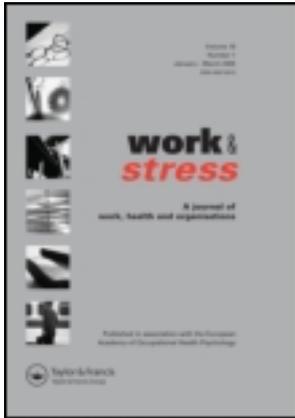


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The effects of work motivation on employee exhaustion and commitment: An extension of the JD-R model

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A model that integrates and builds on the job demands-resources model and self-determination theory is proposed to better understand the role of work motivation in relation to job resources, occupational commitment and emotional exhaustion. Two forms of motivation were studied: autonomous motivation, in which employees act with volition,; and controlled motivation, in which they act under internal or external pressure. Data were collected at two time points nine months apart from a sample of 586 school principals in Quebec, Canada. SEM analysis results support the hypothesized model. Specifically, job resources had a positive effect on autonomous motivation but a negative effect on controlled motivation. In addition, taking into account the cross-lagged effects of job resources on commitment and exhaustion, autonomous motivation had a negative effect on exhaustion but a positive effect on commitment whereas controlled motivation had a positive effect on exhaustion. These results advance the understanding of *why* work motivation acts on employee functioning and *how* it can play an active role in both the motivational and energetic processes of the job demands-resources model. Practical implications and further theoretical implications are discussed.

Keywords: emotional exhaustion; occupational commitment; job resources; work motivation; job demands-resources model; self-determination theory

Introduction

In order to attract and retain competent, qualified employees, today's organizations increasingly need to create work conditions that promote and sustain employee motivation and well-being (Bakker, Albrecht, & Leiter, 2011; Ployhart, 2006). Recently, much attention has been paid to resource-related aspects of the job (e.g. social support, decision latitude) as facilitators of employee functioning. Job resources have the potential not only to foster employees' growth and development, but also to prevent ill-being (Crawford, LePine, & Rich, 2010). However, despite growing empirical evidence that job resources have motivational potential, leading to favourable outcomes (e.g. engagement, commitment), the influence of work motivation – an important determinant of both adaptive and maladaptive consequences for employees – has not been fully investigated.

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Based on the job demands-resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and drawing on the postulates of self-determination theory (SDT; Deci & Ryan, 1985, 2000), this study aimed to examine the causal nature of the relationships between job resources, work motivation, emotional exhaustion and occupational commitment. The results contribute to the JD-R model and SDT by further explaining the roles of motivational mechanisms in employee functioning. More importantly, the findings could help organizations promote employee commitment while preventing exhaustion. The following sections outline the main postulates of JD-R and SDT. Based on these postulates, the conceptualization of the tested model and the research hypotheses are then presented.

The Job Demands-Resources (JD-R) model

The JD-R model is one of the leading frameworks for understanding employee well-being and ill-being (Halbesleben & Buckley, 2004). The model accounts for two separate but related psychological processes to explain job strain (e.g. burnout) and motivational outcomes (e.g. engagement, commitment). On the one hand, in the energetic process, job demands sap employees' mental and physical energy and consequently contribute to strain reactions and health problems (Bakker & Demerouti, 2007; Demerouti et al., 2001). On the other hand, in the motivational process, job resources foster work motivation and promote adaptive work behaviours, such as work engagement (Schaufeli & Bakker, 2004; Hakanen, Bakker, & Schaufeli, 2006), job involvement (Bakker, Demerouti, & Schaufeli, 2003) and organizational commitment (Bakker, Demerouti, de Boer, & Schaufeli, 2003; Boyd et al., 2011). This process is based on the premise that in addition to being instrumental in achieving work goals, job resources foster employees' growth and development (Demerouti et al., 2001).

Many studies have supported the JD-R model and its underlying processes (see Demerouti and Bakker, 2011, for a recent review). However, growing empirical evidence suggests that job resources are involved not only in the motivational process, but also in the energetic process, suggesting that a lack of resources contributes to job strain. For instance, Schaufeli and Bakker (2004) found that job resources (performance feedback, support from colleagues, supervisory coaching) negatively predict turnover intention through both burnout and engagement. Similar results were found by Hakanen et al. (2006) for predicting organizational commitment. In addition, Crawford et al. (2010) showed in their meta-analysis that job resources are negatively related to burnout and positively to engagement. Furthermore, in a recent longitudinal study that considered the effect of job demands (work pressure, role overload), Boyd et al. (2011) found that job resources (decision latitude, procedural fairness) had a positive unidirectional effect on organizational commitment and a negative effect on psychological distress.

