

## Chapter 2

# **Burnout and Work Engagement: Do Individual Differences Make a Difference?**

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### **Abstract**

The central aim of the present study among 572 Dutch employees was to examine whether burnout and its positive antipode – work engagement – could be differentiated on the basis of personality and temperament. We expected burnout to be characterized by high neuroticism and low extraversion, and engagement by low neuroticism and high extraversion. Additionally, we predicted that burnout would correlate negatively with the temperament traits (strength of excitation, strength of inhibition, and mobility), whereas work engagement would correlate positively. Discriminant analyses were used to distinguish burned-out and engaged employees from their non-burned-out and non-engaged counterparts, respectively. Results showed that high neuroticism is the core characteristic of burnout, whereas work engagement is characterized by low neuroticism in combination with high extraversion and high levels of mobility. Thus, personality and temperament make a difference as far as burnout and work engagement are concerned.

*Keywords:* Burnout, Extraversion, Neuroticism, Personality, Temperament, Work Engagement

## **Introduction**

Research on burnout has nearly exclusively focused on the role of work characteristics (Halbesleben & Buckley, 2004; Schaufeli & Buunk, 2003). This is not surprising because burnout is defined as a *work-related* state of mind (Maslach, Schaufeli, & Leiter, 2001). However, it remains an intriguing question why some employees report high levels of burnout whereas others working in the same environment do not. The same applies to work engagement, the positive antipode of burnout (Schaufeli & Bakker, 2004): Why do some employees thrive in particular jobs, whereas others do not? The current study takes an individual difference perspective and attempts to discriminate employees with high and low burnout scores, and those with high and low engagement scores based on their personality and temperament.

### *Burnout and Work Engagement*

Burnout is characterized by *exhaustion* (draining of mental energy), *cynicism* (a negative attitude towards work) and *reduced professional efficacy* (the belief that one is no longer effective in fulfilling one's job responsibilities) (Maslach et al., 2001). Green, Walkey and Taylor (1991) refer to exhaustion and cynicism as the 'core components of burnout', which is illustrated by the relatively low correlations of professional efficacy with both other components (Lee & Ashforth, 1996). Furthermore, professional efficacy shows a different pattern of correlations with other work-related variables (Lee & Ashforth, 1996), and seems to develop in parallel to exhaustion and cynicism (e.g., Leiter, 1992).

In contrast to burnout, work engagement is defined as a positive, fulfilling, work-related state of mind, characterized by *vigor* (high levels of energy while working, willingness to invest effort in work, and persistence in the face of difficulties), *dedication* (sense of enthusiasm, inspiration, pride, and challenge), and *absorption* (being happily engrossed in one's work, whereby time passes quickly and one has difficulties detaching) (Schaufeli, Salanova, González-Romá, & Bakker, 2002b). Vigor and dedication are considered as the 'core dimensions' of work engagement (Schaufeli & Bakker, 2004), whereas absorption resembles 'flow', a state of optimal experience (Csikszentmihalyi, 1990) and seems to act as a consequence of work engagement.

Burnout and work engagement are independent states that are negatively, but not perfectly, related (Demerouti, Bakker, De Jonge, Janssen, & Schaufeli, 2001; Schaufeli & Bakker, 2004; Schaufeli et al., 2002b). More particularly, vigor and dedication are the direct positive opposites of exhaustion and cynicism, respectively (González-Romá, Schaufeli, Bakker, & Lloret, in press). Schaufeli and Bakker (2001) proposed a particular positioning in the existing two-dimensional model that consists of an *activation* and a *pleasure* dimension. They presume that the *activation* dimension is spanned by exhaustion and vigor, whereas the *pleasure* dimension is likewise spanned by cynicism and dedication.

In the present study, we examine whether burnout and work engagement can be characterized in terms of personality and temperament, using the activation and pleasure dimensions as an underlying framework. This seems plausible since these two dimensions seem to overlap with the dimensions that are used to conceptualize affect (e.g., Russell & Carroll, 1999) and personality (e.g., Clark & Watson, 1999; Eysenck, 1990).

