demands or the job resources on the one hand and an intrinsic relative to an extrinsic work value orientation on the other hand. This step allowed the testing of Hypotheses 1a and 1b. Finally, in the sixth step, we added the three-way interactions between job demands, job resources, and an intrinsic relative to an extrinsic work value orientation to test Hypotheses 2a and 2b. Following Cohen, Cohen, West, and Aiken (2003), all variables were mean centred and the interaction terms were computed as the products of the centred scale scores. When the three-way interactions were significant, we did not elaborate upon constituent two-way interactions in describing the results, for reasons of parsimony.

RESULTS

Table 1 shows the correlations between the variables. In line with the JD-R model, both job demands (i.e., workload and emotional demands) related positively to emotional exhaustion. The job resource of autonomy related negatively to emotional exhaustion. Rather unexpectedly, the relationship

between learning opportunities and emotional exhaustion was not significant. Both job resources related positively to work engagement, which aligns with the JD-R model. Intrinsic and extrinsic work values were moderately positively correlated, which confirms that both orientations are not mutually exclusive. Intrinsic work values related positively to all job characteristics, whereas extrinsic work value orientation was negatively related to autonomy. Neither intrinsic nor an extrinsic work values related to emotional exhaustion, but both values related positively to work engagement. Finally, emotional exhaustion and work engagement were negatively related.

Table 2 displays the final step of the multiple regression analyses for emotional exhaustion and for work engagement. With respect to emotional exhaustion, in accordance with the JD-R model, the job demands displayed positive relations, whereas the job resources were negatively related, in Step 2. The job characteristics categories explained considerable variance, after controlling for the demographic variables, which were included in Step 1. In Step 3, workload interacted with autonomy and learning opportunities, whereas emotional demands interacted with learning opportunities. Simple slope analyses for low (i.e., 1 *SD* below the mean) and high (i.e., 1 *SD* above the mean) workload and emotional demands in conditions of low (i.e., 1 *SD* below the mean) and high (i.e., 1 *SD* above the mean) learning opportunities confirmed the buffering hypothesis of the JD-R model: Both workload, $b_{\text{low}} = .50$, $SE = .03$, $t = 17.77$, $p < .001$; $b_{\text{high}} = .47$, $SE = .03$, $t = 17.26$, $p < .001$, and emotional demands, $b_{\text{low}} = .29$, $SE = .03$, $t = 10.00$, $p < .001$; $b_{\text{high}} = .18$, $SE = .03$, $t = 6.12$, $p < .001$, associated more strongly with emotional exhaustion under conditions of low instead of high learning opportunities. The interplay between workload and autonomy is commented upon later, as it was part of a significant three-way interaction (see Step 6).

In Step 4, an intrinsic relative to an extrinsic work value orientation did not explain additional variance in emotional exhaustion. However, as displayed in Table 2, it became significant in the final step of the regression analysis, which is probably due to a cooperative suppression effect. In Step 5, a two-way interaction was found of a predominant intrinsic work value orientation with workload, but not with emotional demands or autonomy. In line with Hypothesis 1a, however, learning opportunities interacted with a predominant intrinsic work value orientation: Learning opportunities were only negatively associated with emotional exhaustion among employees attaching much as compared to little importance to intrinsic relative to extrinsic work values, $b_{\text{low}} = .05$, $SE = .03$, $t = 1.57$, *ns*; $b_{\text{high}} = -.08$, $SE = .03$, $t = -2.49$, $p < .01$, which is also depicted in Figure 1.

Finally, in Step 6, evidence was found for one of the possible three-way interactions: The interaction between workload and autonomy was

TABLE 2
Standardized regression coefficients of job demands and job resources predicting
emotional exhaustion and work engagement