One explanation for these findings is that emotional energy may be depleted not only by the presence of job demands, but also by the absence of job resources, which can hinder employees from achieving significant work goals. This reasoning is consistent with the conservation of resources (COR) theory (Hobfoll & Freedy, 1993), which posits that when significant resources are lost or threatened, job strain results. Self-determination theory (Deci & Ryan, 1985) supports this contention

because the work environment entails conditions that direct and energize employee behaviours. That is, it influences employee motivation (Gagné & Deci, 2005).

It is important to keep in mind that although the JD-R model recognizes the importance of motivational resources (i.e. personal resources), it limits their role to the motivational process that accounts for the relationship between job resources and motivational outcomes. Recent studies have shown that job resources, personal resources (e.g. self-efficacy, organization-based self-esteem and optimism), and engagement are reciprocal, suggesting that personal resources are a prime determinant of employee adaptation to the job environment and well-being (e.g. Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). However, the JD-R-based research does not directly examine the contribution of these personal resources to explain the energetic process, even though they are negatively associated with emotional exhaustion (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Yet there is some empirical evidence that psychological resources, such as perceptions of autonomy, competence and relatedness (which imply the presence of autonomous motivation), act as mediators between job resources and exhaustion (Fernet, Austin, Trépanier, & Dussault, in press; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). With respect to the relationship between job resources and employee functioning, we believe that the forms of motivation proposed by SDT constitute an ideal means to address the motivational potential of job resources. SDT allows a direct investigation of employees' motives without confounding with personal resources, even though they may influence employee motivation.

Self-Determination Theory (SDT)

SDT makes an important distinction concerning the nature of motivation: people may not only invest in an activity to varied degrees – a quantifiable aspect – they also do so for various reasons – a qualitative aspect. Specifically, two broad forms of motivation – autonomous and controlled – may differentially impact employee functioning (see Deci & Ryan, 2000; Vallerand, 1997, for reviews). *Autonomous motivation* refers to acting with volition, as when employees engage in their job for the inherent pleasure and satisfaction they experience (intrinsic motivation) and/or because they personally endorse the importance or value of their tasks (identified regulation). *Controlled motivation* refers to behaviours that are enacted under internal or external pressure, as when employees perform their job to gain a sense of self-worth or to avoid feelings of anxiety and guilt (introjected regulation) and/or because they are pressured by demands, threats or rewards by an external agent (external regulation).

Many studies have supported the presence of these forms of motivation in diverse life spheres, including the workplace (Gagné & Deci, 2005). For instance, autonomous motivation has been positively associated with psychological well-being (Blais, Brière, Lachance, Riddle, & Vallerand, 1993), job satisfaction (Millette & Gagné, 2008) and organizational (Lam & Gurland, 2008) and occupational commitment (Fernet, 2011). In contrast, controlled motivation has been positively associated with negative consequences for workers, such as workaholism (Van den Broeck et al., 2011), burnout (Fernet, Senécal, Guay, Marsh, & Dowson, 2008), and turnover intention (Richer, Blanchard, & Vallerand, 2002).

SDT further proposes that work motivation varies depending on the work environment. In an autonomy-supportive environment, which fosters motivation, individuals perceive that they have the right to choose and to make decisions, and that they are supported in their work (e.g. Deci, Connell, & Ryan, 1989). Employees who perceive that their supervisor adopts autonomy-supportive behaviours show greater job satisfaction and higher psychological well-being than those who feel controlled by their supervisor (e.g. Deci et al., 2001). The research on SDT has emphasized social autonomy-supportive aspects such as managerial style, which may be considered the equivalent of job resources under the JD-R model. Thus, these aspects tend to facilitate the achievement of work goals while fostering employee growth and development.

The main divergence between the JD-R model and SDT lies in the role of motivational factors. Although the JD-R model recognizes both the intrinsic and extrinsic motivational potential of job resources, the extrinsic aspect is clearly emphasized. Job resources would primarily foster favourable outcomes for employees (e.g. engagement, commitment) without necessarily preventing psychological costs. However, according to SDT, the work environment, whether supportive (i.e. resourceful, in JD-R terms) or unsupportive, acts on employees' psychological energy because it influences the quality of their motivation, which is an important determinant of both adaptive and maladaptive functioning. Work motivation can therefore play an active role in both the motivational and energetic processes. For example, with respect to the energetic process, it is possible that when a lack of job resources precludes goal attainment and the satisfaction of basic psychological needs, employees will feel less autonomously motivated to perform their job, resulting in greater exhaustion and less commitment. Controlled motivation could also contribute to these unfavourable outcomes, because when job resources are lacking, employees may be able to maintain their performance through psychological accommodation (e.g. internal pressure to meet external demands; Deci & Ryan, 2000). Hence, controlled motivation could further drain employees' energy (Fernet, Guay, Sénécal, & Austin, 2012) and consequently lead to lower commitment and greater exhaustion.

