

---

## Extending the nomological network of wellness at work

Jürgen R. Becker, Gideon P. de Bruin, Christina Györkös, Jérôme Rossier and Koorosh Massoudi

### Abstract

Modern-day organisations face rapid and continuous change. In order to deal with this rapidly changing and current hostile economic environment, most organisations have become increasingly dependent on a healthy and engaged workforce. As a result of the direct and indirect organisational costs associated with work wellness, the total well-being of the individual worker has become the focal point of many organisational interventions. Although work wellness is a multifaceted and continuously evolving concept, most studies have adopted either a pathological or a salutogenic (positive) perspective when examining the construct. Congruent with current thinking in vocational psychology, a balanced model of work wellness was conceptualised in this study, containing both salutogenic (work engagement) and pathological (burnout) constructs. Strong empirical support was found for the proposed balanced model of work wellness based on data collected from a sample of 854 employees working across various sectors of the South African economy.

### Introduction

Work is central to most people's lives and their future aspirations and dreams are closely linked to their daily work activities. Since the earliest days of modern existence, work has formed a key nexus point around which other life activities pivot (Blustein, 2006; Maloon, Crous and Crafford, 2004). When work is perceived as engaging and stimulating, workers often enjoy a great deal of psychological health and vigour. However, in the absence of meaningful vocational opportunities, or when employment is not available, work can be a source of denigration, tedium, and despair (Bakker and Derks, 2009; Blustein, 2006). Work can thus either contribute towards illness or have a therapeutic effect (Rothmann and Cilliers, 2007).

Over the last decade a paradigmatic shift has taken place in psychology, which has resulted in a greater focus on the study of health origins targeted at the enhancement and improvement of physical, mental and social well-being (Becker, Glascoff and Felts, 2010). This buoyant and positive psychological direction gained momentum at the turn of the last century, thanks largely to the humanistic psychological movement, which was regarded as the 'third force' in psychology in addition to psychoanalysis and behaviourism (Rothmann, 2003). More recently, this shift in psychology has also filtered through to organisational settings, where the total well-being of the individual worker has become the focal point of

many organisationally induced interventions. This shift in focus is especially due to the explicit link between employee well-being and key organisational outcomes such as profitability and sustainability (Seligman and Csikszentmihalyi, 2000; Wissing, 2000; Strümpfer, 1995; Antonovsky, 1987). As organisations become increasingly dependent on employees who are willing to take on multiple in-role and extra-role work activities, they are shifting their focus towards the total well-being of their workers.

### **Work wellness and the separation hypothesis**

On the basis of existing theory and research, it appears that work wellness is often approached in a dyadic fashion, from either a pathological or a positive perspective. The growing divide between positive scholarship and the traditional pathological psychological model is increasingly problematic, since the synthesis of positive and negative experiences at work can illuminate dimensions of workplace wellness that were formerly left unobserved (Bakker and Schaufeli, 2008; Linley, Joseph, Harrington and Wood, 2006).

From a psychoanalytic perspective, the prevalence of conflicting emotions and the appraisal of the social context, in terms of intensity and mix, are core to identity formation, which involves an ongoing process of emotions, stressful events and disappointment (Craib, 1994; Klein, 1981). It could consequently be argued that the avoidance or suppression of anxiety, disappointment and other psychological states are counterproductive for the development of coping resources and general aptitude (Fineman, 2006; Lowen, 1980).

Against this background, it can be argued that positive and negative cognitive-behavioural tendencies are inextricably linked (Schaufeli, Bakker and Van Rhenen, 2009; Fineman, 2006; Campos, 2003; Lazarus, 2003). Appreciation of the interplay between positive and negative emotions towards the same person or situation is likely to facilitate theory-building in the field of occupational health psychology. However, to our knowledge, there has not been an integrative effort to formulate a balanced and comprehensive model of work wellness outcomes that incorporates dimensions of both pathological and positive psychological perspectives. Furthermore, an investigation of the occupational health psychology literature has revealed that integrated models of work wellness are rarely embedded in larger nomological theoretical models. In other words, integrative wellness models are not linked to variables in comprehensive theoretical models that illuminate the complex interactions shaping wellness at work.

This study proposes an inclusive work-wellness model, the conceptualisation of which is based upon two well-researched work theories: Schaufeli and Bakker's (2001) view of burnout vs engagement, and Karasek's (1979) job demands control model. Elements from these two theories are combined into a larger nomological network that examines multivariate relationships between pathogenic and salutogenic elements.

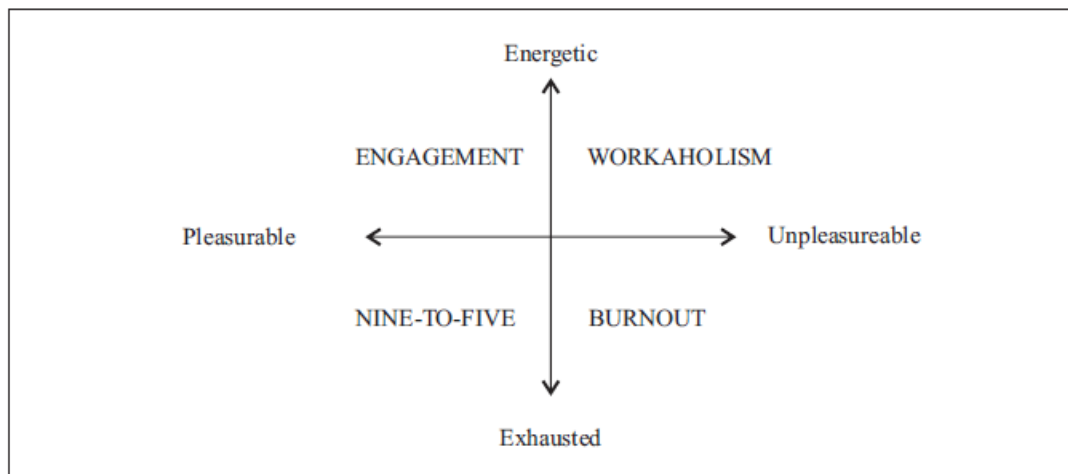
The next section has two specific goals: (a) to present an overview of existing wellness research, and (b) to embed these elements in a comprehensive wellness model, operating in

a broader nomological model that explicates important person and situational variables that shape work wellness.

### Theoretical framework for understanding work wellness

The literature relating to occupational health and wellness does not clearly differentiate between health, well-being, and other related constructs. Rather, these terms are used interchangeably when referring to aspects of human development and experience. Although several authors (e.g. Diener, Wirtz, Biswas-Diener, Tov, Kim-Prieto, Choi and Oishi, 2009; Dolan, Peasgood and White, 2008; Anspaugh, Hamrick and Rosato, 2004; Adams, Bezner and Steinhardt, 1997) have conceptualised broad concepts related to wellness, these concepts often form a laundry-list of variables with little or no theoretical synthesis. Narrowing the search to a few succinct models, Schaufeli and Bakker's (2001) model emerges as a simple yet elegant and Bakker's (2001) model emerges as a simple yet theoretical model for understanding work wellness.

**FIGURE 1**  
**A TAXONOMY OF WELL-BEING**



Source: Adapted from 'Burnout and engagement: A South African perspective', by S. Rothmann, 2003, *South African Journal of Industrial Psychology*, 29(4): 20. Copyright 2003 by the *South African Journal of Industrial Psychology*. Reprinted with permission.

Schaufeli and Bakker (2001) developed a model of well-being that incorporates both burnout and engagement (Figure 1). The two constructs can be thought of as independent prototypes of employee well-being that form part of a more comprehensive taxonomy, which is outlined according to the dimensions of pleasure and activation (Watson and Tellegen, 1985). In the model, the horizontal axis represents degrees of pleasure at work, and the vertical axis relates to the mobilisation of energy.