#### *Affect and Personality*

Affect refers to mental states in which persons feel good or bad about what is happening to them (Watson, 2000). As described in terms of short-term emotions (e.g., sad, happy, enthusiastic), affect is transitory and situation-specific. In contrast, personality refers to relatively enduring personal characteristics in the sense of generalized and basic conduct tendencies that reflects long-term, pervasive individual differences in emotional style and has a general influence on emotional responses (Warr, 1999).

The structure of affect as well as personality has been investigated using two-dimensional models. The consensual model to describe affect consists of two dimensions – *pleasure* and *activation* (e.g., Russell & Carroll, 1999). The pleasure axis summarizes at the level of subjective experience how well one is feeling, whereas the orthogonal activation axis refers to a sense of mobilization of energy. Negative affect (NA) and positive affect (PA) can be described using these two axes whereby NA is characterized by feelings like anger, fear, nervousness and subjective stress (Watson, 2000). Conversely, PA is characterized by feelings like enthusiasm, energy, and happiness.

It has been suggested that engaged employees are characterized by high PA and to a somewhat lesser degree by low NA (Schaufeli et al., 2001),

whereas burned-out employees are characterized by high NA and to a somewhat lesser degree by low PA (Freudenberger, 1974). Concerning burnout, a recent meta-analysis corroborated these observations: both exhaustion and cynicism were significantly related to NA as well as to lack of PA (Thoresen, Kaplan, Barsky, Warren, & De Chermont, 2003). Unfortunately, to date, there are no studies on the relationship between affect and work engagement.

Measures of NA and PA have been found to be strongly and systematically associated with the 'Big Two' personality factors – neuroticism and extraversion. Neuroticism stands for the general tendency to experience distressing emotions such as fear, depression, and frustration, whereas extraversion reflects the disposition towards cheerfulness, sociability, and high activity (Costa & McCrae, 1980). It should be noted though that individuals high in emotional stability (the opposite of neuroticism) do not experience more positive emotions, and that highly introverted individuals (the opposite of extravert) do not experience more negative emotions (Costa & McCrae, 1992). Introversion and emotional stability should be seen as the absence of extraversion and neuroticism, respectively, rather than the opposite. Not surprisingly, measures of NA are strongly related to neuroticism but only weakly to extraversion and conversely, measures of PA are more strongly related to extraversion than to neuroticism (cf. Watson & Clark, 1992).

Various studies have documented a positive relationship of burnout (exhaustion and cynicism) with neuroticism, whereas the relationship with extraversion is somewhat weaker and negative (Burisch, 2002; Cano-García, Padilla-Muñoz, & Carrasco-Ortiz, 2005; De Vries & Van Heck, 2002; Mills & Huebner, 1998; Zellars, Hochwarter, Perrewé, Hoffman, & Ford, 2004). Taken together, we predict that employees who score high on burnout are characterized by high levels of neuroticism and low levels of extraversion (Hypothesis 1).

To date information is lacking about the relationship between personality and work engagement, however a positive relationship with extraversion and a negative relationship with neuroticism is plausible (Hypothesis 2). For instance, it has been shown that, independent of affect and life events, extraversion is a strong predictor of well-being (Diener & Lucas, 1999). Similarly the probability of optimal well-being increases as extraversion increases, and as neuroticism decreases (Keyes, Shmotkin &

Ryff, 2002). Finally, relative to neurotic individuals, extraverted individuals are more likely to experience vigor (Brief & Weiss, 2002).

### *Temperament*

Temperament refers to the more fundamental, biologically rooted, characteristics of personality (Strelau, Angleitner, & Newberry, 1999). In the current study, we focus on the features of central nervous system functioning that constitute the basis of the Pavlovian conceptualization of temperament. *Strength of excitation* (SE) refers to the functional capacity of the nervous system to react adequately under circumstances of intense, long-lasting stimulation. Individuals who score high on SE persist in performing planned activities and actions, even if the situation is threatening. They show a preference for demanding activities, are resistant to fatigue, and are able to perform well under stressful conditions. *Strength of inhibition* (SI) refers to the capability of inhibiting behavior when this behavior is inappropriate in a certain situation. Individuals high in SI are able to learn and acquire inhibitions that reflect the ability to stop or delay behavior when this is needed, and they are able to refrain from impulsive reactions. Finally, *mobility* of nervous processes (MO) refers to the ability to respond adequately to changes in stimulus conditions, including environmental demands. High-scorers on MO adapt quickly to new surroundings and switch easily between activities.

