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**THE MEASUREMENT OF ENGAGEMENT AND BURNOUT:
A TWO SAMPLE CONFIRMATORY FACTOR
ANALYTIC APPROACH**

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ABSTRACT. This study examines the factorial structure of a new instrument to measure engagement, the hypothesized 'opposite' of burnout in a sample of university students ($N = 314$) and employees ($N = 619$). In addition, the factorial structure of the Maslach-Burnout Inventory-General Survey (MBI-GS) is assessed and the relationship between engagement and burnout is examined. Simultaneous confirmatory factor analyses in both samples confirmed the original three-factor structure of the MBI-GS (exhaustion, cynicism, and professional efficacy) as well as the hypothesized three-factor structure of engagement (vigor, dedication, and absorption). Contrary to expectations, a model with two higher-order factors – 'burnout' and 'engagement' – did *not* show a superior fit to the data. Instead, our analyses revealed an alternative model with two latent factors including: (1) exhaustion and cynicism ('core of burnout'); (2) all three engagement scales plus efficacy. Both latent factors are negatively related and share between 22% and 38% of their variances in both samples. Despite the fact that slightly different versions of the MBI-GS and the engagement questionnaire had to be used in both samples the results were remarkably similar across samples, which illustrates the robustness of our findings.

KEY WORDS: burnout, engagement, measurement, students.

Two trends recently emerged in burnout research which both boil down to a broadening of the traditional concept and scope (Maslach et al., 2001). First, the concept of burnout that was initially closely linked to the human services such as health care, education, and social work where employees do 'people' work of some kind, has been expanded towards all other professions and occupational groups. Second, burnout research seems to shift towards its opposite: job engagement. Instead of looking exclusively to the negative pole, researchers recently extended their interest to the positive pole of worker's well-being. Seen from this perspective, burnout is rephrased as an erosion of engagement with the job. This development reflects an emerging trend towards a 'positive psychology' that focuses on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman and Csikszentmihalyi, 2000).



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Burnout and its Measurement

Originally, burnout as measured with the Maslach-Burnout Inventory (MBI – Maslach and Jackson, 1981) was defined as a three-dimensional syndrome of emotional exhaustion (i.e. the draining of emotional resources because of demanding interpersonal contacts with others), depersonalization (i.e. a negative, callous, and cynical attitude towards the recipients of one's care or services), and lack of personal accomplishment (i.e. the tendency to evaluate one's work with recipients negatively). Typically, burnout was assumed to occur in individuals who work with people in some capacity, for instance in health care, social services, or education. For that very reason, all three original dimensions of the MBI refer to contacts with other people at the job. However, nearly a quarter of a century of research and practice has learned that burnout also exists outside the realm of the human services. Therefore, the concept of burnout and its measurement were broadened to include *all* employees and not only those who do 'people work' (Maslach and Leiter, 1997). Consequently, the original version of the MBI was adapted for use outside the human services; this new version was called MBI-General Survey (MBI-GS: Schaufeli et al., 1996). The three dimensions of the MBI-GS parallel those of the original MBI, in the sense that they are more generic and do not refer to other people one is working with. For instance, the first dimension – *exhaustion* – is measured by items that tap fatigue but do not make direct reference to other people as the source of one's tiredness. The items that measure *cynicism* reflect indifference or a distant attitude towards work in general, not necessarily with other people. Finally, *professional efficacy* has a broader focus compared to the parallel MBI-scale encompassing both social and non-social aspects of occupational accomplishments. Psychometric research with the MBI-GS using confirmatory factor analysis demonstrated that the three-factor structure is invariant across occupations such as clerical and maintenance employees, technical staff, nurses, and managers (Leiter and Schaufeli, 1996), software engineers and university staff (Taris et al., 1999), and blue collar and white collar workers (Schutte et al., 2000). In addition, in the latter study the factor-structure of the MBI-GS proved to be cross-nationally invariant across samples from Sweden, Finland, and The Netherlands.

The first objective of the current study is to replicate the invariance of the three-factor structure of the MBI-GS across a sample of university students and employees, respectively. Previous studies used a slightly adapted original version of the MBI to measure burnout among

university students in which, for instance, 'instructors' was substituted for 'recipients' (Ballogu et al., 1995; Gold et al., 1989; Gold and Michael, 1985; Powers and Gose, 1986). However, a suchlike rewording is not unproblematic because the meaning of an item might change dramatically. For instance, the item 'I treat some *instructors* as if they were impersonal objects' does not refer to a cynical or indifferent attitude towards the main *activity* of a student (i.e. studying and taking classes) but to a negative attitude towards another *person* that is, at least partly based on personal preferences rather than on study-related experiences. As a matter of fact, this holds for the entire adapted depersonalization scale. Since the MBI-GS is a more generic instrument that measures burnout without referring to other people, the inherent problems of rewording are avoided. The substitution in the current investigation of 'studies' for 'work/job' is unproblematic because the former refers to the daily activities that are performed by the students that constitute their very role. Burnout in the student sample therefore means feeling exhausted because of study demands, having a cynical and detached attitude towards one's study, and feeling incompetent as a student.

