



Revisiting the interplay between burnout and work engagement: An Exploratory Structural Equation Modeling (ESEM) approach[☆]

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ABSTRACT

This study aimed to investigate the interplay between burnout and work engagement. More specifically, we examined the energy and identification continua theorized to underlie the relationship between burnout and work engagement by simultaneously evaluating the factorial structure of the Maslach Burnout Inventory–General Survey (MBI–GS) and the Utrecht Work Engagement Scale (UWES). Results from Exploratory Structural Equation Modeling (ESEM) offered little support for these continua, suggesting that burnout and work engagement are not diametrical counterparts. Moreover, ESEM significantly altered the relationships burnout and work engagement hold with job demands and resources (i.e., work overload, job autonomy, and recognition), as well as health-related (i.e., psychological distress) and motivational (i.e., turnover intention) outcomes. These findings shed new light on the health-impairment and motivational processes theorized by the JD-R model.

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1. Introduction

The field of positive psychology has greatly influenced our current conceptualization of employee functioning by highlighting the importance of not only preventing negative manifestations (i.e., ill-being) but also promoting positive ones (i.e., well-being). Due to this conceptual shift, occupational health researchers and practitioners investigating burnout—a key indicator of employee ill-being—have expanded their scope of interest and begun focusing on burnout's antipodal counterpart, work engagement. It has been suggested that the dimensions of burnout and work engagement represent opposite ends of two continua reflecting employees' overall level of energy and identification with their work (Bakker, Schaufeli, Leiter, & Taris, 2008; Demerouti & Bakker, 2008). Because this proposition has not been subjected to an extensive empirical testing, we attempted to investigate this issue. More specifically, we investigated the energy and identification continua proposed to underlie the relationship between burnout and work engagement by simultaneously evaluating the factorial structure of the Maslach

Burnout Inventory–General Survey (MBI–GS) and the Utrecht Work Engagement Scale (UWES) using a novel statistical approach called exploratory structural equation modeling (ESEM). We also examined the health-impairment and motivational processes proposed by the Job Demands-Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Through SEM with ESEM factors of burnout/work engagement, we evaluate the pattern of relationships between job characteristics (job demands and resources), the dimensions of burnout/work engagement, as well as health-related and motivational outcomes.

1.1. Burnout and work engagement: conceptualization and measurement

Extensive research conducted on burnout over the course of more than 30 years has improved our understanding of its nature. Burnout can be viewed as a negative psychological response resulting from employees' interaction with their job (Leiter & Bakker, 2010; Maslach, 1982). This negative reaction is said to manifest itself through two core dimensions: emotional exhaustion and cynicism (Bakker, Demerouti, & Sanz-Vergel, 2014). Emotional exhaustion reflects feelings of being overextended and drained of one's mental, emotional and physical resources, whereas cynicism is characterized by an overly negative and detached attitude regarding one's work. Of the instruments developed to measure burnout the Maslach Burnout Inventory–General Survey (MBI–GS;

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Schaufeli, Leiter, Maslach, & Jackson, 1996) is the most widely used scale (Schaufeli & Taris, 2005).

More recently, researchers have begun to investigate employee psychological functioning from a more positive perspective: work engagement. Work engagement can be defined as “a positive, fulfilling, work-related state of mind” (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p. 74). More specifically, when experiencing work engagement, employees exhibit high levels of vitality, and willingness to fully invest themselves in their tasks (i.e., vigor). They also have a strong sense of involvement and enthusiasm regarding their work (i.e., dedication). Work engagement is most commonly measured using the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002).

1.1.1. The relationship between burnout and work engagement

Theoretically, vigor and dedication are considered to be the direct opposites of emotional exhaustion and cynicism, respectively (Schaufeli et al., 2002). As such, emotional exhaustion and vigor are viewed as opposite ends of an underlying continuum labeled “energy”, whereas cynicism and dedication are viewed as opposite ends of an underlying continuum labeled “identification”. In this perspective, burnout and work engagement are considered as opposite sides of the same coin and not independent constructs (González-Romá, Schaufeli, Bakker, & Lloret, 2006). This implies that employees who score high on one dimension of a continuum (e.g., dedication) would necessarily score low on the other end of that continuum (e.g., cynicism). However, very few studies (e.g., Demerouti, Mostert, & Bakker, 2010; González-Romá et al., 2006; Mäkikangas, Feldt, Kinnunen, & Tolvanen, 2012) have adequately investigated this proposition empirically. For example, Demerouti et al. (2010) conducted confirmatory factor analysis (CFA) using the MBI-GS, the UWES and the Oldenburg Burnout Inventory (OLBI), which contains positively and negatively worded items said to reflect both ends of the energy (i.e., labeled exhaustion and vigor) and identification (i.e., labeled disengagement and dedication) continua. They found that the identification dimensions (cynicism/disengagement and dedication) represent identical second order factors, suggesting that they can be considered as opposite ends of a single continuum. In this view, negative and excessively detached attitudes about one's work (i.e., cynicism) and a strong involvement in one's work (i.e., dedication) would reflect diametrically opposite attitudes. However, the energy dimensions (exhaustion and vigor) were found to represent independent second order factors: exhaustion (i.e., feelings of being overextended) and vigor (i.e., high levels of energy and mental resilience while working) appear to be distinct, albeit highly related ($r = .87$), experiences. More recently, Mäkikangas et al. (2012) investigated intraindividual developmental patterns of burnout and work engagement (and their interplay) in a two-year follow-up study among managers. Results showed that managers who belonged to the category “low cynicism” also predominantly belonged to the “stable high dedication” category, supporting the identification continuum. Much like Demerouti et al. (2010), Mäkikangas et al. (2012) found little support for the energy continuum: managers' experiences of emotional exhaustion and vigor appeared to evolve independently.