It can be argued that burnout is negatively related to SE, SI, and MO (Hypothesis 3), because burned-out employees do *not* prefer demanding activities, are easily fatigued and emotionally disturbed, and have difficulties adapting to change (cf. Freudenberger, 1974; Schaufeli & Enzmann, 1998). Contrarily, engaged workers are deeply involved in demanding and challenging work activities, feel energetic, and in control, and are flexible and open to change (cf. Schaufeli et al., 2001), thus a positive relationship with SE, SI and MO is to be expected (Hypothesis 4).

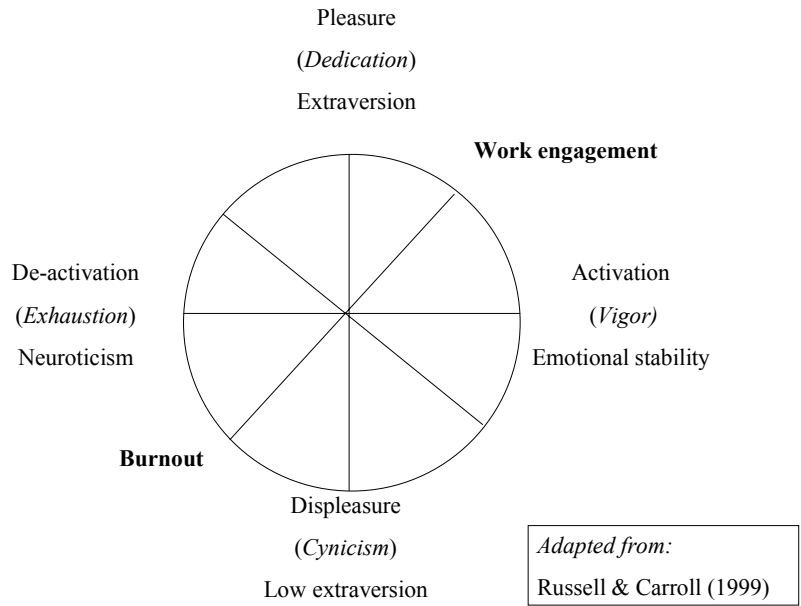
Very few studies have addressed the relationships between burnout and temperament, whereas studies including work engagement still stand out. De Vries and Van Heck (2002) found high negative relationships between emotional exhaustion and SE and MO. Furthermore, Michielsen, Willemsen, Croon, De Vries and Van Heck (2004) found that SI was significantly negatively related to exhaustion when controlled for job demands and personality (hardiness, neuroticism and extraversion). Generally, the

temperament traits correlate negatively with fatigue (Michielsen, De Vries, & Van Heck, 2003)

*The Present Study*

In the current study, we attempt to classify burned-out and non-burned-out employees as well as engaged and non-engaged employees on the basis of their personality and temperament scores. Regarding relationships with personality, we build upon the consensual two-dimensional models of affect (activation and pleasure) and personality (neuroticism and extraversion).

The activity axis overlaps with neuroticism, whereas the pleasure axis overlaps with extraversion (Figure 1). Exhaustion and vigor constitute the opposites poles of the activation dimension, whereas cynicism and dedication constitute the opposites poles of the pleasure dimension. For relationships with temperament we formulated separate hypotheses that are not based on this two-dimensional research model.



*Figure 1.* Integrated model to classify burnout and work engagement.

## Method

### *Participants and Procedure*

In total, 572 employees from three different samples participated in this study. Most participants were men (83%). The mean age was 42 years ( $SD = 8.0$ ). Seventy percent had a managerial position, and 52% completed at least college education. The three samples were pooled in order to increase statistical power and to achieve greater occupational heterogeneity.

Sample 1 consisted of managers from a Dutch Telecom Company ( $N = 338$ ), who participated in an occupational health survey. The survey, along with a cover letter was sent to the home addresses of 450 managers of which 338 returned the completed survey (response rate 75%).

Sample 2 consisted of blue-collar workers from a food-processing company ( $N = 111$ ). All employees ( $N = 190$ ) were asked to fill in the questionnaires voluntarily either at work during work hours, or at home (response rate 58%).

Sample 3 was recruited among participants of a seminar on ‘positive thinking’ ( $N = 123$ ). A booklet containing the measurement instruments and a cover letter that explained the purpose of the study was sent to the home addresses of 360 employees (response rate 34%).