The development of this model was inspired by earlier work on burnout that showed that, despite working long hours and facing considerable demands, some employees were not burned out (Schaufeli and Bakker, 2001). Schaufeli and Bakker (2001) thus attempted to understand why some individuals burn out while other employees – who face the same

contextual demands – express energy, dedication and absorption in their work. Given the adverse consequences of workplace burnout, and conversely the many organisational benefits associated with high levels of work engagement [e.g., in- and extra-role behaviour (Halbesleben and Wheeler, 2008), increased financial turnover (reduced sickness and absenteeism) (Schaufeli *et al.*, 2009), and improved service quality as rated by customers (Salanova, Agut and Pieró, 2005)], these two primary constructs from the work of Schaufeli and Bakker (2001) were included, and expanded upon, in the current wellness model. Although the continua of ‘workaholism’ and ‘nine-to-five’ are important in order to understand the larger holistic picture of employee well-being, we were of the opinion that these relationships have been well researched in previous studies (Salanova, Del Libano, Llorens and Schaufeli, 2014; Taris, Van Beek and Schaufeli, 2014; Shimazu, Schaufeli, Kamiyama and Kawakami, 2015) and did not form the primary focus of this study. Interested readers are directed to the work of Salanova *et al.* (2014) for a comprehensive investigation of the workaholism nine-to-five continua.

### **The job demands control model (JDC)**

Of the stress models described in the literature, none has been used as a theoretical basis more often in applied research or been subjected to more empirical testing than Karasek’s (1979) job demands control (JDC) model (Hausser, Mojzisch, Niesel and Schulz-Hardt, 2010; De Lange, Taris, Kompier, Houtman and Bongers, 2003). At the most basic level, the job demands control model explains workplace strain in relation to two broad dimensions: job demands and job control (Karasek, 1979). Job demands are the quantitative aspects of work, such as workload and time pressure (Van der Doef and Maes, 1999; Karasek, 1979). The second major job characteristic of the job demands control model is job control (also referred to as ‘decision latitude’), which is made up of the sub-facets of decision authority (control over work situation) and skill discretion, that is, the opportunity to use competence and skills (Mark and Smith, 2010; Van der Doef and Maes, 1999). Jobs that are characterised by a high degree of decision authority and autonomy allow incumbents of the position (1) to decide how they want to conduct their work activities (i.e., timing and method control) and (2) to decide which skills they will use to materialise work outcomes (Hausser *et al.*, 2010).

By combining the two dimensions of job demands and job control, Karasek (1979) distinguished between four types of jobs. Table 1 illustrates Karasek’s-model, which categorises jobs into four types based on different combinations of job demands and job control. According to the theory, jobs that are characterised by high demands and low control (referred to as high-strain jobs) bear the highest risk of illness and reduced well-being, since these employees face challenging demands but have little autonomy in how to perform their tasks (Karasek, 1979). In contrast to high-strain jobs, work satisfaction, learning and personal growth are highest in jobs characterised by high job demands and high job control. Karasek (1979) labelled these as ‘active’ jobs, since workers use all their available skills and energy to deal actively with high job demands.

Karasek (1979) also proposed that employees in occupational positions characterised by low demand and low control, referred to as ‘passive jobs’, often experience relatively low levels of job satisfaction and commitment as a result of repetitive task activities and lack of challenge. The final type of job category portrayed in Table 1 is referred to as ‘low-strain jobs’. Jobs in this category face low demands and high levels of decision-latitude (job control).

Although Karasek’s (1979) JDC model is used as the reference point for measuring job demands and job control in the current study, the authors conceptualise job control as part of a larger construct called ‘job resources’. This is in line with the more contemporary conceptualisation of the JDC model by Schaufeli and Bakker (2001), termed the JD-R (job demands resources) model. The JD-R model is considered to be theoretically broader since it characterises job control as one specific job resource among a myriad of many other resources (e.g., ergonomic office furniture, flexi-time).

**TABLE 1**  
**TAXONOMY OF JOB TYPES ENDEMIC TO THE**  
**DEMAND-CONTROL FRAMEWORK**

Level of control	High demands	Low demands
High control	Active jobs	Low-strain jobs
Low control	High-strain jobs	Passive jobs

### **Towards a broader view of work wellness**

The current study conceptualised a more granular and balanced model of work wellness that incorporated both pathogenic and salutogenic constructs. While the theories of Schaufeli and Bakker (2001), and Karasek (1979), are well-researched and prominent within the work wellness field, this model sought to further their application by examining the relationship between positive and pathogenic constructs, with a view to moving beyond bivariate relationships towards measuring multivariate relationships within a nomological network.

Within this network, the constructs of job demands and job control were positioned within the exogenous model and were argued to be related to the constructs of burnout (pathogenic) and engagement (salutogenic) within the endogenous model. Furthermore, burnout was conceptualised as three independent yet related latent variables: emotional exhaustion, cynicism, and reduced professional efficacy. This provided a more molecular perspective on the interaction between job demands, job control, and the three dimensions of burnout. The theorised model is graphically depicted in Figure 2.

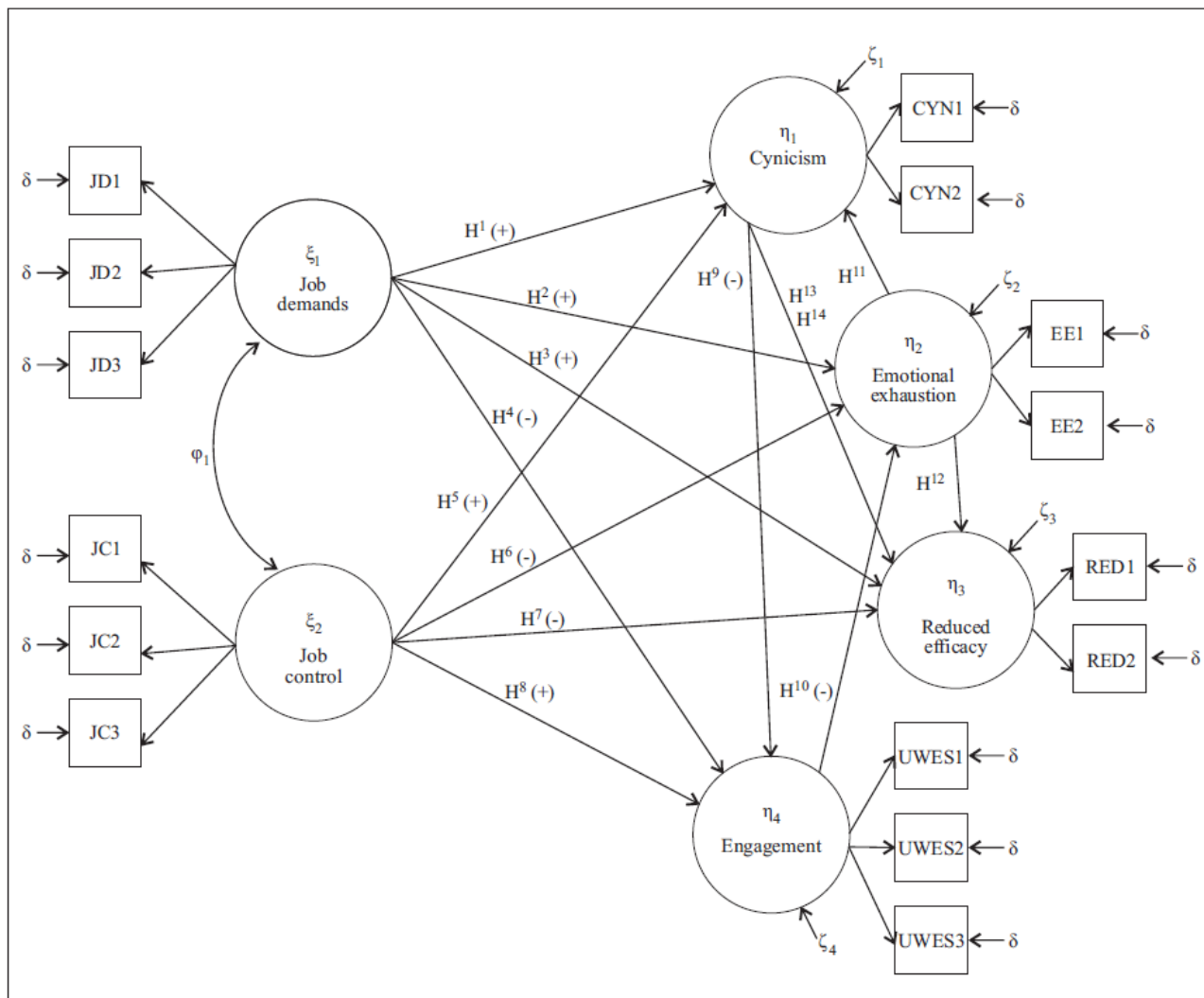
The structural paths in the model can be expressed as a set of substantive hypotheses:

#### **Direct effects:**

H<sup>1</sup>: Increased levels of job demands are positively related to cynicism

- H<sup>2</sup>: Increased levels of job demands are positively related to emotional exhaustion
- H<sup>3</sup>: Increased levels of job demands are positively related to reduced levels of professional efficacy
- H<sup>4</sup>: Increased levels of job demands are negatively related to work engagement
- H<sup>5</sup>: Increased levels of job control are negatively related to cynicism
- H<sup>6</sup>: Increased levels of job control are negatively related to emotional exhaustion
- H<sup>7</sup>: Increased levels of job control are negatively related to reduced levels of professional efficacy
- H<sup>8</sup>: Increased levels of job control are positively related to work engagement
- H<sup>9</sup>: Increased levels of cynicism are negatively related to work engagement
- H<sup>10</sup>: Increased levels of work engagement are negatively related to emotional exhaustion

**FIGURE 2**  
**GRAPHICAL PORTRAYAL OF THE BALANCED MODEL OF WORK WELLNESS**





It is expected that higher levels of job demands would be positively related to emotional exhaustion, cynicism and reduced professional efficacy, and negatively related to work engagement. Similarly, higher levels of job control are expected to be negatively related to the three dimensions of burnout and positively related to work engagement. Thus, decision-latitude was expected to play an intrinsic and extrinsic motivation role (Bakker and Demerouti, 2007). Job control fosters basic human needs related to autonomy, relatedness and competence (Deci and Ryan, 1985). Job resources are also valuable in themselves, as they facilitate the achievement of work-related goals (Hobfoll, 2002). Finally, we expect cynicism to be additively (negatively) related to engagement (H<sup>9</sup>). Since cynicism is the result of prolonged strain, we expect cynicism to have a direct impact on work engagement. Support for this hypothesis has been found in previous studies (Hakanen *et al.*, 2006; Schaufeli and Bakker, 2004). However, we do not expect the inverse to be true insofar as work engagement will be negatively related to cynicism. Our assumption is based on the notion that cynicism may not be counteracted by engagement in the absence of resources. Workers who have experienced a prolonged state of resource-demand imbalance may be unable to return to a state of equilibrium without a detachment from work and interpersonal engagement. Yet, an individual who suffers from a temporary imbalance of resources-demands (i.e., emotional exhaustion) may try to counteract this imbalance, albeit temporarily, by increased work engagement. We therefore predict that work engagement will be additively (negatively) related to emotional exhaustion (H<sup>10</sup>).

Job demands were also hypothesised to have an indirect effect on cynicism (H<sup>11</sup>) and reduced efficacy (H<sup>12</sup>) via exhaustion. In the face of sustained work demands, employees might decide that 'enough is enough' and switch from an active to a passive coping mode characterised by disengagement and cynicism. However, this is only likely to happen when active coping resources have been outstripped by job demands. We argue that emotional exhaustion is the first stage of the onset of burnout, followed by cynicism and finally by reduced professional efficacy. This emotional exhaustion and subsequent detaching behaviour is likely to result in declining professional efficacy, leading to a further hypothesis (H<sup>13</sup>) referring to the indirect effect of exhaustion on reduced efficacy via cynicism (Bakker, Schaufeli and Van Dierendonck, 2000). However, we predict that a sustained level of cynicism can spill over to reduced professional efficacy; thus the relationship between job demands and reduced professional efficacy is mediated by cynicism (H<sup>14</sup>). Following the same line of argument, we expect the relationship between emotional exhaustion and reduced professional efficacy to be mediated by cynicism.

### **Indirect effects:**

H<sup>11</sup>: The relationship between job demands and cynicism is mediated by exhaustion

H<sup>12</sup>: The relationship between job demands and professional efficacy is mediated by exhaustion

H<sup>13</sup>: The relationship between emotional exhaustion and reduced efficacy is mediated by cynicism

H<sup>14</sup>: The relationship between job demands and reduced efficacy is mediated by cynicism

In the next section, the sampling procedure and research methodology are discussed. The research strategy used to empirically test the proposed research hypotheses in this section are also discussed in more detail.

## **Methodology**

### **Procedure and participants**

Data were collected in several organisations doing business in various sectors of the formal South African economy. A convenience sampling method was used but participants were required to have a matric level of English and to have at least one year of work experience in order to participate in the study. In total 895 questionnaires were completed across several industries, including, but not limited to, construction, engineering, finance, and professional services. Because a convenience sampling strategy was used, the results from the study can not be generalised to the broader population of working individuals.

There were a number of missing values in the dataset. A combination of list-wise deletion and imputation of missing values using maximum likelihood was used to deal with the missing values. Respondents who had more than 80 per cent of responses missing were deleted from the dataset. Finally, 879 cases were retained, and were used for the statistical analysis.

Of the 879 respondents, 73 were of mixed-race, 56 were Indian, 270 were black, and 426 were white. This means that 45.3 per cent of respondents were non-white and 48.4 per cent were white. With respect to gender, 59.9 per cent of the respondents were female, with males representing 27.6 per cent of the total sample<sup>1</sup>. Across ethnic and gender groups, white men had the highest qualifications, with 56.7 per cent of all masters' degrees and 100 per cent of all doctoral degrees held by this group. Most white respondents' home language was either Afrikaans (27.4 per cent) or English (24 per cent). In the total sample, 40.8 per cent of respondents' home language was English, followed by Afrikaans (29.1 per cent), isiZulu (8.1 per cent), Setswana (7.2 per cent), isiXhosa (3.5 per cent), Sepedi (3.4 per cent), Xitsonga (1.2 per cent), Tshivenda (1.1 per cent), isiNdebele (0.7 per cent), and Siswati (0.6 per cent). The majority of respondents were between the ages of 19 and 33.

## **Measures**

### **Work engagement**

The abbreviated nine-item version of the Utrecht Work Engagement Scale (UWES-9) was used to operationalise work engagement. Responses were captured on a seven-point scale ranging from '1' (*strongly agree*) to '7' (*strongly disagree*). The first question in the scale reads as follows: "At my work, I feel bursting with energy" (Schaufeli, Bakker and Salanova, 2006: 712). Cronbach's coefficient alpha values for the total nine-item version of



the UWES varied from 0.85 to 0.92 (Schaufeli *et al.*, 2006). In the current study, a Cronbach's coefficient alpha of 0.914 was recorded for the full nine-item scale.

### **Burnout**

Burnout consists of three sub-facets: exhaustion, cynicism and inefficacy (Schaufeli Maslach and Leiter, 2008). Emotional exhaustion forms the core of the burnout concept, and is considered a typical reaction to chronic exposure to high work demands. This study made use of the Maslach Burnout Inventory General Survey (MBI-GS) to measure burnout (Schaufeli, Leiter, Maslach and Jackson, 1996). In the MBI-GS, five items measure exhaustion (e.g. "I feel used up at the end of the workday"), five items measure cynicism (e.g. "I have become less enthusiastic about my work"), and six items measure professional efficacy (e.g. "In my opinion, I am good at my job"). All items are scored on a seven-point frequency rating scale ranging from '1' (*never*) to '7' (*always*). A typical item reads as follows: "I have become less interested in my work since I started this job" (Schaufeli *et al.*, 2008: 218). Satisfactory internal consistencies have also been reported in the South African context, with alpha coefficients ranging from 0.78 to 0.89 for exhaustion, from 0.76 to 0.84 for cynicism, and from 0.69 to 0.85 for professional efficacy (Storm and Rothmann, 2003; Kruger, Veldman, Rothmann and Jackson, 2002; Rothmann and Janse van Vuuren, 2002). In the current study, alpha coefficients of 0.92, 0.85 and 0.85 were found for emotional exhaustion, cynicism, and reduced professional efficacy respectively.

### **Job demands**

Karasek's (1979) Job Content Questionnaire (JCQ) was used to measure job demands. The first nine items of the JCQ measure the "task requirements" and "work load" components constituting job demands in the JCQ framework (Karasek and Theorell, 1990: 63). Responses to the JCQ were captured using a four-point Likert scale ranging from '*strongly disagree*' to '*strongly agree*' (Karasek, 1979). A typical item in the scale reads as follows: "My job is very hectic" (Karasek, 1979: 300). The internal consistency of the scale appears to be satisfactory, with alpha coefficients surpassing the recommended 0.70 range (Karasek, Brisson, Norito, Houtman, Bongers and Amick, 1998). In the current study, a Cronbach's coefficient alpha of 0.742 was found for the nine-item sub-scale of the JCQ.