<i>Step</i>	<i>Emotional exhaustion</i>	<i>Work engagement</i>
1. Gender	-.01	-.04*
Age	-.01	.13***
Education	.05**	-.11***
Contract type	.12***	-.06***
R^2 change	.01***	.08***
2. Workload	.32***	-.01
Emotional demands	.15***	-.03*
Autonomy	-.11***	.13***
Learning opportunities	-.12***	.49***
R^2 change	.14***	.25***
3. Workload \times Autonomy	-.04*	.04**
Workload \times Learning opportunities	.06***	-.05**
Emotional demands \times Autonomy	-.01	-.03
Emotional demands \times Learning opportunities	-.05**	.03
R^2 change	.01***	.01***
4. Intrinsic values	-.04**	.06***
R^2 change	.01	.01***
5. Workload \times Intrinsic values	-.05**	.05**
Emotional demands \times Intrinsic values	.03	-.02
Autonomy \times Intrinsic values	-.03	.03*
Learning opportunities \times Intrinsic values	-.04**	.03
R^2 change	.01***	.01***
6. Workload \times Autonomy \times Intrinsic values	-.04*	.05**
Workload \times Learning opportunities \times Intrinsic values	.02	-.03*
Emotional demands \times Autonomy \times Intrinsic values	-.01	.01
Emotional demands \times Learning opportunities \times Intrinsic values	-.01	.03
R^2 change	.01*	.01***
F	35.25***	86.80***
$df1$	21	21
$df2$	3590	3561

"Intrinsic values" refer to the relative score of intrinsic versus extrinsic values. * $p < .05$, ** $p < .01$, *** $p < .001$.

significantly moderated by an intrinsic relative to an extrinsic work value orientation. As displayed in Figure 2 and in line with the buffer hypothesis of the JD-R model, autonomy attenuated the negative relation of workload with emotional exhaustion. This buffering effect was more strongly among employees holding a predominant intrinsic work value orientation, $b_{low} = .47$, $SE = .04$, $t = 11.61$, $p < .001$; $b_{high} = .35$, $SE = .04$, $t = 9.56$, $p < .001$, than among less intrinsically oriented employees, $b_{low} = .53$, $SE = .04$, $t = 14.53$, $p < .001$; $b_{high} = .49$, $SE = .05$, $t = 10.85$, $p < .001$, which provides evidence for Hypothesis 2a.

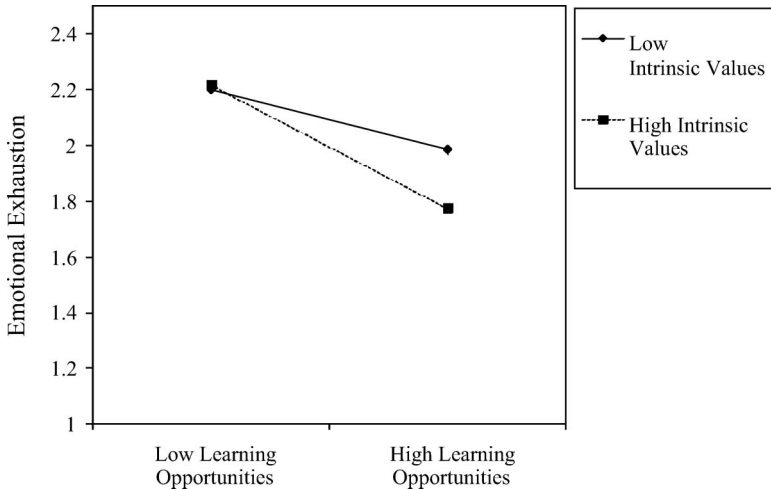


Figure 1. Interaction effects of intrinsic values and learning opportunities on emotional exhaustion.

With respect to work engagement, after controlling for the demographic variables in Step 1, the job characteristics explained considerable additional variance in Step 2. In line with the JD-R model, the job resources were positively related to work engagement. Emotional demands related negatively to work engagement, whereas workload was unrelated. In Step 3, both job autonomy and learning opportunities interacted with workload, but not with emotional demands. In Step 4, an intrinsic relative to extrinsic work value orientation related positively to work engagement. In Step 5, a predominant intrinsic work value orientation moderated the association between workload and work engagement. No such interaction was found for emotional demands. Furthermore, an intrinsic relative to an extrinsic work value orientation moderated the association between autonomy and work engagement, but not the impact of learning opportunities. Hypothesis 1b was therefore partially supported.