The fact that past research has failed to provide unambiguous empirical support for the two continua assumed to underlie the relationship between burnout and work engagement can be partly explained from a statistical standpoint. Like Demerouti et al. (2010) most studies (e.g., Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Schaufeli, & Ahola, 2008; Schaufeli & Bakker, 2004; Schaufeli et al., 2002) have investigated the relationships between burnout and work engagement (and their dimensions) using CFA. However, given the rigidity of some of its fundamental postulates (e.g., strict requirement of zero cross-loadings), CFA measurement models

may not be the most suitable approach for investigating the relationship between concepts that are theoretically very closely related, such as burnout and work engagement. A relatively new statistical tool called Exploratory Structural Equation Modeling (ESEM; Asparouhov & Muthén, 2009) may provide the flexibility needed to conduct a more thorough investigation of the interplay between the dimensions of burnout and work engagement and their potential underlying continua.

1.1.2. Investigating burnout and work engagement: ESEM versus CFA

CFA is a statistical approach often used in occupational health psychology to assess latent constructs (e.g., job demands, motivation, and work engagement). In CFA measurement models, researchers specify (1) the number of factors assumed to reflect the latent constructs and (2) which items (or indicators) represent each factor. Items are specified to represent their factor only: all cross-links are fixed at zero. However, the no cross-loading assumption is often too restrictive and may provide a biased representation of the relationship between theoretically related latent factors (e.g., dedication and cynicism) by overestimating the correlation between these factors (Asparouhov & Muthén, 2009; Marsh et al., 2009; Morin, Marsh, & Nagengast, 2013). These overestimated correlations may result in a distorted representation of the structural relationship between the latent factors and other constructs (e.g., work-related antecedents and outcomes of burnout and work engagement) when integrated in structural equation modeling (SEM; Asparouhov & Muthén, 2009).

ESEM may allow scholars to overcome the limits associated with CFA. This modeling procedure enables researchers to freely estimate all cross-loadings of indicators of latent factors. Much recent research has illustrated the merits of ESEM over CFA (e.g., Guay, Morin, Litalien, Valois, & Vallerand, 2015; Marsh, Liem, Martin, Morin, & Nagengast, 2011; Marsh, Nagengast, & Morin, 2012). The common denominator of these studies is that they reveal that allowing cross-loading between theoretically linked factors (via ESEM) provides a significantly better representation of the data than constraining all cross-loadings at zero (via CFA). Moreover, the inter-correlations between latent factors as well as the correlations between these factors and other variables (i.e., theoretical antecedents or outcomes) are considerably reduced in ESEM solutions. For example, in a multi-sample study conducted among students, Guay et al. (2015) found the inter-relationships between types of motivation (e.g., intrinsic, extrinsic) to be considerably lower in the ESEM solution ($r = .24-.46$) than in the CFA solution ($r = .56-.80$). Moreover, these types of motivation were more strongly related to perceived academic competence (i.e., a theoretical antecedent) in the CFA measurement models of motivation ($r = -.58-.57$), compared to the ESEM solutions ($r = -.35-.32$). Overall, these findings highlight that, due to its restrictive nature, CFA measurement models may result in a biased representation of the relationship between strongly theoretically related concepts by artificially inflating these relationships.

1.1.3. Burnout and work engagement: associations with job characteristics and outcomes

The JD-R model (Demerouti et al., 2001; Schaufeli & Bakker, 2004) describes the psychological processes through which job characteristics (i.e., demands and resources) act as key predictors of burnout and work engagement. Accordingly, in the health-impairment process, job demands (i.e., negatively valued aspects of the job that require sustained effort; (Schaufeli & Taris, 2014) deplete employees' mental, emotional and physical resources and therefore lead to burnout (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). The prolonged experience of burnout results in negative health consequences (Bakker & Demerouti, 2007; Bakker et al.,

2014), including psychosomatic complaints and depressive symptoms (Hakanen et al., 2008, 2006; Korunka, Kubicek, Schaufeli, & Hoonakker, 2009; Schaufeli & Bakker, 2004). Conversely, the motivational process is proposed to underlie the relationship between job resources, work engagement and indicators of psychological investment at work (Bakker et al., 2014). Job resources are positively valued aspects of the job that help employees achieve work goals, alleviate the strain associated with job demands and stimulate personal development and growth (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). Given these positive effects, job resources (e.g., social support, performance feedback) boost work engagement (Bakker et al., 2014; Halbesleben, 2010; Schaufeli & Bakker, 2004) and lead to various positive motivational outcomes such as organizational commitment and low turnover intention (Hakanen et al., 2006; Schaufeli & Bakker, 2004).