### *Measures*

*Burnout* was measured with the Dutch version (Schaufeli & Van Dierendonck, 2000) of the Maslach Burnout Inventory-General Survey (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996). The subscale *exhaustion* includes five items (e.g., “I feel mentally exhausted because of my work”;  $\alpha = .87$ ) and the subscale *cynicism* includes four items (e.g., “I doubt the significance of my work”;  $\alpha = .79$ ). Items are scored on a 7-point Likert scale ranging from 0 (never) to 6 (every day). Several studies have shown that the MBI-GS has excellent psychometric properties, including high reliabilities of the subscales, factorial validity (e.g., Bakker, Demerouti, & Schaufeli, 2002; Schutte, Toppinnen, Kalimo, & Schaufeli, 2000), and construct validity (Taris, Schreurs, & Schaufeli, 1999).

*Work engagement* was measured with the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002b). The subscale *vigor* includes six items (e.g., “At work, I feel full of energy”;  $\alpha = .83$ ) and the subscale *dedication*



includes five items (e.g., “I am enthusiastic about my job”;  $\alpha = .91$ ). Items are scored on a 7-point Likert scale ranging from 0 (never) to 6 (every day). The reliability and the factorial validity of the UWES are good (e.g., Schaufeli et al., 2002b; Schaufeli, Martinez, Marques Pinto, Salanova, & Bakker, 2002a).

The *personality* dimensions *extraversion* and *neuroticism* were measured with the Dutch version (Hoekstra, Ormel, & de Fruyt, 1996) of the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Both scales include twelve items (*extraversion*, e.g., “I laugh easily”,  $\alpha = .78$ ; *neuroticism*, e.g., “I often feel tense and nervous”,  $\alpha = .82$ ). Items are scored on a 5-point scale ranging from 1 (totally disagree) to 5 (totally agree). According to the Dutch manual (Hoekstra et al., 1996), the psychometric properties (e.g., construct validity) of the NEO-FFI are satisfactory.

*Temperament* was measured with a shortened Dutch version (Van Heck, De Raad, & Vingerhoets, 1993) of the Pavlov Temperament Survey (Strelau, et al., 1999). Each subscale includes five items (*strength of excitation*, e.g., “I like to work while there is a lot going on around me”,  $\alpha = .81$ ; *strength of inhibition*, e.g., “It’s easy for me to postpone an activity until the time is there to do it”,  $\alpha = .51$ ; and *mobility*, e.g., “It’s easy for me to do a lot of different things following each other”,  $\alpha = .77$ ). Items are scored on a 4-point scale ranging from 1 (totally disagree) to 4 (totally agree). Good validity of the PTS is warranted by the original handbook (Strelau, et al., 1999).

### *Statistical Analysis*

First, means and standard deviations were computed for burnout, work engagement, personality and temperament. Second, Pearson correlations were calculated to examine the associations among the study variables.

Two separate discriminant analyses were used to explore to what extent different patterns of personality and temperament would discriminate between the four combinations of activation (measured by exhaustion and vigor) and pleasure (measured by cynicism and dedication). This method of statistical analysis offers the advantage of taking the common variance of the individual aspects (personality and temperament) into account and thus ignores singularities that might otherwise blur the picture.

In the first discriminant analysis, four target groups were composed based on the two core burnout dimensions (exhaustion and cynicism). Quartile scores were used to define high and low scores on both scales. The groups are

labeled as: *non-burned-out* (low exhaustion and low cynicism,  $n = 96$ ), *cynical* (low exhaustion and high cynicism,  $n = 16$ ), *exhausted* (high exhaustion and low cynicism,  $n = 18$ ), and *burned-out* (high exhaustion and high cynicism,  $n = 93$ ). Most employees are grouped either in the non-burned-out group or in the burned-out group, since both burnout dimensions are substantially interrelated (see Table 1).

In the second discriminant analysis, the two core work engagement dimensions (vigor and dedication) were used to compose the four following groups, again on the basis of quartiles: *non-engaged* (low vigor and low dedication,  $n = 87$ ), *dedicated* (low vigor and high dedication,  $n = 3$ ), *vigorous* (high vigor and low dedication,  $n = 7$ ) and *engaged* (high vigor and high dedication,  $n = 118$ ). Analogously to burnout, most employees are grouped either in the non-engaged group or in the engaged group, illustrating the interrelatedness of both dimensions (see Table 1).