Finally, significant three-way interactions were found among an intrinsic relative to an extrinsic work value orientation, workload and both autonomy and learning opportunities. In line with Hypothesis 2b, the boosting impact of workload on the positive association between autonomy and work engagement was stronger among employees who highly favoured intrinsic work values, $b_{low} = .22$, $SE = .03$, $t = 8.83$, $p < .001$; $b_{high} = .31$, $SE = .02$, $t = 12.81$, $p < .001$, than among employees attaching little importance to intrinsic work values, $b_{low} = .19$, $SE = .02$, $t = 8.20$,

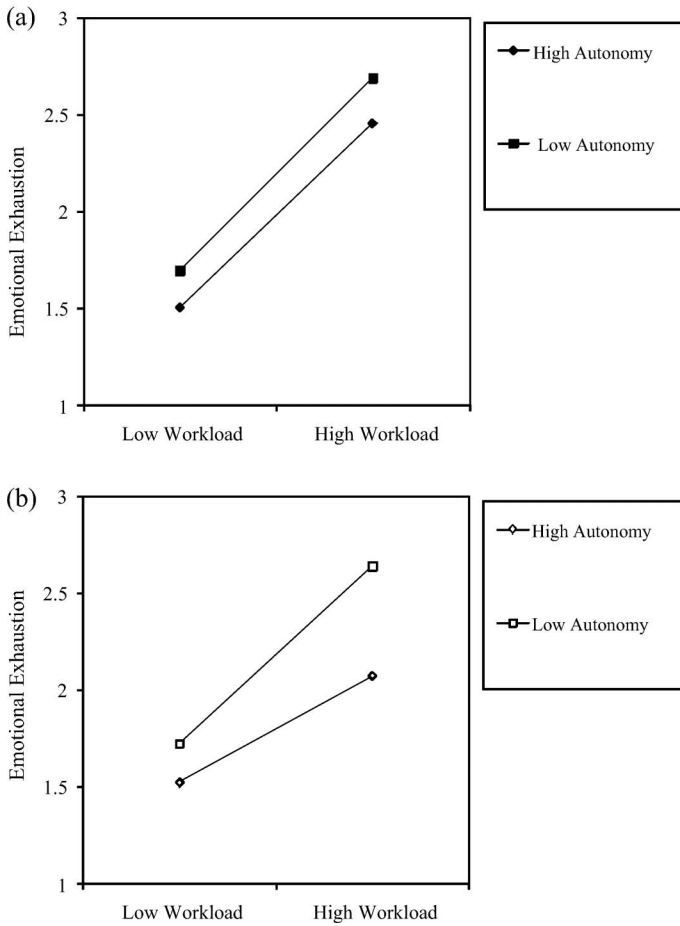


Figure 2. (a) Interaction effects of autonomy and workload on emotional exhaustion for lowly intrinsically oriented employees. (b) Interaction effects of autonomy and workload on emotional exhaustion for highly intrinsically oriented employees.

$p < .001$; $b_{\text{high}} = .21$, $SE = .03$, $t = 7.41$, $p < .001$, which is depicted in Figure 3. Contrary to the boosting hypothesis advocated in the JD-R model, however, workload attenuated the relationship between learning opportunities and work engagement. As shown in Figure 4, this effect was stronger among highly intrinsically oriented employees, $b_{\text{low}} = .49$, $SE = .02$, $t = 24.27$, $p < .001$; $b_{\text{high}} = .44$, $SE = .02$, $t = 20.64$, $p < .001$, than for their lowly oriented counterparts, $b_{\text{low}} = .43$, $SE = .02$, $t = 18.59$, $p < .001$; $b_{\text{high}} = .41$, $SE = .03$, $t = 16.19$, $p < .001$. No three-way interactions for emotional demands were found.