### **Job control**

The terms 'job control' and 'decision latitude' are often used interchangeably to refer to the degree of discretion and control workers have over their own task performance (Karasek *et al.*, 1998). In this study, job resources were operationalised as the second dimension of Karasek's (1979) Job Content Questionnaire (JCQ). Responses were captured on a four-point Likert-type response scale ranging from '*strongly disagree*' to '*strongly agree*' (Karasek, 1979). A typical item on the scale reads as follows: "My job allows me to make a lot of decisions on my own" (Karasek, 1979: 300). The internal consistency of the scale seems to be satisfactory, with alpha coefficients surpassing the recommended 0.70 range (Sale and Kerr, 2002; Karasek *et al.*, 1998). In the current study, a Cronbach's coefficient alpha of 0.808 was returned for the nine-item sub-scale of the JCQ.

## **Data analysis strategy**

The study involved the formulation of a complete structural equation model (SEM) of workplace wellness where certain independent variables – job demands and job control – were mapped on to a comprehensive and balanced wellness construct. However, the complexity of this model necessitated an initial focus on the measurement parts of the model separately during the development stages, before testing the structural parts of the proposed model.

Confirmatory factor analyses of the measurement models identified some problematic items, which were removed from the scales to reduce the amount of error variance. The remaining scale items were aggregated by randomly assigning indicators to parcels. This was done because parcels are more reliable than individual items, have more scale points, follow a more multivariate normal distribution, and are more likely to have linear relations with each other and with relevant latent factors (De Bruin, 2004; Comrey, 1984). Three parcels were created for each scale, with the exception of the MBI-GS sub-scales. Due to a limited number of items operationalising the MBI-GS, only two sub-scales were created for the cynicism, emotional exhaustion, and reduced professional efficacy sub-scales.

The structural model was assessed with Mplus 6 (Muthén and Muthén, 2010) and the robust maximum likelihood estimator was used due to the non-normality of the manifest variables. The fit of the models was assessed with the Satorra-Bentler Chi-square ( $\chi^2$ ), the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the Tucker-Lewis Index (TLI). Following Hu and Bentler's (1999) guidelines, values of 0.90 for the CFI and TLI were deemed acceptable, whereas values of 0.95 or higher were considered indicative of excellent fit. For the RMSEA values, up to 0.08 represented reasonable errors of approximation (Browne and Crudeck, 1993).

Substantive hypotheses were empirically corroborated when the direction, magnitude and statistical significance of path coefficients were congruent with *a priori* theorising.

Finally, mediation effects were evaluated using bias-corrected bootstrap 95 percent confidence intervals or CIs (Hayes, 2009).

## **Results**

### **Descriptive statistics**

The means, standard deviations and correlations of the aggregated indicator parcels are summarised in Table 2. As expected, moderately strong positive correlations were evident between the job demands indicators and the burnout parcels, whilst there were negative correlations between job control manifest variables and burnout indicators.

Negative correlations were also apparent between work engagement and burnout manifest variables.

## Assessment of measurement models

Some measurement inadequacies were identified in some of the original scale items. In an attempt to reduce the amount of noise in the measurement models that is attributable to random error variance, some scale items were deleted from the original scales. In the endogenous measurement model, item MBI3 from the cynicism sub-scale, item MBI11R from the reduced professional efficacy sub-scale, and items UWES8 and UWES9 from the work engagement scale were removed due to low standardised factor loadings values<sup>ii</sup>. No items were removed from the emotional exhaustion sub-scale.

The overall fit of the refined endogenous measurement model was satisfactory ( $S-B\chi^2(21) = 52.229$ ;  $p > 0.05$ ;  $RMSEA = 0.041$ ;  $p < 0.05$ ,  $CFI = 0.991$ ;  $TLI = 0.984$ ;  $SRMR = 0.016$ ) and deemed appropriate for constructing the proposed structural model.

Five items in the exogenous measurement model were identified as problematic<sup>iii</sup>. Two items with low factor loadings were deleted from the JC sub-scale (JCQ4R and JCQ5R) and three items from the JD sub-scale (JCQ14R, JCQ16 and JCQ18). This decision was based on the low factor loadings and low communality estimates of the items.

**TABLE 2**  
**MEANS, STANDARD DEVIATIONS, AND CORRELATIONS BETWEEN INDICATORS**

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	JD1	0.00	0.55															
2	JD2	0.00	0.59	0.43														
3	JD3	0.02	0.65	0.57	0.42													
4	JC1	0.13	0.61	0.01	0.26	0.08												
5	JC2	0.00	0.63	0.09	0.32	0.12	0.57											
6	JC3	0.00	0.64	-0.08	0.13	0.02	0.60	0.63										
7	CYN1	0.86	0.46	0.18	-0.05	0.15	-0.29	-0.26	-0.39									
8	CYN2	0.66	0.46	0.13	-0.09	0.11	-0.28	-0.27	-0.39	0.87								
9	EE1	0.03	0.52	0.29	0.09	0.28	-0.19	-0.13	-0.29	0.68	0.68							
10	EE2	0.15	0.55	0.34	0.12	0.34	-0.19	-0.14	-0.30	0.66	0.66	0.86						
11	RED1	0.67	0.20	0.01	-0.20	-0.07	-0.33	-0.36	-0.44	0.38	0.43	0.29	0.26					
12	RED2	0.27	0.01	0.08	-0.14	-0.01	-0.26	-0.25	-0.31	0.31	0.37	0.31	0.25	0.74				
13	UWES1	0.65	0.27	-0.15	0.16	-0.07	0.40	0.41	0.54	-0.52	-0.54	-0.47	-0.49	-0.51	-0.45			
14	UWES2	0.65	0.28	-0.17	0.06	-0.12	0.32	0.32	0.46	-0.52	-0.53	-0.54	-0.55	-0.49	-0.46	0.83		
15	UWES3	0.33	0.17	-0.15	0.14	-0.06	0.39	0.39	0.46	-0.52	-0.52	-0.47	-0.47	-0.52	-0.49	0.77	0.77	

Notes: JD = Job demands; JC = Job control; CYN = Cynicism; EE = Emotional exhaustion; RED = Reduced professional efficacy; UWES = Work engagement

**TABLE 3**  
**GOODNESS-OF-FIT STATISTICS FOR THE BALANCED MODEL**  
**OF WORK WELLNESS**

<b>Absolute fit indices</b>	
Chi-square test of model fit	342.799
Degrees of freedom	76
p-value	0.000
Scaling correction factor for robust ML	1.344
RMSEA (Root mean square error of approximation)	0.063
p-value RMSEA (<= 0.05)	0.001
90% Confidence intervals	0.057; 0.070
Standardised root mean squared residual (RMR)	0.069
<b>Incremental fit indices</b>	
Comparative fit index (CFI)	0.955
Tucker-Lewis fit index (TLI)	0.937

The fit indices were inconclusive ( $S-B(8)\chi^2 = 114.043$ ;  $p > 0.05$ ,  $RMSEA = 0.123$ ;  $p > 0.05$ ;  $CFI = 0.912$ ;  $TLI = 0.836$ ;  $SRMR = 0.077$ ), since  $RMSEA$  and  $TLI$  indicated unsatisfactory fit, yet the  $SRMR$  and  $CFI$  met the normative guidelines outlined in the literature (Hair, Black, Babin, Anderson and Tatham, 2006; Hu and Bentler, 1999). The high  $RMSEA$  value was particularly concerning, since the confidence interval included the critical normative cut-off value of 0.08. Considered collectively, the endogenous measurement model demonstrated a mediocre fit to the data.

### **Assessment of the structural model**

#### **Model fit**

Residuals provide important information about overall model fit (Kelloway, 1998; Jöreskog and Sörbom, 1996). The average absolute diagonal (0.068) and off-diagonal (0.007) standardised residual values reported for the comprehensive SEM model were indicative of an acceptable model fit. The frequency distributions of the standardised residuals followed a marginally skewed distribution, which approximated a normal distribution.