Because we were primarily interested in discriminating burned-out or engaged employees from non-burned-out and non-engaged employees, in both discriminant analyses we included only the two extreme groups, namely the burned-out group ( $n = 93$ ) versus the non-burned-out group ( $n = 96$ ), and the engaged group ( $n = 118$ ) versus the non-engaged group ( $n = 87$ ), respectively.

Additionally, logistic regression analyses (LRA) were conducted in order to correct for the potential influence of the heterogeneity of the groups with respect to demographic variables (age, gender and educational level).

## Results

The means, standard deviations and correlations of the variables are displayed in Table 1.

### *Discriminating Burned-out from Non-Burned-out Employees*

The first hypothesis implied that burned-out employees can be classified by a combination of high scores on neuroticism and low scores on extraversion. Indeed, our first discriminant analysis showed that the two groups (non-burned-out versus burned-out) could be distinguished significantly, Wilk's  $\lambda = .49$ ,  $\chi^2(5) = 130.52$ ,  $p < .001$ . The discriminant function had an eigenvalue of 1.03 and a canonical correlation of .71. Overall, 85.2% of the total sample could be correctly classified, which is superior to a

random assignment based on prior group membership probabilities (50%) (Tabachnik & Fidell, 2001).

*Table 1.* Means (*M*), standard deviations (*SD*) and Pearson correlations of the study variables (*N* = 572).

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. EE	1.49	1.00								
2. CY	1.23	1.01	0.53							
3. VI	4.27	0.82	-0.37	-0.41						
4. DE	4.34	1.03	-0.29	-0.60	0.68					
5. NEU	25.48	6.56	0.50	0.48	-0.48	-0.40				
6. EX	44.63	5.66	-0.33	-0.37	0.44	0.37	-0.48			
7. SE	12.31	2.86	-0.26	0.21	0.29	0.20	-0.27	0.25		
8. SI	13.53	1.93	-0.24	-0.28	0.28	0.22	-0.33	0.18	0.31	
9. MO	15.38	2.14	-0.34	-0.30	0.44	0.33	-0.51	0.46	0.42	0.33

*Note:* 1) EE = Exhaustion, CY = Cynicism, VI = Vigor, De = Dedication, NEU = Neuroticism, EX = Extraversion, SE = Strength of excitation, SI = Strength of Inhibition, MO = Mobility, 2) All correlations are significant at the 0.01 level

Since in discriminant analysis, loadings  $> |0.30|$  are considered to be substantial, the discriminant function, in fact, represents only neuroticism with a loading of .81 (see Table 2). This means that compared to the non-burned-out employees, burned-out employees are characterized *exclusively* by a high level of neuroticism. Hence Hypothesis 1 was partly supported: burned-out employees are characterized by high scores on neuroticism but *not* by low scores on extraversion. Hypothesis 3 had to be rejected. Temperament does *not* play a role in discriminating burned-out from non-burned-out employees.

*Table 2.* Discriminant functions: Standardized canonical coefficients for personality and temperament

	<i>Analysis 1</i> Burnout <i>N</i> = 189	<i>Analysis 2</i> Work Engagement <i>N</i> = 205
<i>Scales</i>		
Neuroticism	0.81	-0.49
Extraversion	-0.18	0.35
Strength of Excitation	-0.14	0.07
Strength of Inhibition	-0.18	0.12
Mobility	0.00	0.36

*Discriminating Engaged from Non-Engaged Employees*

The second hypothesis implied that work engagement is characterized by high scores on extraversion and low scores on neuroticism. Our second discriminant analysis showed that the two groups (non-engaged versus engaged) could be significantly distinguished, Wilk's  $\lambda = .53$ ,  $\chi^2(5) = 126.62$ ,  $p < .001$ . This discriminant function had an eigenvalue of .88 and a canonical correlation of .68. Overall, 84.4% of the total sample could be correctly classified. Table 2 shows that the discriminant function represents a combination of neuroticism (loading = -.49) and extraversion (loading = .35). Hence, compared to the non-engaged group the engaged group is characterized by low scores on neuroticism, paired with high scores on extraversion, corroborating Hypothesis 2.