Overview of the present study

This study aimed to better understand the role of work motivation in relation to job resources, emotional exhaustion and occupational commitment in a sample of school principals. Although much of the research suggests that school staff are at high risk for occupational stress (Schaufeli & Enzmann, 1998), few studies have focused on school principals. Moreover, it is generally recognized that school boards in several countries, including Canada, the United States, Australia, China and Great Britain, are having great difficulty attracting and retaining principals (see Chapman, 2005). For example, a study in the United States by Su, Gamage, and Mininberg (2003) suggests that over 30% of principals intend to quit their job. In Canada, a study by Fortin (2006) found that 29% of principals regularly question their career choice, suggesting low occupational commitment.

In this study, we focus on emotional exhaustion and occupational commitment, which have been consistently related to resource-related aspects of the job as well as substantial individual and organizational costs (Lee & Ashforth, 1996; Meyer, Stanley, Herscovitch, & Topolnysky, 2002). Emotional exhaustion is the primary dimension of

burnout (Halbesleben & Bowler, 2007). It refers to feelings of strain, particularly chronic fatigue resulting from overtaxing work (Maslach, Schaufeli, & Leiter, 2001). In addition to employee perceptions of workplace factors (Alarcon, 2011; Lee & Ashforth, 1996), emotional exhaustion has been positively related to job strain (Cordes & Dougherty, 1993) and work ineffectiveness (Halbesleben & Bowler, 2007). Occupational commitment reflects employees' emotional attachment, involvement and identification with the occupation (Meyer, Allen, & Smith, 1993). It has been positively associated with employee attitude (e.g. job satisfaction) and negatively to impaired health (e.g. job stress and burnout) and organizational outcomes (e.g. turnover and lower performance; Lee, Carswell, & Allen, 2001, for a meta-analytic review).

Several job resources, such as job control, job recognition and quality of relationships at work, feature prominently in the literature on occupational commitment and well-being in school principals (e.g. Friedman, 2002; Sarros & Friesen, 1987). Job control refers to the extent to which an occupation or activity provides opportunities to make decisions and exercise control over the tasks to be accomplished (Karasek, 1985). Job recognition refers to being valued by others for one's contribution to the job (Leiter & Maslach, 2000). The quality of relationships at work can be defined as the overall quality of interactions among staff, including support, acceptance, trust and closeness (Richer & Vallerand, 1998). In this study, we focus on these particular job resources, which are included in most influential models in the literature on occupational stress and health. Whereas the Demand-Control model (Karasek, 1979) emphasizes job control as a prominent resource, and the Effort-Reward Imbalance model (Siegrist, 1996) emphasizes recognition, the JD-R model (Demerouti et al., 2001; Bakker & Schaufeli, 2004) addresses a combination of the most prevalent resources within a given occupation. In the field of work organization, these particular job resources echo the need for autonomy (experience of volition and self-endorsement of one's actions; deCharms, 1968), competence (ability to interact effectively with the environment; White, 1959) and relatedness (the degree to which one feels connected to others; Baumeister & Leary, 1995). These needs must be met before autonomous motivation can be developed (Deci & Ryan, 2000). Thus, in addition to being associated with emotional exhaustion and occupational commitment, job resources could be associated with work motivation.

Study hypotheses

The hypothesized model (see Figure 1) proposes a unidirectional effect of job resources on employee motivation (autonomous and controlled) and a unidirectional effect of motivation on occupational commitment and emotional exhaustion. Considering that this is probably the first study to separately assess the effects of autonomous and controlled motivation in relation to job resources, occupational commitment, and emotional exhaustion, it would be speculative to propose specific differential impacts for the different motivations. We therefore propose the following hypotheses:

Hypothesis 1a: Job resources will have a positive cross-lagged effect on autonomous motivation.

Hypothesis 1b: Job resources will have a negative cross-lagged effect on controlled motivation.