In general, the results reported in Table 3 suggest that the proposed model of work wellness fitted the data adequately, as indicated by the significant p-value of the Satorra-Bentler Chi-square. Thus the null hypothesis of exact fit had to be rejected. Furthermore, the null hypothesis of close fit ( $RMSEA < 0.05$ ) also had to be rejected ( $p < 0.001$ ). However, the relative low point estimate and narrow confidence interval instilled confidence in a reasonable tenability of the theoretical model. The standardised  $RMR$  value yielded by the SEM analysis was somewhat high, yet still within acceptable limits (Hair *et al.*, 2006). The  $CFI$  and  $TLI$  indices were also in line with normative guidelines of optimal values ranging between 0.90 and 0.95 (Hair *et al.*, 2006).

The results presented in Table 3 suggest that the exogenous measurement model provides a reasonable account of the manner in which the indicator variables representing the latent variables comprising the model co-vary. An examination of the goodness-of-fit indices, residuals and model parameters indicates that the structural model reproduces the co-variances in the observed co-variance with adequate levels of precision.

### Model parameters

Standardised structural regression parameters pertaining to the balanced model of work wellness are presented in Table 4<sup>iv</sup>. In line with initial theorising, job demands were positively related to emotional exhaustion ( $\beta = 0.384$ ;  $p < 0.05$ ), yet the relationship with reduced professional efficacy was not statistically significant. Contrary to initial theorising, a small negative, statistically significant relationship was found between job demands and cynicism ( $\beta = -0.142$ ;  $p < 0.05$ ). A negative and statistically significant relationship was found between job demands and work engagement ( $\beta = -0.133$ ;  $p < 0.05$ ).

Turning to job control, negative and statistically significant relationships emerged between job control and cynicism ( $\beta = -0.203$ ;  $p < 0.05$ ) as well as between job control and reduced professional efficacy ( $\beta = -0.393$ ;  $p < 0.05$ ). The relationship between job control and emotional exhaustion was not statistically significant. Further, a strong positive and statistically significant relationship was found between job control and work engagement ( $\beta = 0.533$ ;  $p < 0.05$ ).

Furthermore, positive and statistically significant relationships were found between cynicism and reduced professional efficacy ( $\gamma = 0.257$ ;  $p < 0.001$ ), as well as between emotional exhaustion and cynicism ( $\gamma = 0.741$ ;  $p < 0.001$ ). However, the relationship between emotional exhaustion and reduced professional efficacy was non-significant.

**TABLE 4**  
**STRUCTURAL PATH COEFFICIENTS OF THE BALANCED MODEL OF WORK**

Predictor	CYN			EE			RED			UWES		
	UPC	(SE)	SPC	UPC	(SE)	SPC	UPC	(SE)	SPC	UPC	(SE)	SPC
JD	-0.47	0.12	-0.14***	10.34	0.15	0.38***	-0.28	0.15	-0.10	-0.39	0.12	-0.13***
JC	-0.62	0.10	-0.20***	-0.36	0.21	-0.11	-10.05	0.14	-0.39***	10.42	0.14	0.53***
CYN							0.22	0.07	0.26***	-0.18	0.06	-0.21**
EE	0.71	0.04	0.74***				0.04	0.07	0.05			
UWES				-0.47	0.09	-0.39***						

Notes: JD = Job demands; JC = Job control; CYN = Cynicism; EE = Emotional exhaustion; RED = Reduced professional efficacy; UWES = Work engagement; UPC = Unstandardised path coefficient; SE = Standard error; SPC = Standardised path coefficient  
\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

Statistical support was found for the proposed relationship between work engagement and emotional exhaustion ( $\gamma = -0.39$ ;  $p < 0.05$ ) ( $H^{10}$ ). A moderately negative relationship



was found for the proposed relationship between work engagement and cynicism ( $\gamma = -0.21$ ;  $p < 0.05$ ) (H<sup>9</sup>).

In addition to the main effects specified in Table 4, empirical support was found for the proposed indirect effect of job demands on cynicism via emotional exhaustion ( $\gamma_{21}\beta_{12} = 0.285$ ;  $p < 0.001$ ) (H<sup>11</sup>). The unstandardised bias corrected bootstrap 95 percentage CI indicated that the indirect effect through emotional exhaustion was significant [ $(\gamma_{21}\beta_{12} = 0.947$ ; 95% CI:

(0.738; 1.186)]. However, no statistical support was found for the proposed indirect relationship between job demands and reduced professional efficacy via emotional exhaustion (H<sup>12</sup>), nor for the proposed indirect relationship between job demands and reduced efficacy via cynicism (H<sup>14</sup>). Statistical support was also found for the proposed indirect relationship between emotional exhaustion and reduced professional efficacy via cynicism ( $\gamma_{32}\gamma_{21} = 0.191$ ;  $p < 0.01$ ) (H<sup>13</sup>). Thus statistical support was found for Hypotheses 2, 4, 5, 7, 9, 10, 11, and 13.

## **Discussion**

The central purpose of the present study was to contribute to the understanding of workplace wellness by conceptualising a balanced model of workplace wellness. Using Karasek's (1979) well-known job demands control model as the theoretical basis, the study demonstrated that job demands and job control have divergent associations with pathogenic (burnout) and salutogenic (work engagement) wellness outcomes. Empirical support was found for most of the linkages within the proposed model. However, some of the SEM results were unexpected and warrant further deliberation. In particular, the weak, albeit statistically significant, negative relationship found between job demands and cynicism was unexpected, since previous research has consistently found moderately positive associations between these two constructs (Prieto, Soria, Martínez and Schaufeli, 2008; Schaufeli and Bakker, 2004).

Recent research by Van den Broeck, De Cuyper, De Witte and Vansteenkiste (2010) suggests that demands are not universally pathological in nature, and often yield opportunities for professional growth and development.

For example, in contrast to the negative relationship between job demands and work engagement proposed by the JD-R model, research has found positive relationships between workload, vigour and dedication (Van den Broeck, Vansteenkiste, De Witte and Lens, 2008; Hallberg, Johanson and Schaufeli, 2007; Bakker, Van Emmerik and Euwema, 2006).

Van den Broeck *et al.* (2010) further argued that some job demands can be both energy-depleting and stimulating, although stimulation is normally associated with job resources. Accordingly, an inverse U-shaped curvilinear effect probably best describes the

relationship between job demands and cynicism, whereby an increase in job demands will initially result in a decrease in cynicism as employees allocate greater resources and effort to dealing with the amplified demands. This relationship will persist up to a certain tolerance point, after which cynical coping mechanisms will be primed.

Empirical verification of such non-linear effects between job demands and cynicism is very important for practice, because it suggests that moderate demands may induce beneficial effects such as work engagement. The present findings suggest that the role of job demands in work wellness should be considered more explicitly, since high-commitment human resource management may be dependent on creating challenging work environments that promote learning and foster feelings of self-efficacy.

From a methodological perspective, it is worth noting that, when developing complex hypotheses that ultimately result in a structural model in which endogenous latent variables are hypothesised to be affected by multiple effects, we often fail to recognise that the path coefficients are partial regression coefficients. They therefore reflect the average change in the focal endogenous latent variable associated with one unit change in a latent variable that is hypothesised to affect that focal endogenous latent variable when the other latent variables linked to the focal endogenous latent variable are held constant. When reflecting on the unexpected negative estimate of  $\beta_{11}$ , it needs to be explicitly taken into account that the job demands latent variable (JD) is significantly negatively related to cynicism (CYN) when included in a model that already contains the job control (JC) and emotional exhaustion (EE) latent variables. In other words, the hypothesis that is being tested is actually not the simple hypothesis that JD explains variance in CYN (i.e.  $H^1$ ) but rather that the unique part of JD (unrelated to EE and JC) explains unique variance in CYN that is not explained by JC and EE.

The key to understanding the negative relationship between JD and CYN lies, therefore, in conceptualising the unique variance left in JD and CYN when the effect of EE and JC has been controlled for in JD and CYN. Therefore, the question is: why would JD be negatively related to CYN if all employees had the same discretionary power and suffered from the same degree of emotional exhaustion? The latter seems especially important, because CYN is a protective psychological withdrawal response that flows from high EE. CYN occurs, firstly, because the employee attempts to cope with his/her high EE by psychologically withdrawing (EE has a positive effect on CYN) because he/she has no option due to low JC (JC negatively affects CYN). If this process is controlled for, how else would JC affect CYN (measured by items like 'I have become less enthusiastic about my work')? A possible explanation is that the employee becomes cynical about his/her job to the extent that he/she employs detachment strategies to cope with the excessive demands. Thus, cynicism might possibly fulfil a protective function by reducing the main sources of overload when JD and EE are held constant.