The health-impairment and motivational processes are proposed to be relatively independent (Bakker & Demerouti, 2007), although cumulative evidence suggests that they are interrelated (Schaufeli & Taris, 2014). Indeed, job demands have been found to be negatively related to work engagement, whereas job resources have been negatively linked to burnout (e.g., Crawford, LePine, & Rich, 2010; Hakanen et al., 2006). Furthermore, burnout has been found to be negatively related to motivational outcomes, whereas work engagement has been positively linked to health-related outcomes (e.g., Bakker, Demerouti, & Schaufeli, 2003; Hakanen et al., 2006; Richardsen, Burke, & Martinussen, 2006; Schaufeli & Bakker, 2004). Nevertheless, these cross-links do not appear to be as substantial or systematic as the direct links underlying the health-impairment and motivational processes (Halbesleben, 2010; Hu, Schaufeli, & Taris, 2011; Schaufeli & Bakker, 2004). For example, in a two-sample study, Hu et al. (2011) found that the links between job demands (e.g., workload, emotional demands) and burnout (.58 and .62) were stronger than those between job demands and work engagement (−.09 and −.05). Conversely, the links between job resources (i.e., job control, colleague support) and work engagement (.47 and .53) were stronger than those between job resources and burnout (−.18 and −.37).

However, because most studies investigating both processes have used SEM with CFA factors of burnout and work engagement, it is possible that their representation of the relationships between job characteristics, burnout/work engagement, and health-related as well as motivational outcomes is significantly biased (Marsh et al., 2009). Indeed, given that CFA measurement models result in substantially inflated factor correlations (e.g., between burnout and work engagement), it is likely to distort subsequent structural analyses. As such, because it provides a more exact estimate of the relationship between burnout and work engagement, ESEM should also provide a more accurate representation of the relationship between these two concepts and job demands, job resources, as well as health-related and motivational indicators of employee functioning. Investigating the health-impairment and motivational processes through ESEM would thus shed new light on the possible interdependency of the two processes.

1.2. The present study

The aim of this study is to deepen our understanding of the interplay between burnout and work engagement by delving further into the energy and identification continua. First, we investigate the factorial structure of the MBI-GS and the UWES simultaneously using ESEM. This approach allows indicators to cross-load on multiple factors. As such, items representing one end of a continuum should also load on the factor representing the opposite end of that continuum (albeit negatively). More specifically, based on the above mentioned JD-R-based empirical evidence and theoretical

propositions in support of the energy and identification continua, we propose the following hypotheses:

Hypothesis 1. Emotional exhaustion items will have significant cross-loadings on the vigor factor and vigor items will have significant cross-loadings on the emotional exhaustion factor (supporting the energy continuum).

Hypothesis 2. Cynicism items will have significant cross-loadings on the dedication factor and dedication items will have significant cross-loadings on the cynicism factor (supporting the identification continuum).

Hypothesis 3. A two-factor ESEM solution (i.e., emotional exhaustion/vigor and cynicism/dedication) representing the two continua will provide a better fit to the data than a four-factor ESEM solution (i.e., emotional exhaustion, cynicism, vigor and dedication) representing the four separate dimensions.

By exploring whether burnout and work engagement are diametrical counterparts, this study will evaluate the added value of (or redundancy in) investigating both work engagement and burnout to assess employees' level of energy and identification with their work.

Second, we conduct exploratory ESEM analyses to examine the health-impairment and motivational processes proposed by the JD-R model. By comparing two structural models (one with CFA factors of burnout/work engagement and one with ESEM factors of these constructs), this study ultimately aims to assess whether ESEM significantly alters the pattern of relationship between job characteristics, burnout/work engagement, and health-related and motivational outcomes.

2. Method

2.1. Participants and procedures

The sample comprised school teachers ($n = 1159$, participation rate of 39%) working in the province of Quebec, Canada. All teachers received a letter at work describing the purpose of the study in detail and inviting them to complete an online questionnaire. The majority of participants were women (85.8%). Mean age was 27.79 years ($SD = 4.13$), with an average of 3.29 ($SD = 1.68$) years of experience on the job. The majority taught in primary schools (60.3%), 34.7% in secondary schools and 5% in other school settings.

2.2. Measures

All measures were administered in French. Means, standard deviations and latent correlations of these measures are presented in Table 1. Reliability of the measures was established by Hancock's coefficient (i.e., coefficient H ; Hancock & Mueller, 2001), which uses standardized factor loadings obtained through CFA measurement models to estimate the stability of latent constructs across multiple observed variables. Values equal to or greater than .70 are considered satisfactory (Hancock & Mueller, 2001).

2.2.1. Burnout

The core dimensions of burnout were assessed using the emotional exhaustion and cynicism subscales of the MBI-GS (Schaufeli et al., 1996). Each of these subscales contains five statements pertaining to either emotional exhaustion (e.g., "I feel emotionally drained by my work", coefficient $H = .92$) or cynicism (e.g., "I doubt the significance of my work", coefficient $H = .87$). Participants were asked to indicate how often they experienced these feelings at work on a scale from 1 (*never*) to 7 (*every day*).

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

	Mean	SD	Range	Emotional exhaustion	Cynicism	Vigor	Dedication	Work overload	Job autonomy	Recognition	Turnover intention
Emotional exhaustion	3.168	1.287	1–7	–							
Cynicism	2.331	1.097	1–7	.467 .740	–						
Vigor	5.388	1.053	1–7	–.265 –.565	–.356 –.706	–					
Dedication	5.675	1.001	1–7	–.170 –.530	–.436 –.764	.580 .924	–				
Work overload	3.078	.808	1–5	.753 .743	.383 .494	–.251 –.381	–.263 –.369	–			
Job autonomy	3.452	.677	1–5	–.436 –.506	–.422 –.538	.443 .550	.447 .516	–.603 –.604	–		
Recognition	3.733	.832	1–5	–.255 –.361	–.480 –.534	.384 .492	.456 .520	–.321 –.322	.544 .544	–	
Turnover intention	1.871	1.372	1–7	.488 .610	.757 .793	–.432 –.599	–.514 –.662	.422 .426	–.420 –.420	–.447 –.447	–
Psychological distress	1.688	.527	1–4	.667 .713	.531 .622	–.390 –.503	–.337 –.478	.538 .538	–.449 –.449	–.372 –.372	.554 .554

Note. Correlations of the ESEM solution are in bold. Means and SD obtained through CFA measurement models.