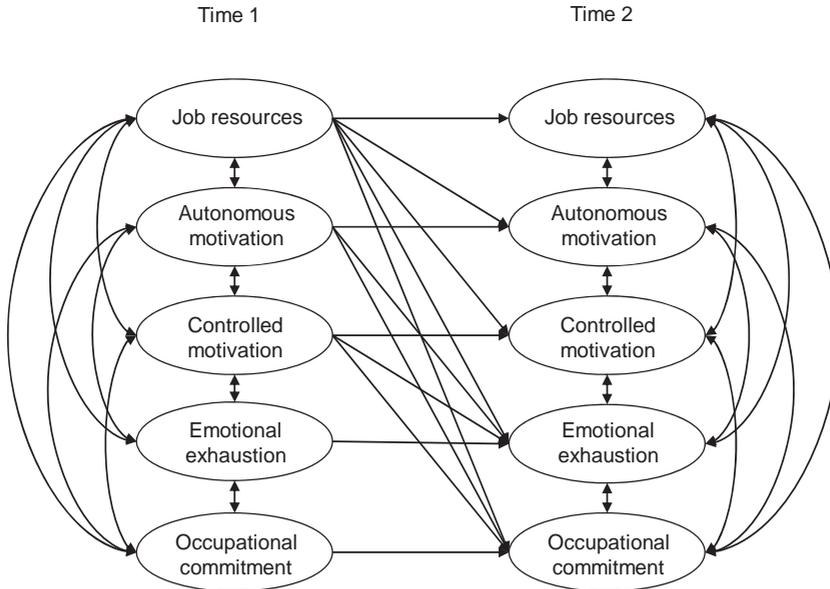


Figure 1. Hypothesized model.

Hypothesis 2a: Taking into account the cross-lagged effects of job resources on emotional exhaustion and occupational commitment, autonomous motivation will have a negative effect on emotional exhaustion but a positive effect on occupational commitment.

Hypothesis 2b: Taking into account the cross-lagged effects of job resources on emotional exhaustion and occupational commitment, controlled motivation will have a positive effect on emotional exhaustion but a negative effect on occupational commitment.

Method

Participants and procedure

This study was conducted over a nine-month period and comprised two collections of data (October 2008 and June 2009) from French-Canadian school principals in Quebec, Canada. The time lag was chosen to reflect a typical school year, which runs from the beginning of September until the end of June. This allowed examining changes in the variables over the fall and spring terms. In each study phase, principals were asked to fill out an online questionnaire posted on the first author's university website.

Our sample consisted of 586 school principals (42% men and 58% women). Mean age was 45.2 years ($SD = 7.02$) and mean years of experience in their current position was 6.6 years ($SD = 4.62$). Of the total sample, 71% were principals and 29% vice-principals; 55% worked in elementary schools and 45% in high schools. A total of 476 employees participated at Time 1 (T1) and 426 at Time 2, for a participation rate of 81% and 73%, respectively.

To rule out potential selection bias, we examined whether principals who participated at both measurement times were equivalent to those who participated

at only one time (either T1 or T2). Preliminary analyses indicated that the two samples did not differ on either background variables (gender, age, school level, job position and years of experience) or the study variables. Although these results suggest no selection bias, it is generally considered inappropriate to disregard missing values by using a listwise deletion of cases (Davey, Shanahan, & Schafer, 2001; Peugh & Enders, 2004). Therefore, we decided to use the full sample of 586 participants and estimate missing values at T1 or T2 using full information maximum likelihood (FIML; EQS version 6.1, Bentler, 2004).

Measures

Job resources. Three types of job resource were assessed. Job control and job recognition were measured using the corresponding three-item and four-item subscales of the Areas of Worklife Scale (AWS; Leiter & Maslach, 2000). Examples of items are, "I have control over how I do my work" (control; $\alpha = .69_{T1}$, $\alpha = .70_{T2}$) and, "I receive recognition from others for my work" (recognition; $\alpha = .88_{T1}$, $\alpha = .88_{T2}$). Items were scored on a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Quality of relationships with school staff was measured by a five-item scale derived from Richer and Vallerand (1998). A sample item is, "Currently, I feel supported in my relationships with the school staff" ($\alpha = .94_{T1}$, $\alpha = .95_{T2}$). Items were scored on a five-point scale from 0 (*not at all*) to 4 (*extremely*). Each variable was used as an indicator of the latent construct of job resources.