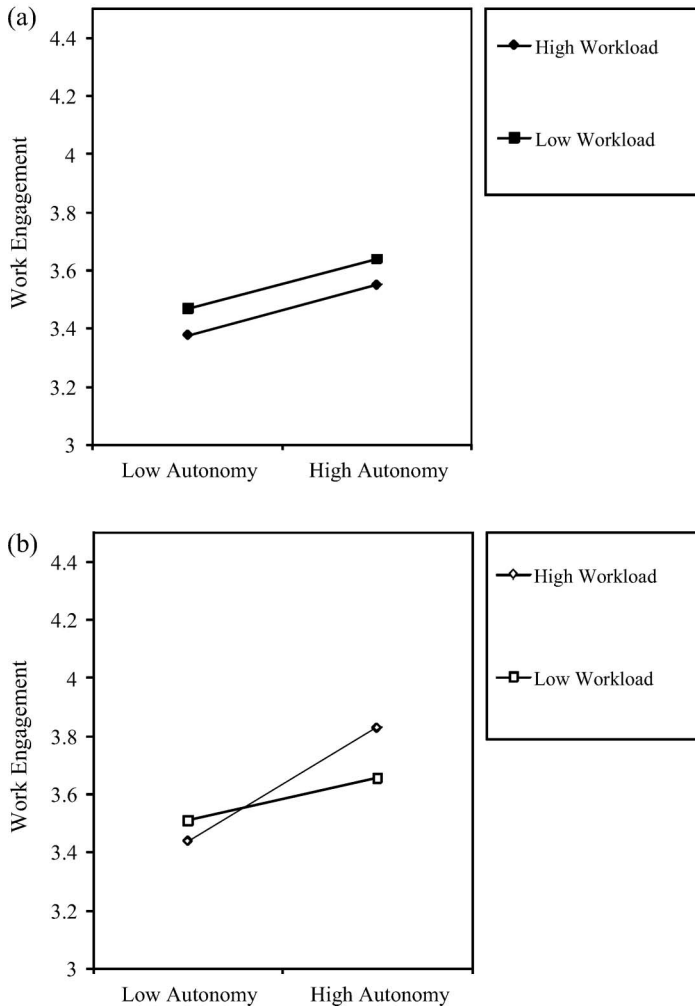


Figure 3. (a) Interaction effects of autonomy and workload on work engagement for lowly intrinsically oriented employees. (b) Interaction effects of autonomy and workload on work engagement for highly intrinsically oriented employees.

DISCUSSION

The present article aimed to add to the literature on the importance of personal resources in job characteristics models in general and the JD-R model in particular. Most studies in the realm of the JD-R model have focused on the role of personal resources (1) as an antecedent of job demands and job resources (Xanthopoulou et al., 2007), (2) as a buffer for