Furthermore, all substantive linkages with the reduced professional efficacy sub-scale of the burnout construct, with the exception of the cynicism and job control main effects, were not supported. Prieto *et al.* (2008) argue that emotional exhaustion and cynicism constitute the core of burnout. The authors suggest that cynicism and exhaustion are manifestations of mental and emotional distancing from the broader work context and from the people with whom an individual interacts at work. In a different vein, professional efficacy should not be regarded as a dimension of burnout, but rather as a final outcome of burnout (García, Llorens, Cifre and Salanova, 2006).

Moreover, findings in the study emphasise the importance of job resources in promoting occupational well-being. Since Karasek's (1979) job demand control model largely conceptualises, explains and predicts workplace strain, the role of job control has often been restricted to a buffering function (Kain and Jex, 2010). Although the buffering hypothesis of the job demands control model was not formally assessed in the current study, the strong and statistically significant additive linkages between job control, burnout and work engagement suggest that additional resources not only lead to a decline in burnout, but also promote work wellness in the form of higher work engagement. This contention is consistent with the conservation of resources (COR) theory (Hobfoll, 2002), which suggests that resources are valued as a means to the achievement of valued outcomes (e.g., need for achievement, autonomy, and relatedness) or as a valued outcome in their own right. This remains an important research question in the occupational wellness literature, since the buffering role of personal resources has not received universal support.

As new statistical approaches find solutions for the methodological problems associated with modelling later interaction effects, the buffering assumptions of job resources should be expanded. Although the motivating role of job resources has been demonstrated in numerous other studies (Bakker and Derks, 2009; Bakker and Demerouti, 2008; Bakker, Hakanen, Demerouti and Xanthopoulou, 2007), the results of the present study emphasise the importance of a balanced approach in investigating work wellness. Clearly, the effect of job resources is not invariably linked to pathological and salutogenic wellness outcomes, since human affectivity is not polarised along purely positive or negative tendencies (Ryan and Deci, 2000).

Finally, despite the convenience methodology employed in obtaining participants, the heterogeneous nature of the sample and the random selection of candidates instil confidence in the validity of the balanced model of work wellness across occupations. That is, independent of the work context and the specific resources and demands involved, job resources are beneficial both for promoting engagement and for reducing burnout across a wide and diverse collection of jobs.

### **Managerial implications**

Organisations are paying more attention to the growing dysfunction caused by stress. The current study shed light on the complex interactions between salutogenic and pathogenic

pathways in the stress-strain relationship. The results of the study suggest that increased job demands can promote higher levels of engagement and probably job performance up to a certain tolerance point. When employees are exposed to sustained levels of unreasonable high job demands, the beneficial effects of challenging work conditions may be truncated and will eventually be replaced by cynical coping behaviour. At this point in the stress-strain sequence, it may be difficult to reverse the negative outcomes associated with burnout. If left unchecked, organisations may be inclined to grant employees extended periods away from their work to pursue remedial treatment and to recuperate from sustained periods of acute stress. Thus, both too high and too low job demands can have negative consequences for both employees and the organisations in which they work.

Against the foregoing background, the popular business mantra of achieving “more with less” may have undesirable outcomes. Large-scale retrenchment and restructuring often result in expanded work roles and responsibilities for those employees that remain in the organisation. This study suggests that more challenging or more enriched jobs may lead to increased amounts of stress.

In dealing with stress, the results further suggest that job resources promote positive outcomes such as work engagement. The direct negative relationship between work engagement and emotional exhaustion indicates that job resources can counteract the negative impact of sustained strain. The research on job demands have consistently found support for the counteractive role of job resources (especially supportive relationships and role clarity) in the face of prolonged job demands. Thus, role clarification, supportive relationships, leave of absence from work and employee assistance programmes (EAP's) may prove to be very important to reduce the potential spill-over from emotional exhaustion to full-blown cynicism.

### **Limitations**

A limitation of the study concerns the cross-sectional nature of the data. Although SEM analysis gives some information about the possible direction of the relationships, cross-sectional study designs do not allow for the drawing of firm conclusions about the causal ordering among studied variables. Thus longitudinal research and cross-lagged model testing are encouraged to investigate the causal effects in the balanced model of work wellness.

A second limitation of this study is that it was based on self-report questionnaires. Common method bias stemming from collecting data predominantly through self-report measures has been shown to inflate the strength of observed relationships (Bakker *et al.*, 2010). It would be useful if future research were to replicate the findings in the current study by using a combination of subjective and objective measures. Finally, the study mainly considered the additive effect of job demands and job resources on wellness outcomes. Bakker *et al.* (2010) argued that, although job demands may have a substantive negative additive influence on work strain, this effect may be particularly evident under demanding conditions. This assumption is consistent with Karasek's (1979) active-learning hypothesis, which suggests that employees may thrive when high resources are combined with high

demands. Although empirical support for the multiplicative hypotheses of job strain in the literature is inconsistent, the lack of support could be attributable to methodological rather than substantive limitations (Bakker *et al.*, 2010).

Recent methodological advancements in the area of testing interaction effects, particularly moderated structural equation modelling (MSEM), could be fruitfully used in the future to evaluate the buffer effect of job control on the stress-strain sequence with greater precision than was previously possible with moderated regression analysis (Bakker *et al.*, 2010; Mooijaart and Bentler, 2010; Marsh, Wen and Hau, 2004).

## **Conclusion**

The present study contributed to the understanding of workplace wellness by conceptualising a balanced model of workplace wellness that incorporated both pathological and salutogenic wellness outcomes. Karasek's (1979) job demands control model was used as the predictive theoretical framework. Strong empirical support was found for the proposed balanced model of work wellness. Not only was job control negatively related to burnout, but the results suggested that the availability of job resources promotes work engagement.



## References

- Adams, T., Bezner, J. and Steinhardt, M. 1997. The conceptualization and measurement of perceived wellness: Integrating balance across and within dimensions. *American Journal of Health Promotion*, 11: 208-218.
- Anspaugh, D., Hamrick, M. and Rosato, F. 2004. *Wellness: Concepts and Applications* (6<sup>th</sup> ed.). Boston: McGraw Hill.
- Antonovsky, A. 1987. *Unraveling the Mystery of Health: How People Manage Stress and Stay Well*. San Francisco: Jossey-Bass.
- Bakker, A.B. and Demerouti, E. 2007. The job demands resources model: State-of-the-art. *Journal of Managerial Psychology*, 22: 309-328.
- Bakker, A.B. and Demerouti, E. 2008. Towards a model of work engagement. *Career Development International*, 13: 209-223.
- Bakker, A.B. and Derks, D. 2009. Positive Occupational Psychology. In Leka, S. and Houdmont, J. (Eds.). *Occupational Health Psychology*. Oxford: John Wiley and Sons Ltd., 194-224.
- Bakker, A.B., Hakanen, J.J., Demerouti, E. and Xanthopoulou, D. 2007. Job resources boost work engagement particularly when job demands are high. *Journal of Educational Psychology*, 99: 274-284.
- Bakker, A. and Schaufeli, W.B. 2008. Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior*, 29: 147-154.
- Bakker, A., Schaufeli, W.B. Van Dierendonck, D. 2000. Burnout: Prevalentie, risicogroepen en risicofactoren. In Houtman, I.L.D., Schaufeli, W.B. and Taris, T. (Eds.), *Psychische Vermoeidheid en Werk: Cijfers, Trends en Analyses*. Alphen a/d Rijn: Samsom, 65-82.
- Bakker, A.B., Van Emmerik, H. and Euwema, M.C. 2006. Crossover of burnout and engagement in work teams. *Work and Occupations*, 33: 464-489.
- Becker, C.M., Glascoff, M.A. and Felts, M.W. 2010. Salutogenesis 30 years later: Where do we go from here? *International Electronic Journal of Health Education*, 13: 25-32.
- Blustein, D.L. 2008. The role of work in psychological health and well-being: A conceptual, historical, and public policy perspective. *The American Psychologist*, 63(4): 228-40.
- Browne, M.W. and Cudeck, R. 1993. Alternative ways of assessing model fit. In Bollen, K.A. and Long, J.S. (Eds.). *Testing Structural Equation Models*. Newbury Park: Sage, 136-162.
- Campos, J.J. 2003. When the negative becomes the positive and the reverse: Comments on Lazarus's critique of positive psychology. *Psychological Inquiry*, 14: 110-113.
- Comrey, J.J. 1984. The hierarchy of consistency: A review and model of longitudinal findings in adult individual differences in intelligence, personality and self-opinion. *Personality and Individual Differences*, 5: 11-26.
- Craib, I. 1994. *The importance of disappointment*. London: Routledge.
- De Bruin, G.P. 2004. Problems with the factor analysis of items: Solutions based on item response theory and item parceling. *South African Journal of Industrial Psychology*, 30(4): 16-26.