Work motivation. Autonomous and controlled motivation were assessed using the Work Role Motivation Scale for School Principals (Fernet, 2011), which addresses five motivational constructs related to different work roles (administrative, instructional leadership and informational). Each work role is composed of five subscales (intrinsic motivation, identified regulation, introjected regulation, external regulation and amotivation). Amotivation, which is likely to result from a lack of personal control or efficacy (Deci & Ryan, 2000), was not considered because it addresses the quantity rather than the quality of motivation. Each subscale contains two items, each providing a reason for engaging in a particular work role. Sample items are, "For the pleasure that I get from performing this role" (intrinsic motivation); "Because this role enables me to achieve my own work objectives" (identified regulation); "To prove to myself that I can perform this role properly" (introjected regulation); and "Because this role is part of my job. We are paid to do this" (external regulation). Items were scored on a seven-point scale ranging from 1 (*does not correspond at all*) to 7 (*corresponds completely*). For each work role, a composite autonomous score was created by averaging intrinsic and identified items (mean $\alpha = .84_{T1}$, $\alpha = .86_{T2}$). Similarly, a composite controlled score was built by averaging introjected and external items (mean $\alpha = .91_{T1}$, $\alpha = .86_{T2}$). Thus, three indicators (one per role) were formed to assess the latent constructs of autonomous and controlled motivation.

Emotional exhaustion. Emotional exhaustion was assessed using the Maslach Burnout Inventory – General Survey (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996). This dimension is generally considered as the key component of burnout (Demerouti et al., 2001). This subscale is composed of five items such as, "I feel emotionally drained by my work" ($\alpha = .92_{T1}$, $\alpha = .92_{T2}$). Responses to all

items are scored on a seven-point scale ranging from 0 (*never*) to 6 (*daily*). Two manifest indicators were created by averaging items 1 and 2 and items 3, 4 and 5 in order to assess the latent construct emotional exhaustion.

Occupational commitment. We used the affective commitment subscale of the Occupational Commitment Questionnaire (Meyer et al., 1993). Affective commitment has been more strongly related than the other components (normative and continuance commitment) to employee behaviours such as job performance, turnover, and attendance (Meyer et al., 2002). In this study, the six items capture occupational commitment (e.g. “I feel emotionally attached to my occupation”; $\alpha = .83_{T1}$, $\alpha = .83_{T2}$) rather than organizational commitment (Meyer et al., 1993). All items are scored on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Three manifest indicators were created by averaging items 1 and 2, items 3 and 4 and items 5 and 6 to assess the latent construct occupational commitment.

Statistical analyses

Adequacy of the models was assessed by structural equation modelling (SEM) using EQS (version 6.1; Bentler, 2004). All models were tested with standardized coefficients obtained using maximum likelihood estimation. To ascertain model fit, we used the comparative fit index (CFI), the non-normed fit index (NNFI), and the root-mean-square error of approximation (RMSEA). The CFI and NNFI vary along a 0-to-1 continuum, where values greater than .90 indicate satisfactory fit, and values greater than .95 are ideal (Schumacker & Lomax, 1996). RMSEA values below .05 indicate a close fit, whereas values up to .08 are considered acceptable errors of approximation (Hu & Bentler, 1999).

Competing structural models. In order to examine our hypotheses, we first tested the hypothesized model (M1, see Figure 1). To rule out possible alternative explanations, we then compared the model to three competing models: stability (M2), reversed causation (M3) and reciprocal (M4). Following Marsh and Hau (1996), we included autoregressive effects in all tested models to control for baseline levels of each latent factor. Synchronous correlations between latent factors were allowed, and error terms (uniquenesses) between corresponding indicators were included. M1 includes unidirectional paths from job resources to autonomous and controlled motivation, and unidirectional paths from job resources, autonomous motivation, and controlled motivation to emotional exhaustion and occupational commitment. M2 includes only autoregressive effects. M3, which also includes autoregressive effects, has unidirectional paths from emotional exhaustion and occupational commitment to autonomous and controlled motivation and job resources, as well as from autonomous and controlled motivation to job resources. M4 is a combination of M1 and M3.

Results

Descriptive statistics and preliminary analyses

Means, standard deviations and correlations between variables are presented in Table 1. A measurement model was tested and provided satisfactory data fit

Table 1. Means, standard deviations, and correlations between variables.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Time 1</i>																
1. Job control	3.73	0.66	–													
2. Recognition	3.67	0.85	.34**	–												
3. Rel. with staff	2.73	0.70	.27**	.52**	–											
4. Autonomous mot.	5.23	0.73	.32**	.25**	.29**	–										
5. Controlled mot.	3.87	1.39	–.10*	–.11*	–.14**	.06	–									
6. Exhaustion	3.02	1.27	–.40**	–.32**	–.33**	–.31**	.27**	–								
7. Commitment	4.19	0.74	.35**	.32**	.28**	.46**	–.14**	–.39**	–							
<i>Time 2</i>																
8. Job control	3.77	0.64	.56**	.21**	.15**	.27**	–.05	–.37**	.39**	–						
9. Recognition	3.63	0.82	.28**	.57**	.35**	.13*	–.12*	–.28**	.29**	.34**	–					
10. Rel. with staff	2.74	0.73	.22**	.43**	.66**	.23**	–.00	–.22**	.24**	.22**	.45**	–				
11. Autonomous mot.	5.19	0.81	.31**	.20**	.22**	.61**	.08	–.22**	.45**	.37**	.29**	.33**	–			
12. Controlled mot.	3.86	1.28	–.10*	–.09	–.09	.04	.60**	.23**	–.13*	–.15**	–.15**	–.05	.07	–		
13. Exhaustion	3.09	1.25	–.31**	–.29**	–.23**	–.28**	.24**	.75**	–.36**	–.40**	–.43**	–.31**	–.32**	.26**	–	
14. Commitment	4.17	0.74	.24**	.23**	.25**	.37**	–.07	–.28**	.73**	.42**	.30**	.33**	.59**	–.09	–.42**	–