Concerning the role of temperament traits: mobility contributes positively to the discriminant function (loading = .36), partly supporting Hypothesis 4. Taken together, the results indicate that engaged employees are characterized by extraversion, mobility and low neuroticism.

The logistic regression analyses, including age, gender and educational level as covariates yielded results that were highly similar to those of the discriminant analyses. Specifically, results showed that only neuroticism significantly predicts burnout, whereas neuroticism, extraversion and mobility are significant predictors of work engagement. This means that, even after controlling for age, gender and educational level, the findings are not modified.

## **Discussion**

The central aim of the present study was to explore the position of burnout and work engagement in a two dimensional space that displays the structure of affect and personality. The results show that, indeed, individual differences do matter when it comes to discriminating groups of employees who score high and low on burnout and work engagement.

Burnout seems to be primarily related to neuroticism, whereas the assumption that burned-out employees are characterized by particular temperamental traits was *not* corroborated. Although extraversion as well as the temperament traits correlated significantly and in the expected direction with both burnout dimensions, neuroticism dominated the picture. The size of the correlations between neuroticism and burnout in the current study are comparable with those found in other studies (e.g., Cano-García et al., 2005; Mills & Huebner, 1998; Zellars et al., 2004). Two possible explanations may be considered for this strong relationship between neuroticism and burnout. First, neuroticism may reflect a vulnerability factor, increasing stress sensibility (Suls, 2001). For instance, employees high in neuroticism perceive their work environment as more threatening, which in turn, leads to negative emotions and poor performance (Schneider, 2004), and increases the risk of burnout (Tokar, Fischer, & Subich, 1998). Second, neuroticism may exacerbate the effects of job demands on burnout. For instance, neurotic individuals tend to experience more exhaustion due to daily problems (Bolger & Schilling, 1991; Hills & Norvell, 1991).

The hypothesis that work engagement is characterized by high scores on extraversion in combination with low scores on neuroticism was fully endorsed. In other words, work engagement seems to fit our proposed taxonomy displayed in Figure 1, it is positioned in the quadrant that is constituted by high scores on activation (thus low scores on neuroticism) and high scores on pleasure (thus high scores on extraversion).

Taken together, it seems that burnout and engagement are each other's opposites only as far as neuroticism is concerned. The expected reverse pattern was *not* observed for extraversion, which only played a role in discriminating employees high and low on engagement. It is quite remarkable that extraversion did *not* play a role in the classification of burnout because this contradicts findings from other studies (e.g., Michielsen et al., 2003; Mills &

Huebner, 1998; Zellars et al., 2004), showing that extraversion was negatively related to emotional exhaustion and – to a somewhat lesser extent – cynicism. It should be added, however, that usually neuroticism and extraversion were studied separately. However, when they were simultaneously included in a regression equation, only a significant effect of neuroticism remained (Zellars et al., 2004), which is in line with the results of our discriminant analysis.

With regard to temperament, mobility appears to play a unique, additional role in classifying employees high and low on work engagement. Our results indicate that engaged employees adapt quickly to changes in their environment, and pass easily from one activity to the other compared to their counterparts. This agrees with earlier qualitative descriptions of engaged employees (Schaufeli et al., 2001). For instance, engaged employees keep looking for new challenges in their jobs, and when they feel no longer challenged they change jobs.

### *Limitations*

Although our scales were generally reliable, strength of inhibition was a notable exception. This is consistent with other studies, but may have been responsible for the fact that strength of inhibition did not play a role in discriminating burned-out and engaged employees from their counterparts. Furthermore, our study used a cross-sectional design so that we cannot draw any conclusions about causality; hence the previously discussed issues of vulnerability and exacerbation should be resolved by future studies.

### *Conclusion*

The current study has shown that burned-out and engaged employees can be distinguished from their counterparts on the basis of their personality and temperament. It appears that neuroticism is of prime importance for burnout, whereas for work engagement also levels of extraversion and mobility (the capacity to adapt to changing environments) matter.