2.2.2. Work engagement

The core dimensions of work engagement were assessed using the vigor and dedication subscales of the UWES (Schaufeli et al., 2002). Sample items are: “At work I feel like I am bursting with energy” (vigor; 6 items; coefficient $H = .89$) and “I am enthusiastic about my work” (dedication; 5 items; coefficient $H = .93$). Participants were asked to indicate how often they experienced these feelings at work on a scale from 1 (*never*) to 7 (*every day*).

2.2.3. Job characteristics

Job demands were assessed with the work overload subscale of the Areas of Work Life Scale (AWS; Leiter & Maslach, 2004), whereas job resources were assessed with the job autonomy and recognition subscales of the AWS. Sample items are: “I do not have time to do the work that must be done” (work overload; 6 items; coefficient $H = .88$), “I have control over how I do my work” (job autonomy; 3 items; coefficient $H = .58$) and “My work is appreciated” (recognition; 4 items; coefficient $H = .89$). Participants were asked to rate the frequency with which they experienced these situations on a five-point scale from 1 (*never*) to 5 (*almost always*). In the SEM analyses, the items of the three subscales were used as indicators of their respective latent factor.

2.2.4. Psychological distress

The French version (Préville, Boyer, Potvin, Perrault, & Légaré, 1992) of the Psychiatric Symptom Index (PSI; Ilfeld, 1976) was used to assess psychological distress, a health-related outcome of burnout and work engagement. This scale measures the presence of anxiety (3 items; coefficient $H = .83$) and depressive (5 items; coefficient $H = .82$) symptoms, as well as irritability (4 items; coefficient $H = .88$) and cognitive problems (2 items; coefficient $H = .88$) experienced during the previous week. A sample item of the scale is: “I felt easily annoyed or irritated” (i.e., irritability problem). Items were scored on a four-point scale ranging from 1 (*never*) to 4 (*very often*). In the SEM analyses, mean scores on the four subscales were used as indicators of the latent construct of psychological distress.

2.2.5. Turnover intention

Turnover intention was evaluated as a motivational outcome of burnout and work engagement, using three items adapted from O’Driscoll and Beehr’s scale (1994; e.g., “I plan on looking for another job within the next 12 months”). Items were scored on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). In

the SEM analyses, each item was used as an indicator of the latent construct of turnover intention (coefficient $H = .97$).

2.3. Ethical considerations

Approval for the study was obtained from the research ethics board of the researchers’ institution. All participants received a letter explaining the purpose (i.e., investigating workplace factors associated with well-being in the teaching profession) and a description of what their participation consisted of (i.e., taking about 30 min to complete an online questionnaire regarding their work experiences). The confidentiality and anonymity of responses were also emphasized in the letter. No incentive was given in exchange for participation.

2.4. Statistical analyses

In the present study, all analyses were performed using Mplus (Muthén & Muthén, 2012) with the WLSMV estimator for categorical variables. CFA and ESEM measurement models were tested to investigate the factorial structure of the MBI-GS and UWES (measurement analyses). For each analysis (CFA and ESEM), two types of measurement models were tested: a two-factor and a four-factor structure. In the CFA solution, each indicator of the MBI-GS and UWES was allowed to load on its respective factor only. Latent factors were allowed to correlate. In the two ESEM solutions (a two- and a four-factor structure) all loadings were freely estimated using an oblique Geomin rotation (the default rotation solution in Mplus) with an epsilon value of 0.5 (Marsh et al., 2009, 2012). The latent factors were also allowed to correlate. The goodness-of-fit of all tested models was evaluated using three fit indices compatible with the WLSMV estimator: the Comparative Fit Index (CFI), the Tucker–Lewis Index (TLI) and the Root Mean Square Error of Approximation (RMSEA). Values higher than .95 for the CFI and TLI indicate a good fit (Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999). For the RMSEA, values lower than .07 (with the upper limit of the confidence interval [CI] less than .08) represent reasonable error of approximation (Hooper et al., 2008; Steiger, 2007).

3. Results

3.1. Measurement analyses

Two CFA measurement models of the MBI-GS and UWES were tested: (1) a four-factor (M1) structure (i.e., emotional exhaustion,

Table 2
Fit indices for the tested models.

Model description	χ^2	df	CFI	TLI	RMSEA and 90% CI	MC	$\Delta\chi^2$	Δdf
CFA measurement models								
M1: Four factors	1934.131	183	.962	.957	.099 (.095–.103)	M1 vs M2	4672.316**	5
M2: Two factors (energy and identification continua)	6606.447	188	.862	.846	.189 (.183–.191)	–	–	–
ESEM measurement models								
M3: Four factors	939.235	132	.983	.972	.079 (.075–.084)	M3 vs M1	994.896**	51
M4: Two factors	2566.335	169	.948	.936	.121 (.117–.125)	M3 vs M4	1627.100**	37
Structural Analyses								
M5: SEM with ESEM factors of burnout/work engagement	3066.010	698	.963	.956	.057 (.055–.060)	M5 vs M6	1102.506**	51
M6: CFA with ESEM factors of burnout/work engagement	4168.516	749	.946	.941	.067 (.065–.069)	–	–	–

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square; MC = model comparison; $\Delta\chi^2$ = chi-square difference; ** $p < .001$.