Note: Mot. = motivation; Rel. with staff = Quality of relationships with staff. Correlations in bold represent test-retest relationships.

* $p < .05$; ** $p < .01$.

($\chi^2(291) = 579.976$, CFI = .990, NNFI = .986, RMSEA = .042 [CI = .037, .047]). Factor loadings on their corresponding factor are all significant ($\geq .44$ at T1; $\geq .50$ at T2). In order to determine the potential effect of background variables, we built an SEM model in which each latent variable at T1 and T2 is related to the demographic variables (gender, position, school level and years of experience). This model also provides satisfactory data fit ($\chi^2(369) = 875.331$, CFI = .973, NNFI = .964, RMSEA = .048 [CI = .044, .053]). The results reveal nine significant paths, of which four are consistent over time. Autonomous motivation ($\beta_{T1} = -.18$, $p < .01$; $\beta_{T2} = -.15$, $p < .01$) and occupational commitment ($\beta_{T1} = -.21$, $p < .01$; $\beta_{T2} = -.15$, $p < .01$) were negatively related to job position. This indicates that the vice-principals had greater autonomous motivation and commitment than the principals. School level was positively related to autonomous motivation ($\beta_{T1} = .17$, $p < .01$) and negatively to controlled motivation ($\beta_{T1} = -.08$, $p < .05$; $\beta_{T2} = -.08$, $p < .05$). This suggests that the high school principals had greater motivation than the elementary school principals. In addition, more experienced principals reported less controlled motivation than less experienced principals ($\beta_{T1} = -.20$, $p < .01$; $\beta_{T2} = -.11$, $p < .01$). We therefore controlled for these effects in subsequent analyses by including only the significant paths in the structural models.

Testing the hypothesized model

The hypothesized model (M1) provides satisfactory data fit ($\chi^2(381) = 854.847$, CFI = .978, NNFI = .973, RMSEA = .046 [CI = .042, .050]). To rule out alternative explanations, we compared the hypothesized model to three alternate models: stability (M2; $\chi^2(389) = 883.438$, CFI = .977, NNFI = .972, RMSEA = .047 [CI = .043, .051]), reversed causation (M3; $\chi^2(381) = 865.964$, CFI = .977, NNFI = .972, RMSEA = .047 [CI = .042, .051]) and reciprocal (M4; $\chi^2(373) = 841.776$, CFI = .977, NNFI = .972, RMSEA = .046 [CI = .042, .050]). Results indicate that M1 provides better data fit than M2 ($\Delta\chi^2[8] = 30.454$, $p < .01$). Although M4 provides better data fit than M3 ($\Delta\chi^2[8] = 24.188$, $p < .01$), it obtains no improvement over M1 ($\Delta\chi^2[8] = 13.071$; n.s.). We can therefore conclude that, in terms of parsimony, the hypothesized model (M1) offers the best-fitting solution. The results of the hypothesized model are summarized in Figure 2 (for simplicity, covariances are not shown). Controlling for the effects of background variables and taking into account autoregressive effects (β s ranging from .51 to .92), results show that job resources have a cross-lagged effect on autonomous and controlled motivation ($\beta = .23$; $\beta = -.09$, respectively). Taking into account the baseline effect of job resources, autonomous motivation has a cross-lagged effect on occupational commitment ($\beta = .24$) and emotional exhaustion ($\beta = -.20$), whereas controlled motivation has a cross-lagged effect on exhaustion ($\beta = .07$). Note that neither of the two baseline effects is significant: job resources $T_1 \rightarrow$ commitment T_2 , $\beta = -.03$; and job resources $T_1 \rightarrow$ exhaustion T_2 , $\beta = -.08$. In addition, one significant cross-lagged effect was found in the background variables that were controlled for. Job position was negatively associated with autonomous motivation ($\beta = -.11$) at T2, indicating that principals were more likely than vice-principals to be autonomously motivated over time. To summarize, these results provide support for five of the six expected cross-lagged relationships, thereby supporting all our hypotheses except for Hypothesis 2b.