- Deci, E.L. and Ryan, R.M. 1985. *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.
- De Lange, A.H., Taris, T.W., Kompier, M.A.J., Houtman, I.L.D. and Bongers, P.M. 2003. The very best of the millennium: Longitudinal research and the demand- control-support) model. *Journal of Occupational Health Psychology*, 8: 282-305.
- Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D., and Oishi, S. 2009. New measures of well-being: Flourishing and positive and negative feelings. In Diener, E. (Ed.). *Assessing Well-Being: The Collected Works of Ed Diener*. Boston: Social Indicators Research Series, 15-28.
- Dolan, P., Peasgood, T. and White, M. 2008. Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29: 94-122.
- Fineman, S. 2006. On being positive: Concerns and counterpoints. *Academy of Management Review*, 31: 270-291.
- García, M., Llorens, S., Cifre, E. and Salanova, M. 2006. Antecedentes afectivos de la autoeficacia docente: Un modelo de relaciones estructurales [Affective antecedents of teacher self-efficacy: A structural equation model]. *Revista de Educación*, 339: 387-400.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. 2006. *Multivariate Data Analysis* (6<sup>th</sup> ed.). New Jersey: Prentice-Hall.
- Hayes, A.F. 2009. Beyond Baron and Kenny: Statistical mediation analysis in the new millenium. *Communication Monographs*, 76: 408-420.
- Halbesleben, J.R.B., and Wheeler, A.R. 2008. The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work and Stress*, 22: 242-256.
- Hallberg, U., Johansson, G. and Schaufeli, W.B. 2007. Type A behavior and work situation: Associations with burnout and work engagement. *Scandinavian Journal of Psychology*, 48: 135-142.
- Hausser, J.A., Mojzisch, A., Niesel, M. and Schulz-Hardt, S. 2010. Ten years on: A review of recent research on the Job Demand-Control (-Support) model and psychological well-being. *Work and Stress*, 24(1): 1-35.
- Hobfoll, S.E. 2002. Social and psychological resources and adaptation. *Review of General Psychology*, 6: 307-324.
- Hu, L. and Bentler, P.M. 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equations Modelling*, 6: 1-55.
- Jöreskog, K.G. and Sörbom, D. 1996. *LISREL 8: User's Reference Guide*. Chicago: Scientific Software International.
- Kain, J. and Jex, S. 2010. Karasek's 1979 Job Demand-Control model: A summary of current issues and recommendations for future research. In Perrewé, P.L. and Ganster, D.C. (Eds.). *New Developments in Theoretical and Conceptual Approaches to Job Stress*. London: Emerald Group Publishing Limited, 15-36.
- Karasek, R.A. 1979. Job demands, job decision latitude and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24: 285-308.

- Karasek, R.A. 1985. *Job content questionnaire and user's guide*. Los Angeles: University of Southern California, Department of Industrial and System Engineering.
- Karasek, R., Brisson, C., Norito, K., Houtman, I., Bongers, P. and Amick, B. 1998. The job content questionnaire (JCQ): An instrument for international comparative assessment of psychosocial job characteristics. *Journal of Occupational Health Psychology*, 3: 322-355.
- Karasek, R. and Theorell, T. 1990. *Healthy Work: Stress, Productivity and the Reconstruction of Working Life*. New York: Basic Books.
- Kelloway, E.K. 1998. *Using LISREL for Structural Equation Modeling: A Researcher's Guide*. United States of America: Sage.
- Kline, R.B. 2005. *Principles and Practice of Structural Equation Modelling* (2<sup>nd</sup> ed.). New York: The Guilford Press.
- Kruger, M.M., Veldman, H., Rothmann, S. and Jackson, L.T. 2002. Burnout, job satisfaction, sense of coherence and job stress in a local government. *Paper presented at the 25<sup>th</sup> International Conference of Applied Psychology*, Singapore.
- Lazarus, R.S. 2003. Does the positive psychology movement have legs? *Psychological Inquiry*, 14: 93-109.
- Linley, P.A., Joseph, S., Harrington, S., and Wood, M. 2006. Positive psychology: Past, present and (possible) future. *The Journal of Positive Psychology*, 1(1): 3-16.
- Lowen, A. 1980. *Fear of life*. New York: Collier.
- Mark, G.M. and Smith, A.P. 2010. Stress models: A review and suggested new direction. *Working paper* 61: 1-34
- Marsh, H.W., Wen, Z. and Hau, K.T. 2004. Structural equation models of latent interactions: Evaluation of alternative estimation strategies and indicator construction. *Psychological Methods*, 9(3): 275-300.
- Maloon, D., Crous, F. and Crafford, A. 2004. Work-related concerns of South Africans living with HIV and AIDS. *South African Journal of Industrial Psychology*, 30(2): 96-105.
- Mooijaart, A. and Bentler, P.M. 2010. An alternative approach for nonlinear latent variable models. *Structural Equation Modeling: A Multidisciplinary Journal*, 17(3): 357-373. Doi: 10.1080/10705511.2010.488997.
- Muthén, L.K. and Muthén, B.O. 2010. *Mplus User's Guide* (6<sup>th</sup> ed.). Los Angeles: Muthén and Muthén.
- Prieto, L.L., Soria, M.S., Martínez, I.M. and Schaufeli, W. 2008. Extension of the Job Demands-Resources Model in the prediction of burnout and engagement among teachers over time. *Psicothema*, 20(3): 354-360.
- Rothmann, S. 2003. Burnout and engagement: A South African perspective. *South African Journal of Industrial Psychology*, 29(4): 16-25.
- Rothmann, S. and Cilliers, F.V.N. 2007. Present challenges and some critical issues for research in Industrial/ Organisational Psychology in South Africa. *South African Journal of Industrial Psychology*, 33(1): 8-17.
- Rothmann, S. and Jansen van Vuuren, J.A. 2002. Sense of coherence, self-efficacy, locus of control, coping and burnout of senior managers in a manufacturing industry. *Poster presented at the 1<sup>st</sup> South African Burnout Conference*. Potchefstroom, South Africa.

- Ryan, R.M. and Deci, E.L. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1): 68-78.
- Salanova, M., Agut, S. and Peiró, J. M. 2005. Linking organizational resources and work engagement to employee performance and customer loyalty: The mediation of service climate. *Journal of Applied Psychology*, 90: 1217-1227.
- Salanova, M., Del Libano, M., Llorens, S. and Schaufeli, W.B. 2014. Engaged, workaholic, burned-out or just 9-to-5? Toward a typology of employee well-being. *Stress Health*, 30: 71-81.
- Sale, J. and Kerr, M. 2002. The psychometric properties of Karasek's demand and control scales within a single sector: Data from a large teaching hospital. *International Archives of Occupational and Environmental Health*, 75(3): 145-152.
- Schaufeli, W.B. and Bakker, A.B. 2001. Werk en welbevinden: Naar een positieve benadering in die Arbeids-en Gezondheidspsychologie [Work and well-being: Towards a positive occupational health psychology]. *Gedrag en Organizatie*, 14: 229-253.
- Schaufeli, W.B. and Bakker, A.B. 2004. Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25: 293-315.
- Schaufeli, W.B., Bakker, A.B. and Salanova, M. 2006. The measurement of work engagement with a short questionnaire. A cross-national study. *Educational and Psychological Measurement*, 66: 701-716.
- Schaufeli, W.B. Bakker, A.B. and Van Rhenen, W. 2009. How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, 30: 893-917.
- Schaufeli, W.B., Leiter, M.P., Maslach, C. and Jackson, S.E. 1996. Maslach Burnout Inventory – General Survey. In Maslach, C., Jackson, S.E. and Leiter, M.P. (Eds.). *The Maslach Burnout Inventory Test Manual* (3<sup>rd</sup> ed.). Palo Alto: Consulting Psychologists Press.
- Schaufeli, W.B., Leiter, M.P. and Maslach, C. 2008. Burnout: 35 years of research and practice. *Career Development International*, 14(3): 204-220.
- Seligman, M.E.P. and Csikszentmihalyi, M. 2000. Positive psychology: An introduction. *American Psychologist*, 55(1): 5-14.
- Shimazu, A., Schaufeli, W.B., Kamiyama, L. and Kawakami, N. 2015. Workaholism versus work engagement: The two different predictors of future well-being and performance. *International Journal of Behavioral Medicine*, 22: 18-23.
- Storm, K. and Rothmann, S. 2003. A psychometric analysis of the Maslach Burnout Inventory in the South African Police Service. *Paper presented at the 6<sup>th</sup> Annual Conference of the Society of Industrial and Organisational Psychology of South Africa*, Johannesburg, South Africa.
- Strümpfer, D.J.W. 1995. Salutogenesis: A new paradigm. *South African Journal of Psychology*, 20(4): 265-276.
- Taris, T.W., Van Beek, I and Schaufeli, W.B. 2014. The beauty versus the beast: On the motives of engaged and workaholic employees. In: Harpaz, I and Snir, R. (Eds.). *Heavy work investment: Its nature, sources, outcomes, and future directions*. New York: Taylor and Francis/Routledge.