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## References

- Bakker, A.B., Demerouti, E., & Schaufeli, W.B. (2002). Validation of the Maslach Burnout Inventory – General Survey: An internet study. *Anxiety, Stress and Coping, 15* (3), 245-260.
- Bolger, N., & Schilling, E.A. (1991). Personality and problems of everyday life: The role of neuroticism in exposure and reactivity to daily stressors. *Journal of Personality, 59*, 355-386.
- Brief, A.P., & Weiss, H.M. (2002). Organizational behavior: Affect in the workplace. *Annual Review of Psychology, 53*, 279-307.
- Burisch, M. (2002). A longitudinal study of burnout: the relative importance of dispositions and experiences. *Work and Stress, 16*, 1-17.
- Cano-García, F.J., Padilla-Muñoz, E.M., & Carrasco-Ortiz, M.A. (2005). Personality and contextual variables in teacher burnout. *Personality and Individual Differences, 38*, 929-940.
- Clark, L.A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In O.P. John & L.A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp.399-423). New York: Guilford Press.
- Costa, P.T.Jr., & McCrae, R.R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology, 38*, 668-678.
- Costa, P.T.Jr., & McCrae, R.R. (1992). *NEO PI-R: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Demerouti, E., Bakker, A.B., De Jonge, J., Janssen, P.P.M., & Schaufeli, W.B. (2001). Burnout and engagement at work as a function of demands and control. *Scandinavian Journal of Work, Environment & Health, 27*, 279-286.
- De Vries, J., & Van Heck, G.L. (2002). Fatigue: Relationships with basic personality and temperament dimensions. *Personality and Individual Differences, 33*, 1311-1324.
- Diener, E., & Lucas, R.E. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 215-229). New York: Russell Sage Foundation.
- Eysenck, H.J. (1990). Biological dimensions of personality. In L.A. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 244-276). New York: Guilford.
- Freudenberger, H.J. (1974). Staff burnout. *Journal of Social Issues, 30*(1), 159-165.
- González-Romá, V., Schaufeli, W.B., Bakker, A.B., & Lloret, S. (in press). Burnout and work engagement: Independent factors or opposite poles? *Journal of Vocational Behavior*.
- Green, D.E., Walkey, F.H., & Taylor, A.J.W. (1991). The three-factor structure of the Maslach Burnout Inventory. *Journal of Social Behavior & Personality, 6*, 453-472.
- Halbesleben, J.R.B., & Buckley, M.R. (2004). Burnout in organizational life. *Journal of Management, 30* (6), 859-879.

- Hills, H., & Norvell, N. (1991). An examination of hardiness and neuroticism as potential moderators of stress outcomes. *Behavioral Medicine, 17*, 31-38.
- Hoekstra, H.A., Ormel, J., & De Fruyt, F. (1996). *Handleiding bij de NEO Persoonlijkheids Vragenlijsten NEO-PI-R en NEO-FFI [Manual for the NEO Personality Inventories NEO-PI-R and NEO-FFI]*. Lisse, The Netherlands: Swets & Zeitlinger.
- Keyes, C.L.M., Shmotkin, D., & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology, 82*(6), 1007-1022.
- Lee, R., & Ashforth, B.E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.
- Leiter, M.P. (1992). Burn-out as a crisis in self-efficacy: Conceptual and practical implications. *Work & Stress, 6*, 107-115.
- Maslach, C., Schaufeli, W.B. & Leiter, M.P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397-422.
- Michielsen, H.J., De Vries, J., & Van Heck, G.L. (2003). In search of personality and temperament predictors of chronic fatigue: A prospective study. *Personality and Individual Differences, 35*, 1073-1087.
- Michielsen, H.J., Willemsen, T.M., Croon, M.A., De Vries, J., & Van Heck, G.L. (2004). Determinants of general fatigue and emotional exhaustion: a prospective study. *Psychology and Health, 19*( 2), 223-235.
- Mills, L.B., & Huebner, E.S. (1998). A prospective study of personality characteristics, occupational stressors, and burnout among school psychology practitioners. *Journal of School Psychology, 36*, 103-120.
- Russell, J.A., & Carroll, J.M. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin, 125*, 1, 3-30.
- Schaufeli, W.B., & Bakker, A.B. (2001). Werk en welbevinden: Naar een positieve benadering in de Arbeids- en Gezondheidspsychologie [Work and well-being: towards a positive approach in Occupational Health Psychology]. *Gedrag & Organisatie, 14* (5), 229-253.
- Schaufeli, W.B., & Bakker, A.B. (2004). Job demands, job resources and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior, 25*(3), 293-315.
- Schaufeli, W.B., & Buunk, B.P. (2003) Burnout: An overview of 25 years of research and theorizing. M.J. Schabracq, J.A.M. Winnubst, C.L. Cooper (Eds.). *Handbook of work and health psychology* (pp. 383-425). Chichester: Wiley.
- Schaufeli, W.B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.
- Schaufeli, W.B., Leiter, M.P., Maslach, C., & Jackson, S.E. (1996). Maslach Burnout Inventory – General Survey. In C. Maslach, S.E. Jackson & M.P. Leiter (Eds.). *The Maslach Burnout Inventory: Test manual* (3<sup>rd</sup> ed., pp.22-26). Palo Alto, CA: Consulting Psychologists Press.
- Schaufeli, W.B., Martinez, I., Marques Pinto, A., Salanova, M., & Bakker, A.B. (2002a). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology, 33*(5), 464-481.
- Schaufeli, W.B., Salanova, M., González-Romá, V., & Bakker, A.B. (2002b). The measurement of engagement and burnout: A two sample confirmatory analytic approach. *Journal of Happiness studies, 3*, 71-92.