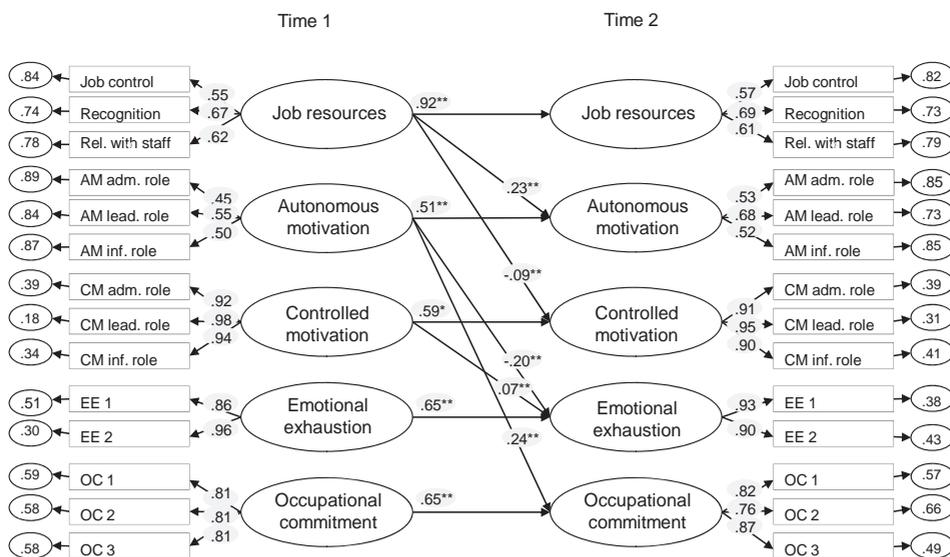


Figure 2. Final model with significant standardized path coefficients.

Note: The results were controlled for job position, school level, and years of experience; Rel. = Relationships, AM = Autonomous motivation, CM = Controlled motivation, Adm. = administrative, Lead. = leadership, inf. = informative, Emotional exhaustion; OC = Occupational commitment.

** $p < .01$.

Discussion

Combining two perspectives, the JD-R model and SDT, this study proposes a model to deepen our understanding of the role of employee motivation in relation to job resources, occupational commitment, and emotional exhaustion. The results of the structural equation modelling analyses, controlled for potentially confounding variables, support our model over alternative models. Specifically, job resources influence work motivation (autonomous and controlled), and motivation influences both emotional exhaustion and occupational commitment. Taken together, these results underscore the importance of work motivation, and more specifically, its role in relation to job resources and employee functioning.

Implications for research

The quality of motivation. Our results suggest that the quality of work motivation plays a significant role in employee functioning. The form of motivation, or the reason that individuals engage in their work, is a prime determinant of employee commitment and job strain. The *quantity* of motivation, as reported by school principals, would therefore be insufficient to explain work-related outcomes. Thus, our results suggest that employees would be better off if they engage in their work by choice or through interest, rather than under internal or external pressures. Moreover, their motivation contributes to increasing their commitment and preventing exhaustion over time. These results corroborate other studies that have

demonstrated the importance of motivation in relation to attitudes (e.g. Blais et al., 1993; Lam & Gurland, 2008), behaviours (e.g. Richer et al., 2002), and employees' psychological health (Fernet, Gagné, & Austin, 2010). Furthermore, to our knowledge, this is the first longitudinal study to consider the interrelationships between job resources, self-determined motivation and work-related outcomes. Our results therefore advance the understanding of *why* motivation acts on employees' well-being.

Unidirectional relationships between motivation, emotional exhaustion and occupational commitment. Another contribution of this study is to deepen our insight into the nature of the relationships between motivation and occupational commitment and emotional exhaustion. Our results show that the form of motivation (i.e. whether it is autonomous or controlled) has a differential impact on commitment and exhaustion. Specifically, autonomous motivation shows a stronger effect than controlled motivation. This suggests that behaving with a full sense of volition and choice (e.g. "I want to do it") is more determinant of commitment and exhaustion than feelings of internal or external pressure (e.g. "I have to do it."). These results provide support for the postulate of SDT that self-determination is fundamental for optimal functioning (Deci & Ryan, 2000). They are also in line with other theoretical frameworks that recognize the importance of positive psychological resources (e.g. self-efficacy, core self-evaluation, optimism) in employees' well-being (Bandura, 1997; Judge, Bono, Erez, & Locke, 2005; Luthans, Avey, Avolio, Norman, & Combs, 2006). Although further research is needed on the differential effects of autonomous and controlled motivation, our results suggest that work motivation is subject to change. Thus, a promising avenue to better capture the complexity of employees' adaptive and maladaptive functioning would be to examine changes in motivation over time.