Table 3
Measurement model: correlations between the dimensions of burnout and work engagement (CFA and ESEM solutions).

	Emotional exhaustion	Cynicism	Vigor	Dedication
Emotional exhaustion	–			
Cynicism	.473 /.740	–		
Vigor	–.280 /–.561	–.352 /–.704	–	
Dedication	–.188 /–.530	–.473 /–.764	.597 /.924	–

Note. ESEM correlations are in bold above the dashed line.

cynicism, vigor, and dedication) and (2) a two-factor (M2) structure comprised of one factor including the emotional exhaustion and vigor items (i.e., energy continuum) and a second factor including the cynicism and dedication items (i.e., identification continuum). M1 provided an adequate fit to the data with the exception of the RMSEA which was above the .07 (and upper CI limit above the .08) threshold (see Table 2). M1 also provided a significantly better fit to the data than M2, which provided a poor fit to the data (Table 2). Correlations between the four latent factors in M1 were high, ranging from $-.530$ (between emotional exhaustion and dedication) to $.924$ (between vigor and dedication; see Table 3).

Next, two ESEM measurement models with four (M3) and two (M4) factors were tested (see Table 2). Results show that M4 did not fit the data particularly well (none of the fit indices respected their cut-off thresholds). M3 provided a satisfactory fit to the data. Although the RMSEA was above .07, the upper CI limit was very close to .08, suggesting a reasonable error of approximation. Results also show that M3 provided a significantly better fit to the data than M4. Moreover, M3 (i.e., ESEM four-factor solution) provided a significantly better fit than M1 (i.e., CFA four-factor solution). Overall, these results inform Hypothesis 3. Correlations between the four latent factors of M3 (ESEM four-factor solution) decreased significantly compared to M1 (CFA four-factor solution), ranging from $-.188$ to $.597$ (see Table 3). The strongest correlation was found between vigor and dedication ($r = .597$), followed by the correlation between emotional exhaustion and cynicism ($r = .473$). The lowest correlations were between vigor and emotional exhaustion ($r = -.280$) and between emotional exhaustion and dedication ($r = -.188$). Taken together, these results provide weak preliminary support for the energy and identification continua. Indeed, results showed that the four dimensions of burnout and work engagement are best represented as distinct factors as opposed to components of two underlying factors. Moreover, the pattern of correlations shows that the components of the energy and identification continua are not strongly negatively related. There is a small correlation between emotional exhaustion and vigor ($r = -.280$; Cohen, 1988) and a moderate correlation between cynicism and dedication ($r = -.473$; Cohen, 1988).

All factor loadings (primary and cross-loadings) of the ESEM four-factor solution are presented in Table 4. These factor loadings enable a more rigorous evaluation of the energy and identification

continua. In order to support these continua, strong cross-loadings for each latent factor should be found from indicators representing the opposite dimension of the same continuum (e.g., dedication items should have strong cross-links on the cynicism factor). The results shown in Table 3 offer little support for any of the continua (infirming Hypotheses 1 and 2). For the two dimensions of burnout, no cross-loadings reached the threshold of .30 (Tabachnick & Fidell, 2007). This suggests that both latent factors are relatively distinct. A different pattern of results was obtained for the two dimensions of work engagement. Three out of five dedication items had cross-loadings of .30 or higher on the vigor latent factor, and two out of six vigor items had cross-loadings of .30 or higher on the dedication latent factor.¹

Overall, these results offer little empirical support for the energy and identification continua and reveal that the two dimensions of work engagement are highly intertwined. Moreover, these results suggest that ESEM, which considers cross-loadings between the core dimensions of burnout and work engagement, more adequately reflects the interplay between these dimensions than CFA.

3.2. Structural analyses

Exploratory SEM analyses were conducted subsequently to test the structural relationships between job characteristic (i.e., work overload, job autonomy, and recognition), burnout/work engagement, and health-related as well as motivational outcomes (i.e., psychological distress and turnover intention). More specifically, two models were compared: M5 including ESEM-factors of burnout/work engagement, and M6, including CFA-factors of these constructs. In both models, all links between job characteristics

¹ Given that the short version of the UWES (UWES-9; Schaufeli, Bakker, & Salanova, 2006) is often used to assess work engagement, CFA and ESEM measurement analyses were subsequently conducted using the MBI-GS and the UWES-9. The results revealed a pattern similar to the one obtained with the complete version of the work engagement scale. More specifically, no significant (i.e., above .30) cross-loadings were observed for the latent factors of emotional exhaustion and cynicism. Two dedication items (out of three) had cross-loadings of .30 or higher on the vigor latent factor and one vigor item (out of three) had cross-loadings of .30 or higher on the dedication latent factor. Detailed results of the ESEM measurement model containing the UWES-9 can be obtained from the first author.

Table 4
Measurement Model: CFA and ESEM solutions for the MBI-GS and UWES.