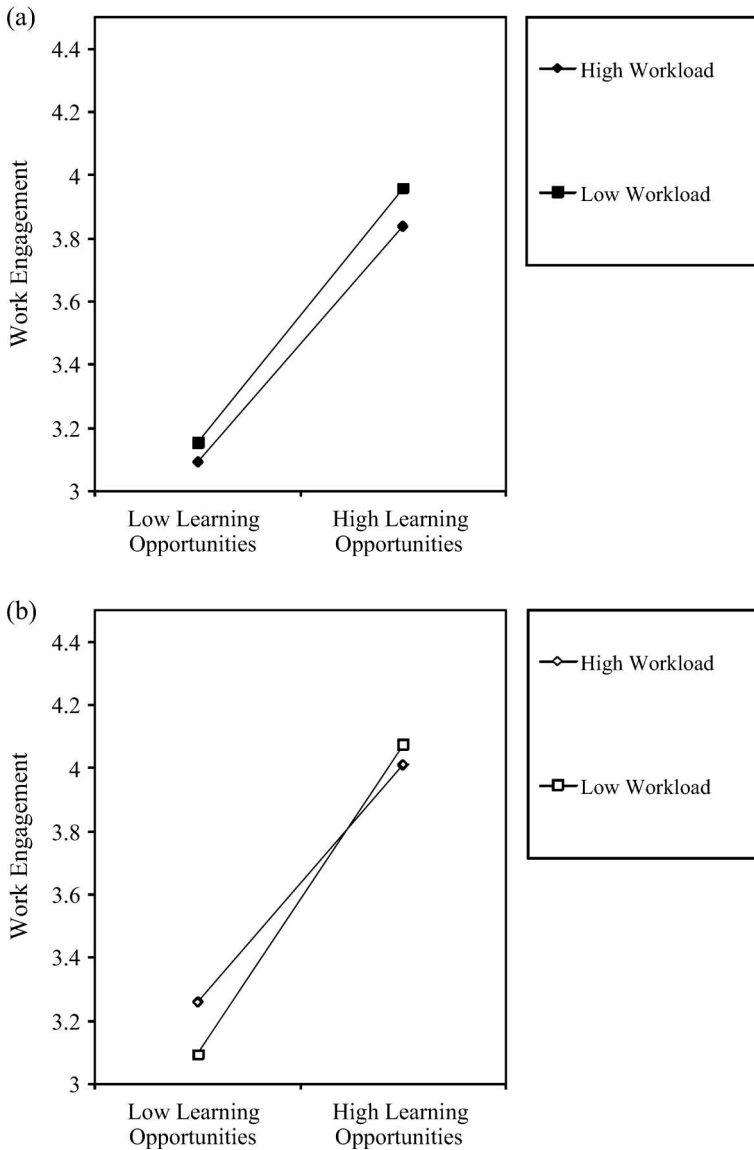


Figure 4. (a) Interaction effects of workload and learning opportunities on work engagement for lowly intrinsically oriented employees. (b) Interaction effects of workload and learning opportunities on work engagement for lowly intrinsically oriented employees.

the health-impairing impact of job demands (e.g., Hui & Lee, 2000; Xanthopoulou et al., 2007), or (3) as an explanatory process in the relationship between job resources and employees' poor (i.e., emotional

exhaustion, burnout) and optimal (i.e., work engagement) well-being (e.g., Llorens et al., 2007; Van den Broeck et al., 2008b; Xanthopoulou et al., 2007).

The present research aimed to go one step further and examined whether personal resources may also strengthen the impact of job resources on emotional exhaustion and work engagement. Specifically, based on the P-E fit literature, we examined employees' intrinsic relative to an extrinsic work value orientation, as such an orientation may assist employees to effectively act upon important matching intrinsic job resources (e.g., autonomy and learning opportunities). This most likely assists them to attain their intrinsic goals and to fulfil their needs (Kristof, 1996; Warr, 1994), which then prevents ill-being and contributes to well-being (Parkes, 1994).

First, results largely supported the JD-R model: The job demands (i.e., workload and emotional demands) related positively to emotional exhaustion, and the job resources (i.e., task autonomy and learning opportunities) related negatively to emotional exhaustion and positively to work engagement, after controlling for employees' background variables. In line with the buffer hypothesis, job resources also seemed to be able to offset the health-impairing impact of job demands: Three of the four interactions between workload, emotional demands, autonomy, and learning opportunities were significant; the exception was the interaction between autonomy and emotional demands.

Some evidence was also found for the boosting hypothesis of the JD-R model: Autonomy was particularly predictive of work engagement under conditions of high rather than low workload. The evidence for the boosting hypothesis was, however, limited to this particular relationship. The potential interactions between job resources and emotional demands failed to reach significance. Moreover, the interaction among learning opportunities and workload revealed the opposite pattern: Learning opportunities seemed most beneficial under conditions of low workload, and this for both high and low intrinsically oriented employees. These findings seem to call for more research into the boosting hypothesis, particularly because this hypothesis may be regarded as fairly new in the JD-R model (Bakker et al., 2007).

Second, as respects personal resources, results indicated that employees' intrinsic relative to an extrinsic work value orientation may have direct importance for employees' well-being and in particular work engagement. However, in line with previous research (Taris & Feij, 2001), this relationship was rather small, indicating that job demands and job resources are the most important predictors of employees' functioning. Although not the focus of this study, some evidence was found for the moderating role of a predominant intrinsic work orientation on the health-impairing impact of job demands: An intrinsic relative to and extrinsic work value orientation

moderated the associations between workload and emotional exhaustion as well as work engagement.