Unidirectional relationships between job resources and employee motivation. This study also sheds new light on the nature of the relationships between job resources and work motivation. As mentioned above, previous studies, mainly JD-R-based, have largely ignored the contribution of work motivation in explaining job strain. Specifically, the JD-R model is limited to the motivational process, or the relationships between job resources and motivational factors (e.g. work engagement; Hakanen et al., 2006) and trait-related personal resources (e.g. self-efficacy, optimism; Xanthopoulou et al., 2007). Our results show that motivation, conceptualized in terms of self-determination, is involved in this relationship. This provides further empirical support for the relevance of the motivational process, and extends the research by directly addressing the regulatory processes (motives) through which work goals are achieved. Specifically, our findings suggest that the presence of job resources facilitates the internalization process – or the acquisition and acceptance of values and goals – that results in employees becoming more autonomously (and less "controllingly") motivated to engage in behaviours that express these values and goals (Ryan, 1995). In other words, job resources that allow basic psychological needs to be met would contribute to optimal motivation and functioning.

Although these results largely support the JD-R model, they also reveal that motivation contributes to the energetic process. Motivation in school principals,

and more particularly, autonomous motivation, not only fosters occupational commitment, it also prevents emotional exhaustion. It is likely that when employees benefit from job resources and fully internalize the value of their work, they can channel their energy and behaviours in constructive ways, thereby becoming more affectively attached to their job and at the same time less prone to emotional exhaustion. Nevertheless, we must note that although controlled motivation is less strongly predicted by job resources and less predictive of functioning at work, it could lead to additional maladaptive behaviours, such as investing in the job compulsively (Van den Broeck et al., 2011). Over time, such compensatory strategies could reinforce suboptimal forms of motivation and lead to additional losses of energy and ultimately, burnout. Further research is clearly needed on this issue. Another fruitful avenue would be to investigate whether demanding aspects of the job (such as cognitive, emotional and physical effort) and other restraints at the workplace (such as job insecurity and compensation systems) could affect the quality of employees' motivation.

Limitations

Certain limitations should be taken into consideration when interpreting the results of this study. First, although the longitudinal design provides support for cross-lagged associations, definitive conclusions about causality are unwarranted. Second, despite the use of a longitudinal design, data were collected at two time points only. This time interval reflected the typical school-year calendar. However, a data panel based on multiple time points and a longer study period would be more informative with regard to the lagged effects. It would also allow direct investigation of the mediating role of work motivation in our theoretical model (see Cole & Maxwell, 2003). Third, although the longitudinal design reduces the risk of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) other data sources (e.g. school staff) should be included in future studies. Fourth, caution should be exercised in attempting to generalize our results to a broader labour market because the participants were exclusively school principals and vice-principals. Considering that their work is largely managerial, it is possible that certain aspects of the job, such as the availability of specific resources, are more crucial for professional adaptation than they would be for other occupations. Although this assumption is not opposed to the basic tenets of the JD-R model, which was meant to be a flexible model applicable to various occupational groups (Bakker & Demerouti, 2007), the present findings need to be further validated in other occupations.

Implications for practice

Despite these limitations, this study has practical implications for organizations that wish to implement improved measures to prevent emotional exhaustion and increase commitment in employees. Our results suggest that opportunities to exercise professional autonomy, feel connected with coworkers, and be psychologically rewarded foster the development of autonomous motivation (to the detriment of controlled motivation), and that this form of motivation is liable to promote commitment and prevent exhaustion. Aside from these job resources, autonomous motivation could be strengthened by enriching job design (Bono & Judge, 2003).

In the case of school principals, school boards could set up mentoring and coaching structures as well as sharing and exchange networks to foster autonomous motivation in principals. An organizational culture that enables new principals to appropriate the organizational vision and structure along with the various work roles could also reinforce employee motivation. In such circumstances, principals might feel that they had the time they needed to reflect and to integrate new knowledge and skills in order to make autonomous decisions. They might also feel that their efforts were important and recognized, not only by their staff, but also by the school board. To summarize, by promoting optimal motivation, schools and other organizations could benefit from additional strategies not only to attract dedicated employees but also to sustain their commitment and psychological health.

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