		Factor loadings			
		Factor 1	Factor 2	Factor3	Factor 4
Emotional exhaustion	Item 1	<i>.752/.843</i>	.147	.013	–.083
	Item 2	<i>.932/.855</i>	–.029	.032	–.084
	Item 3	<i>.728/.852</i>	.080	–.256	.064
	Item 4	<i>.615/.885</i>	.248	–.240	.057
	Item 5	<i>.731/.881</i>	.214	.002	–.082
Cynicism	Item 1	.153	<i>.702/.868</i>	–.153	–.039
	Item 2	.150	<i>.704/.919</i>	.032	–.056
	Item 3	.034	<i>.497/.497</i>	–.256	–.063
	Item 4	.097	<i>.465/.637</i>	.006	–.211
	Item 5	.113	<i>.582/.745</i>	.071	–.270
Vigor	Item 1	–.146	–.205	<i>.420/.924</i>	.369
	Item 2	–.114	–.137	<i>.738/.879</i>	.084
	Item 3	.099	.155	<i>.402/.517</i>	<u>.392</u>
	Item 4	.143	.098	<i>.358/.361</i>	.250
	Item 5	–.058	.204	<i>.357/.313</i>	.147
	Item 6	–.086	–.116	<i>.754/.898</i>	.128
Dedication	Item 1	–.060	–.274	.395	<i>.472/.948</i>
	Item 2	–.014	–.255	.428	<i>.471/.875</i>
	Item 3	–.080	–.188	<u>.405</u>	<i>.448/.893</i>
	Item 4	–.080	–.041	.129	<i>.733/.836</i>
	Item 5	–.029	–.092	.062	<i>.857/.819</i>

Note. CFA loadings are in italics below the dashed line. Factor loadings of the items reflecting the theoretical counterpart of each factor are in bold. Significant cross-loadings are underlined.

and the four dimensions of burnout/work engagement as well as between these dimensions and the two outcomes were assessed. Although M6 fits the data reasonably well (CFI and TLI were close to the .95 threshold) the results indicate that M5 provided a significantly better fit to the data (see Table 3). The results of both solutions (ESEM and CFA) are depicted in Fig. 1. Results show that

the structural links between job characteristics and the dimensions of burnout and work engagement in the CFA solution are generally stronger (7 out of 10) than those obtained in the ESEM solution. Interestingly, the CFA solution reveals a significant link between job autonomy and cynicism that was not significant in the ESEM solution. Moreover, the “emotional exhaustion–turnover intention”

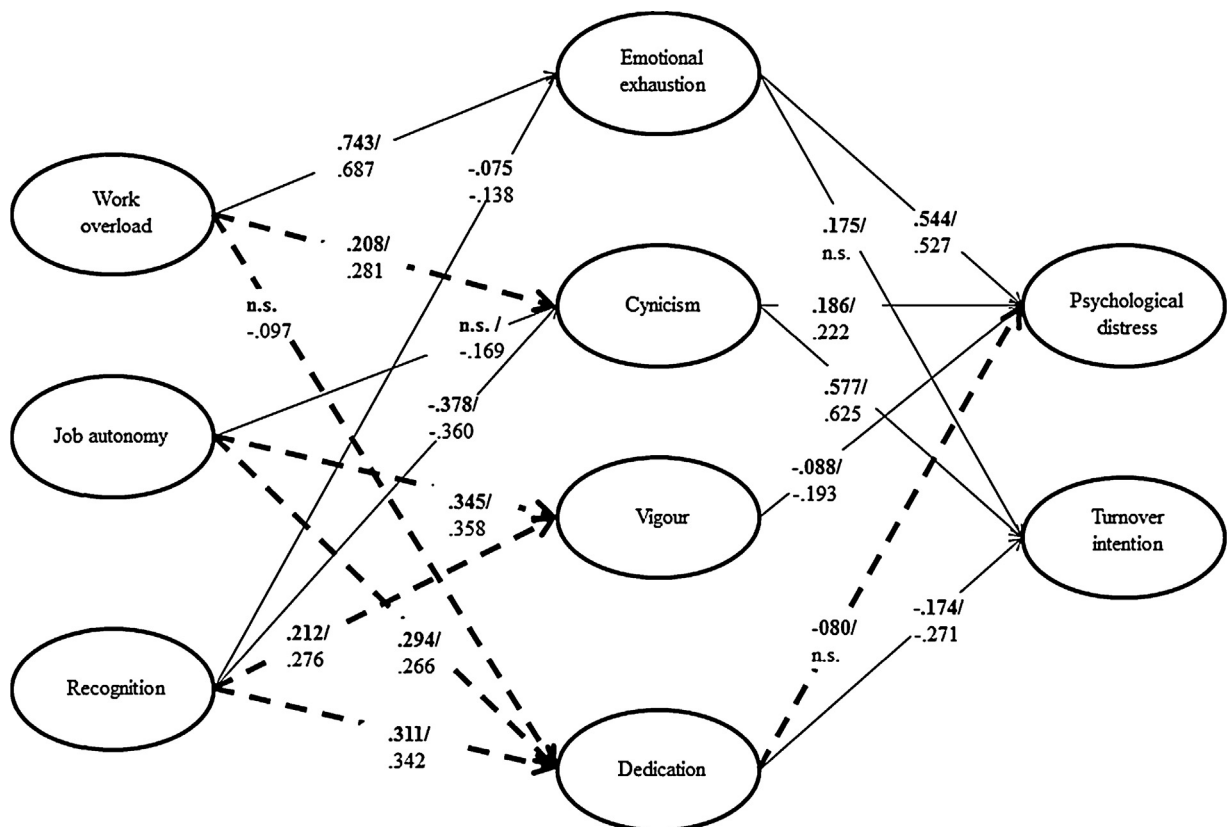


Fig. 1. Results comparing the structural relationships between job characteristics, the dimensions of burnout/work engagement and outcomes through CFA and ESEM. Note. Results of the ESEM solution are in bold above the dashed line.