- Van den Broeck, A., De Cuyper, N., De Witte, H. and Vansteenkiste, M. 2010. Not all job demands are equal: Differentiating job hindrances and job challenges in the Job Demands-Resources model. *European Journal of Work and Organizational Psychology*, 19(6): 735-759. doi: 10.1080/13594320903223839.
- Van Den Broeck, A., Vansteenkiste, M., De Witte, H. and Lens, W. 2008. Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction. *Work and Stress*, 22(3): 277-294. doi: 10.1080/02678370802393672.
- Van der Doef, M. and Maes, S. 1999. The job demand- control (-support) model and psychological well-being: A review of 20 years of empirical research. *Work and Stress*, 13: 87-114.
- Van Wyk, M. and Pienaar, J. 2008. Towards a research agenda for job insecurity in South Africa. *Southern African Business Review*, 12(2): 49-86.
- Watson, D. and Tellegen, A. 1985. Towards a consensual structure of mood. *Psychological Bulletin*, 98: 219-235.
- Wissing, M.P.W. 2000. *Wellness: Construct Clarification and a Framework for Future Research and Practice*. Paper presented at the First South African National Wellness Conference. Port Elizabeth, South Africa, May.

### Endnotes:

I Approximately 12.5 per cent of the respondents did not disclose their gender

ii All items removed from the exogenous measurement model reported standardised factor loadings below 0.70. Standardised factor loadings of 0.579, 0.534, and 0.63 were reported for items MBI11R, UWES8, and UWES9 respectively. Two parcels operationalised Cynicism: parcel one was made up of items MBI1 and MBI4. Parcel two was made up from MBI2 and MBI5). Two parcels operationalised Emotional exhaustion (parcel 1: MBI6, MBI9 and parcel 2: MBI7, MBI8, MBI10). Two parcels operationalised Reduced professional efficacy (parcel 1: MBI12R, MBI5R and parcel 2: MBI3R, MBI16R, MBI14R). Work engagement was operationalised by three parcels (parcel 1: UWES1, UWES4 and parcel 2: UWES2, UWE5 and parcel 3: UWES3, UWES6, UWES7).

iii All items removed from the endogenous measurement model reported standardised factor loadings below 0.70. Items JCQ14R, JCQ16, and JCQ18 reported standardised factor loadings of 0.322, 0.484, and 0.297 respectively and were deleted from the job demands sub-scale. Items JCQ4R and JCQ5R reported standardised factor loadings of 0.283 and 0.484 respectively and were deleted from the job control sub-scale. Job Demands was operationalised by three parcels (parcel 1: JCQ10, JCQ13R, parcel 2: JCQ11, JCQ15, and parcel 3: JCQ12R, JCQ17). Job control was operationalised by three parcels (parcel 1: JCQ1, JCQ6, parcel 2: JCQ2, JCQ7, and parcel 3: JCQ3, JCQ8, JCQ9).

iv The standardised covariance ( $\phi$ ) between Job demands and Job control equalled 0.145. The structural residual term ( $\zeta$ ) for Cynicism was 0.328, Emotional exhaustion was 0.602, Reduced professional efficacy was 0.638, and Work engagement was 0.484.



## Acknowledgements:

This research was financed by a grant from the State Secretariat for Education and Research (SER) attributed to Prof Jérôme Rossier, Dr Koorosh Massoudi, and Prof Gideon De Bruin (Swiss South African Joint Research Program Found grant no. 11). The participation of Jérôme Rossier and Koorosh Massoudi was also partially undertaken within the framework of the National Competence Center in Research LIVES, financed by the Swiss National Science Foundation, Project 7 entitled *Professional trajectories: Impact of individual characteristics and resources, and cultural background*, led by Jérôme Rossier. The authors gratefully acknowledge the financial support of the Swiss National Science Foundation.

### ANNEXURE A PATH ESTIMATES FOR EXOGENOUS MODEL

TABLE 5: STANDARDISED PATH ESTIMATES – EXOGENOUS MODEL				
Comparison	Estimate	S.E.	Est/S.E.	P-value
<b>JD BY</b>				
JD_MP1	0.737	0.032	23.088	0.000
JD_MP2	0.585	0.035	16.741	0.000
JD_MP3	0.753	0.030	25.345	0.000
<b>JC BY</b>				
JC_MP1	0.741	0.028	26.423	0.000
JC_MP2	0.793	0.025	31.284	0.000
JC_MP3	0.804	0.022	35.917	0.000
<b>JC WITH</b>				
JD	0.143	0.056	2.555	0.011
<b>RESIDUAL VARIANCES</b>				
JD_MP1	0.456	0.047	9.693	0.000
JD_MP2	0.658	0.0411	6.121	0.000
JD_MP3	0.432	0.045	9.648	0.000
JC_MP1	0.452	0.042	10.878	0.000
JC_MP2	0.372	0.040	9.255	0.000
JC_MP3	0.354	0.036	9.839	0.000

**ANNEXURE B**  
**PATH ESTIMATES FOR ENDOGENOUS MODEL**

<b>TABLE 6: STANDARDISED PATH ESTIMATES – ENDOGENOUS MODEL</b>				
<b>Comparison</b>	<b>Estimate</b>	<b>S.E.</b>	<b>Est/S.E.</b>	<b>P-value</b>
<b>CYN BY</b>				
CYN_MP1	0.914	0.012	77.384	0.000
CYN_MP2	0.945	0.012	76.392	0.000
<b>EE BY</b>				
EE_MP1	0.941	0.011	84.124	0.000
EE_MP2	0.915	0.014	66.551	0.000
<b>RED BY</b>				
RED_MP1	0.940	0.029	32.376	0.000
RED_MP2	0.772	0.031	25.179	0.000
<b>UWES BY</b>				
UWES_MP1	0.901	0.013	72.015	0.000
UWES_MP2	0.915	0.011	84.123	0.000
UWES_MP3	0.850	0.019	45.672	0.000
<b>EE WITH</b>				
CYN	0.777	0.020	37.946	0.000
<b>RED WITH</b>				
CYN	0.469	0.038	12.455	0.000
EE	0.341	0.042	8.159	0.000
<b>UWES WITH</b>				
CYN	-0.613	0.030	-20.289	0.000
EE	-0.585	0.031	-18.579	0.000
RED	-0.585	0.046	-12.648	0.000
<b>RESIDUAL VARIANCES</b>				
CYN_MP1	0.165	0.022	7.653	0.000
CYN_MP2	0.108	0.023	4.616	0.000
EE_MP1	0.144	0.021	5.407	0.000
EE_MP2	0.162	0.025	6.451	0.000
RED_MP1	0.117	0.055	2.147	0.032
RED_MP2	0.403	0.047	8.508	0.000
UWES_MP1	0.188	0.023	8.340	0.000
UWES_MP2	0.162	0.020	8.160	0.000
UWES_MP3	0.278	0.032	8.808	0.000

**ANNEXURE C**  
**FIGURE 3**  
**PATH ESTIMATES OF THE BALANCED MODEL OF WORK WELLNESS**