Most importantly, however, the current findings provided evidence for an additional role of personal resources, that is, an intrinsic relative to extrinsic work value orientation as a strengthener of the health-enhancing impact of job resources on emotional exhaustion and work engagement, which was the focus of the current study. Specifically, in line with Hypothesis 1, an intrinsic relative to an extrinsic work value orientation fortified the negative associations of learning opportunities with emotional exhaustion as well as the positive association of autonomy with work engagement. The results for the relations among autonomy and emotional exhaustion as well as learning opportunities and work engagement failed to reach significance ($ps = .08$ and $.07$, respectively), but revealed a similar trend. Moreover, the significant three-way interactions indicated that a predominant intrinsic work value orientation may be a critical resource for employees to use the available opportunities for autonomy to offset the exhausting impact of workload and to benefit optimally from autonomy when workload is high. These results lend partial support for Hypothesis 2.

In general, these findings support the assumption in the P-E fit literature (Kristof-Brown et al., 2005; Warr, 1994) that employees valuing particular job characteristics benefit more from the availability of such job aspects. They also extend this line of research by suggesting that the impact of fit goes beyond a mere strengthening of main effects, but may also affect how employees employ matching job characteristics to deal with other job features to enhance well-being. These results are in line with previous research pointing at the importance of employees' values to benefit from the availability of job resources. For example, Grant (2008) also found that fund raising callers holding strong prosocial values performed higher at the presence of task significance compared to their colleagues attaching little importance to such values. The results also confirm previous research attesting to the importance of employees' motivation for job resources to alter the impact of job demands (Fernet et al., 2004; Parker et al., 2010).

Limitations and future research directions

Some limitations of this study need to be noted. First, the results are based on self-report data, which might have increased the risk of overestimating the relations as a consequence of common method variance (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). CFA however indicated that such a contamination was rather limited: The uncontaminated model fitted the data better than the contaminated model; $\Delta SBS-\chi^2(36) = 518.05$, $p < .001$. Efforts were indeed made to limit potential problems of common method variance by, for instance, guaranteeing anonymity during data collection

(Podsakoff et al., 2003). Self-ratings seem the most feasible way to assess intrinsic and extrinsic values, as they represent subjective mental representations. To strengthen the results, future research might, however, employ a mix of subjective measurement of values and objective measurements of job demands and job resources (e.g., Demerouti et al., 2001).

A second limitation is that—due to the cross-sectional nature of the data—no conclusions regarding causality can be drawn. The present study, however, builds upon previous research establishing the causal relationships from job demands and job resources, to burnout and work engagement (e.g., Hakanen, Schaufeli, & Ahola, 2008). Future studies using a longitudinal design might strengthen our results.

Third, not all hypothesized interaction were significant. Few interactions were, for example, found among emotional demands and job and personal resources. Together with previous research (e.g., Fernet et al., 2004), the current findings seem to suggest that such two- and three-way interactions exist, but they simultaneously call attention to some boundary conditions. For example, the current results seem to indicate that the intensifying impact of an intrinsic versus extrinsic work value orientation only comes at play among particular job demands. This may perhaps align with a differentiation among two types job demands (i.e., job hindrances and job challenges), which was previously advocated (Podsakoff, LePine, & LePine, 2007), also in the realm of the JD-R model (Van den Broeck, Vansteenkiste, De Cuyper, & De Witte, 2010). Specifically, in this line of research workload has been indicated as a job challenge, which may have positive outcomes. Emotional demands, in contrast, has been labelled as a job hindrance, which yield only negative effects. The current results seem to suggest that personal resources may perhaps only affect the impact of job challenges, but future research is needed to clarify this issue.

A further limitation may be that the added explanatory power for the interaction between an intrinsic work value orientation and employees' intrinsic values was generally rather small (1% in most cases). This is, however, comparable to the explanatory power of the other interactions (e.g., between job demands and job resources) in the current study as well in others (e.g., Hakanen, Bakker, & Demerouti, 2005). Unlike in experimental research, it is thus not uncommon to find only small interaction effects in survey research, as was also suggested by McClelland and Judd (2003).