and “dedication-psychological distress” relationships were found to be non-significant in the CFA solution but significant in the ESEM solution. Subsequently, regression coefficient comparison (using unstandardized coefficient estimates and standard errors) was conducted to more rigorously compare M5 (ESEM solution) and M6 (CFA solution). Results reveal several significant differences. These differences are presented in bold dotted lines in Fig. 1. More specifically, M6 revealed significantly stronger relationships between (1) work overload and cynicism ($z=2.27$), (2) work overload and dedication ($z=2.06$), (3) job autonomy and dedication ($z=2.02$), (4) recognition and vigor ($z=2.54$) and (5) recognition and dedication ($z=4.37$). On the other hand, M5 revealed significantly stronger relationships between job autonomy and dedication ($z=2.16$) as well as between dedication and psychological distress ($z=2.41$).

4. Discussion

The present study aimed to shed new light on the interplay between burnout and work engagement by empirically investigating whether both concepts are diametrical counterparts. More specifically, this study simultaneously investigated the factorial structure of the MBI-GS and UWES using ESEM, which allowed us to examine the energy (emotional exhaustion-vigor) and identification (cynicism-dedication) continua. Our results offered little support for both continua, revealing that work engagement dimensions are highly intertwined and have stronger relationships with each other than with their burnout counterpart. Moreover, integrating ESEM measurement models of burnout/work engagement within a SEM that includes job characteristics and health-related/motivational outcomes significantly alters the pattern of results. As such, our results extend the understanding of the health-impairment and motivational processes proposed by the JD-R model. The theoretical implications of these results are discussed below.

4.1. Theoretical contributions

4.1.1. The energy and identification continua

The energy and identification continua said to connect the core dimensions of burnout and work engagement were investigated by comparing two-factor and four-factor measurement models (CFA and ESEM). Results offered little support for these continua as the four-factor solutions fit the data significantly better than the two-factor solutions. Furthermore, ESEM – which takes cross-loadings of all indicators on all factors into account – allowed for an in-depth examination of the energy and identification continua. More specifically, we investigated whether strong cross-loadings for the four dimensions were found from their theoretical counterpart. The results did not follow such a pattern, suggesting that burnout and work engagement are not conceptual opposites. With regard to the two dimensions of burnout, results revealed no significant cross-loadings (.30 or higher) for any other items, suggesting that both dimensions of burnout are distinct and tap into unique work-related psychological experiences. These results support past research validating the factorial structure of MBI-GS through CFA (e.g., Hu & Schaufeli, 2011; Schutte, Toppinen, Kalimo, & Schaufeli, 2000), which showed that emotional exhaustion and cynicism are best represented as separate factors (as opposed to a single factor). Overall, the results of the present study, in conjunction with past CFA studies, highlight the relevance of investigating emotional exhaustion and cynicism separately given that they reflect distinct energetic and attitudinal experiences.

A different pattern of results was obtained for work engagement. Results revealed several cross-loadings between the two dimensions (using both the long and short versions of the UWES)

and none from items reflecting their burnout counterparts. The vigor and dedication subscales of the UWES (and UWES-9) thus represent similar psychological experiences that are difficult to distinguish. This overlap is supported by the particularly strong correlation found in this study between the two dimensions of work engagement (.924 in the CFA measurement model and .597 in the ESEM solution). This also concurs with past research showing a strong interrelation between these dimensions, with correlation coefficients usually exceeding .60 (e.g., Hallberg & Schaufeli, 2006; Schaufeli et al., 2002; Shimazu et al., 2008). Moreover, our results support those obtained in several validation studies (e.g., Hallberg & Schaufeli, 2006; Shimazu et al., 2008) that found a one-dimensional representation of work engagement to be equivalent (or even superior) to a multi-dimensional representation (i.e., vigor and dedication as distinct concepts). Overall, our results, like previous CFA studies, highlight the considerable overlap between vigor and dedication, suggesting that work engagement may be best investigated as a one-dimensional construct. Specifically, our results suggest that, because both dimensions are intertwined, investigating work engagement globally (i.e., vigor and dedication combined) as opposed to its two dimensions separately, may be most parsimonious and appropriate. Further research is required to pursue investigation of the uniqueness of vigor and dedication from a conceptual standpoint (i.e., the fundamental nature of both constructs). Researchers could also revisit the relationship between vigor and dedication from a methodological standpoint by assessing the adequacy of the UWES for assessing work engagement (Schaufeli & Salanova, 2011).

4.1.2. Health-impairment and motivational processes

Our study provides new insight into the relationships between job characteristics (demands and resources), burnout/work engagement and health-related as well as motivational outcomes. Results reveal that SEM with CFA factors of burnout/work engagement predominantly resulted in stronger relationships between these factors and job characteristics. More specifically, half of the links (five out of ten) were significantly stronger in the CFA solution than in the ESEM solution. Of these five links, three were between job resources (job autonomy, recognition) and work engagement (the other significant links were between job demands and cynicism/dedication). With regard to the relationships between burnout/work engagement and indicators of employee functioning, the ESEM solution revealed two cross-links (emotional exhaustion-turnover intention and dedication-psychological distress) that were not significant in the CFA solution.