- Schaufeli, W.B., Taris, T., Le Blanc, P., Peeters, M., Bakker, A.B., & De Jonge, J. (2001). Maakt arbeid gezond? Op zoek naar de bevlogen werknemer [Work and health: the quest of the engaged worker]. *De Psycholoog*, 36, 422-428.
- Schaufeli, W.B., & Van Dierendonck, D. (2000). *Handleiding van de Utrechtse Burnout Schaal (UBOS) [Manual Utrecht Burnout Scale]*. Lisse, The Netherlands: Swets & Zeitlinger.
- Schneider, T.R. (2004). The role of neuroticism on psychological and physiological stress responses. *Journal of Experimental Social Psychology*, 40, 795-804.
- Schutte, N., Toppinnen, S., Kalimo, R., & Schaufeli, W.B. (2000). The factorial validity of the Maslach Burnout Inventory – General Survey across occupational groups and nations. *Journal of Occupational and Organizational Psychology*, 73, 53-66.
- Strelau, J., Angleitner, A., & Newberry, B.H. (1999). *Pavlovian Temperament Survey (PTS). An international handbook*. Seattle, WA: Hogrefe & Huber.
- Suls, J. (2001). Affect, stress, and personality. In J.P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 392-409). Mahwah, NJ: Lawrence Erlbaum.
- Tabachnik, B.G., & Fidell, L.S. (2001). *Using multivariate statistics*. 4<sup>th</sup> ed. Boston, Allyn & Bacon.
- Taris, T.W., Schreurs, P.J., & Schaufeli, W.B. (1999). Construct validity of the Maslach Burnout Inventory – General Survey: A two-sample examination of its factor structure and correlates. *Work & Stress*, 13, 223-237.
- Thoresen, C.J., Kaplan, S.A., Barsky, A.P., Warren, C.R., & Chermont, K. de (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin*, 129 (6), 914-945.
- Tokar, D.M., Fischer, A.R., & Subich, L.M. (1998). Personality and vocational behavior: A selective review of the literature, 1993-1997. *Journal of Vocational Behavior*, 53(2), 115-153.
- Van Heck, G.L., De Raad, B., & Vingerhoets, A.J.J.M. (1993). De Pavlov-temperament schaal (PTS) [The Pavlov-temperament survey (PTS)]. *Nederlands Tijdschrift voor de Psychologie*, 48, 141-142.
- Warr, P. (1999). Well-being and the workplace. In D. Kahneman, E. Diener, & N. Schwarz (Eds.). *Well-Being: The foundations of hedonic psychology*. New York: Russell Sage Foundation Press.
- Watson, D. (2000). *Mood and temperament*. New York. Guilford Press.
- Watson, D., & Clark, L.A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the five factor model. *Journal of Personality*, 60, 441-476.
- Zellars, K.L., Hochwarter, W.A., Perrewé, P.L., Hoffman, N., & Ford, E.W. (2004). Experiencing job burnout: The roles of positive and negative traits and states. *Journal of Applied Social Psychology*, 34 (5), 887-911.