The current study focused on intrinsic work values and included a limited set of core job characteristics. Future research might aim to examine the role of an intrinsic relative to an extrinsic work value orientation on the relation between a broader set of job demands, including both job hindrances (i.e., role conflict) and job challenges (i.e., cognitive demands), as well as job resources (i.e., role clarity, social support from colleagues) and employees' well-being (Warr, 1987). Such studies may also tap into the fit between a

predominant extrinsic work value orientation and extrinsic job resources such as job security and financial rewards. This might indeed be an interesting avenue for future research, as the P-E fit literature would suggest that such a fit yields beneficial outcomes, whereas for example Self-Determination Theory (SDT) would hypothesize negative effects of valuing extrinsic work values (Sheldon, Ryan, Deci, & Kasser, 2004; Vansteenkiste et al., 2007).

These current results furthermore build upon previous work-related SDT-research (see Van den Broeck, Vansteenkiste, & De Witte, 2008a, for an overview) by showing that the health-enhancing effect of valuing work predominantly for intrinsic reasons holds above and beyond the impact of job characteristics. SDT's conceptualization of intrinsic and extrinsic values, however, differs somewhat from the traditional conceptualization of an intrinsic and extrinsic work value orientation in work- and organizational psychology (Van den Broeck, Vansteenkiste, De Witte, Lens, & Andriessen, 2009). Traditionally, an intrinsic work value orientation refers to valuing job characteristics which are part of the working tasks (i.e., autonomy, learning opportunities), whereas an extrinsic orientation pertains to valuing aspects outside one's tasks that lie in the job circumstances (e.g., favourable working circumstances), conditions (e.g., pay, job security), or relations (i.e., social support colleagues; Malka & Chatman, 2003). SDT, in contrast, does not ground the differentiation between intrinsic and extrinsic work values in one's tasks, but takes individuals' growth-oriented nature as the point of departure. Indeed, SDT postulates that individuals are—by their very nature—oriented towards self-development and strive for harmonious and authentic integration in the larger social environment. According to SDT, intrinsic values align with this growth-oriented nature and refer, for instance, to personal growth, emotional intimacy, health, and community contribution. Extrinsic values, in contrast, include aspects that detract individuals from their growth orientation and refer to external signs of worth, such as financial success, appealing appearance, status and power (Sheldon et al., 2004). SDT's conceptualization of extrinsic values therefore overlaps with the traditional view on work values regarding, for example, pay, but differs in the sense that it (1) regards social relationships as intrinsic and (2) does not include aspects of job security and convenient working hours. Future research may aim to shed more light on the added value of both conceptualizations to stimulate the coherent development of this research domain.

Practical implications

Despite these limitations and the necessity of further research, the present study may hold some valuable theoretical and practical implications. First,

the present findings indicate that work characteristics are the most important predictors of exhaustion and work engagement. This suggests that interventions in work itself are foremost instructive and necessary to reduce employees' emotional exhaustion and to increase their work engagement. In addition to creating more resourceful and less demanding environments, one might however also benefit from paying attention to employees' personal resources. This would not only add to employees' well-being directly. Perhaps most importantly, this would also enhance employees' orientation towards, as well as their readiness and preparedness to make use of the available job resources. It might even assist them in experiencing positive effects of job challenges, such as workload. Therefore, training courses may aim at enhancing employees' intrinsic relative to extrinsic work value orientation, for example, by pointing at the presence and the importance of intrinsic work aspects. Previous research indeed indicated that individuals' value orientation can be influenced when a particular activity is framed in terms of intrinsic instead of extrinsic values (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). In general, strengthening employees' personal resources may thus be a fruitful avenue for interventions to further increase employees' optimal functioning.

CONCLUSIONS

In sum, the present study aimed to contribute to the theoretical and empirical research on the role of personal resources in job design in general and in the JD-R model in particular. Previous research has indicated that personal resources may decrease job demands, buffer their health-impairing impact, increase job resources, and explain the relationship between job resources and employees' well-being. The current study provided evidence for an additional role of a particular personal resource, that is, holding an intrinsic relative to extrinsic work value orientation, in enhancing employees' well-being directly, and—perhaps most importantly—strengthening the impact of job resources. These results point at the importance of employees' values in creating stimulating jobs. They may open the debate on the different roles of personal resources in the JD-R model and stimulate future studies to examine whether particular job resources may play particular roles.

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