Taken together, these findings reiterate the importance of ESEM in structural solutions when investigating concepts that are theoretically very closely related (Asparouhov & Muthén, 2009), as it is the case for burnout and work engagement. Allowing cross-loadings between these closely related concepts results in a more adequate assessment of their interrelationship as well as the association they have with their work-related antecedents and outcomes (Asparouhov & Muthén, 2009). Our results show that investigating the relationship between job characteristics and burnout/work engagement through SEM with CFA factors may result in an inflated representation of these relationships, especially those involving job resources and work engagement (motivational process). Moreover, these findings suggest that burnout and work engagement may have more similar effects on employee functioning than initially proposed by the JD-R model. That is, both burnout and work engagement dimensions were found to predict health-related (i.e., psychological distress) and motivational (i.e., turnover intention) outcomes. This corroborates findings of past studies showing that the health-impairment and motivational processes are interrelated (e.g., Bakker et al., 2003; Hakanen et al., 2008; Trépanier, Fernet, Austin, Forest, & Vallerand, 2014; Van den Broeck, Vansteenkiste,

De Witte, & Lens, 2008), as opposed to relatively independent processes (Bakker & Demerouti, 2007). This also underlines the relevance of investigating burnout/work engagement simultaneously and of systematically examining cross-links in order to more adequately capture the interplay between job demands, job resources, burnout, work engagement, as well as health-related and motivational outcomes (Schaufeli & Taris, 2014). This would result in a clearer representation of the potential motivational effects of job demands as well as the energetic impact of job resources on employee functioning through burnout and work engagement. Unfortunately, research to date has often investigated both processes in isolation and has usually omitted to evaluate all cross-links between these processes (e.g., Hakanen et al., 2006; Schaufeli & Bakker, 2004).

4.2. Methodological implications

From a measurement standpoint, the results of this study offer valuable insight to researchers and practitioners assessing burnout and work engagement. By offering little support for the energy and identification continua proposed to underlie the relationship between the dimensions of burnout and work engagement, our results show that these two concepts are distinct psychological experiences and should be evaluated as such. Indeed, our findings nuance past propositions suggesting that adding the scores of vigor (dedication) items to the reversed scores of emotional exhaustion (cynicism) items adequately represent employees' overall level of "energy" and "identification" (e.g., González-Romá et al., 2006). Our results also call into question the assessment of burnout and work engagement with the same instrument, as it is the case with the OLBI (Demerouti & Bakker, 2008). The OLBI contains both negatively and positively worded items said to reflect both ends of the energy and identification continua. It has been proposed that recoding positively framed items (reflecting vigor and dedication) results in the measurement of burnout whereas recoding negatively framed items (reflecting exhaustion and disengagement) results in the measurement of work engagement (Demerouti & Bakker, 2008). However, our results indicate that high vigor (dedication) does not necessarily imply low emotional exhaustion (cynicism) and low cynicism (emotional exhaustion) does not necessarily imply high dedication (vigor). Taken together, our results suggest that both researchers and practitioners would benefit from assessing burnout and work engagement (as well as their dimensions) independently and through different instruments as they reflect distinct concepts.

4.3. Limitations and conclusion

The present study has some limitations that should be addressed. First, the fact that the study was conducted among school teachers only raises concerns regarding the generalizability of the findings to other working populations. Future research is encouraged to validate our findings by investigating burnout and work engagement, from both measurement and structural standpoints, using ESEM in other occupations. Second, it is important to note that in all tested models, particularly for the CFA measurement models, the RMSEA fit value did not indicate a particularly good fit (see Table 2), which hints at model misspecification (Hu & Bentler, 1999). Future research is needed in order to validate our measurement and structural findings in other samples. Third, the structural model tested in the present study focused on a limited number of job characteristics (i.e., work overload, job autonomy and recognition) and only on negative employee functioning outcomes (i.e., psychological distress and turnover intention). Moreover, it is worth mentioning that as in previous studies (e.g., Fernet, Austin, & Vallerand, 2012) the measure of job autonomy did not meet

the benchmark for reliability (coefficient $H = .57$). The revised AWS (Leiter & Maslach, 2011), which comprises an additional item to capture job autonomy, would certainly help represent more adequately this construct. Future studies are encouraged to replicate the results using this job autonomy measure and other job demands (e.g., role ambiguity, physical demands), job resources (e.g., social support, skill utilization) as well as both positive and negative indicators of employee functioning (e.g., in-role performance, psychosomatic complaints, commitment). This should provide additional support for the relevance of using ESEM analysis when investigating the health-impairment and motivational processes. Including objective and multi-source health-related (e.g., sickness absence records) and motivational (e.g., supervisor ratings of employee extra-role performance) indicators of employee functioning would also strengthen the results obtained in the present study, which relied solely on self-reported data.

In summary, although it has been proposed that burnout and work engagement are conceptual counterparts, the results of this study offer little support of this proposition. Our results also illustrate that ESEM represents a promising avenue for future burnout and work engagement research as it may more adequately capture the interplay between these concepts as well as their specific relationships with job characteristics and employee functioning (i.e., health-impairment and motivational processes).

Conflict of interest

The authors declare that there are no conflicts of interest.

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