Engagement and its Measurement

To date, relatively little attention has been paid to concepts that might be considered antipodes of burnout. An exception is 'psychological presence' or 'to be fully there', a concept that emerged from role theory and is defined as an experiential state that accompanies 'personally engaging behaviors' that involve the channeling of personal energies into physical, cognitive, and emotional labors (Kahn, 1992). Although Kahn (1992) presents a comprehensive theoretical model of psychological presence, he does not propose an operationalization of the construct. More recently, Maslach and Leiter (1997) assumed that 'engagement' is characterized by energy, involvement, and efficacy which are considered the direct opposites of the three burnout dimensions exhaustion, cynicism, and lack of professional efficacy, respectively. Engaged employees have a sense of energetic and effective connection with their work activities and they see themselves as able to deal completely with the demands of their job. By implication, engagement in the view of Maslach and Leiter (1997) is assessed by the opposite pattern of scores on the three MBI dimensions. That is, according to these authors, low scores on exhaustion and cynicism, and high scores on efficacy are indicative for engagement. By using the MBI for measuring

engagement, however, it is impossible to study its relationship with burnout empirically since both concepts are considered to be opposite poles of a continuum that is covered by one single instrument, the MBI.

We take a different perspective by considering burnout and engagement to be opposite concepts that should be measured independently with different instruments. Based on a theoretical analysis (Schaufeli and Bakker, 2001), two underlying dimensions have been identified of work-related well-being: (1) activation, ranging from exhaustion to vigor, and (2) identification, ranging from cynicism to dedication. Burnout is characterized by a combination of exhaustion (low activation) and cynicism (low identification), whereas engagement is characterized by vigor (high activation) and dedication (high identification). Furthermore, burnout includes reduced professional efficacy, and engagement includes absorption. In contrast to both the other elements of burnout and engagement that are direct opposites (exhaustion vs. vigor and cynicism vs. dedication), reduced efficacy and absorption are *not* each others direct opposites, rather they are conceptually distinct aspects that are not the end points of some underlying continuum. It is noteworthy in this respect that reduced efficacy was added as a constituting element of burnout on second thoughts after it appeared as a third factor from a factor-analysis of a preliminary version of the MBI (Maslach, 1993). In a similar vein, absorption was found to be a relevant aspect of engagement after some 30 in-depth interviews were carried out (Schaufeli et al., 2001). Hence, engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behavior. *Vigor* is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. *Dedication* is characterized by a sense of significance, enthusiasm, inspiration, pride, and challenge. Instead of involvement we prefer to use the term dedication. Although, involvement – like dedication (see above) – is usually defined in terms of psychological identification with one's work or one's job (Kanungo, 1982; Lawler and Hall, 1970), whereby the latter goes one step beyond, both quantitatively as well as qualitatively. In a qualitative sense, dedication refers to a particularly strong involvement that goes one step further than the usual level of identification. In a qualitative sense, dedication has a wider scope by not only referring to a particular

cognitive or belief state but including the affective dimension as well. The final dimension of engagement, *absorption*, is characterized by being fully concentrated and deeply engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work. Being fully absorbed in one's work comes close to what has been called 'flow', a state of optimal experience that is characterized by focused attention, clear mind, mind and body unison, effortless concentration, complete control, loss of self-consciousness, distortion of time, and intrinsic enjoyment (Csikszentmihalyi, 1990). However, typically, flow is a more complex concept that includes many aspects and refers to rather particular, short-term 'peak' experiences instead of a more pervasive and persistent state of mind, as is the case with engagement.

Thus, contrary to Maslach and Leiter (1997) we do *not* feel that engagement is adequately measured by the opposite profile of MBI scores. Although we concur that, conceptually speaking, engagement is the positive antithesis of burnout, we acknowledge that the measurement of both concepts, and hence its structure, differs. As a consequence, engagement is operationalized in its own right. It is the second aim of our paper to investigate some psychometric features of our self-constructed engagement inventory that consists of the three dimensions mentioned above: vigor, dedication, and absorption. More specifically, the internal consistencies of the three scales as well as their factorial validity will be studied.

Engagement and Burnout

In addition to the psychometric qualities of the engagement and burnout inventories, the relationship between both concepts will be researched. Since engagement is defined as the opposite experience of burnout, it is expected that all burnout and engagement scales are negatively related (i.e. when efficacy is reversibly scored as *reduced* efficacy). A negative correlation is particularly expected between exhaustion and vigor, and between cynicism and dedication since they represent opposite poles of the activation and identification dimensions, respectively (see above).

Moreover, since burnout and engagement are both multidimensional constructs it is expected that a model that takes this higher-order structure into consideration fits best to the data. In other words, we predict that the fit of a model that assumes two second-order factors ('burnout' and 'engagement') on which all three burnout scales and all three engagement scales load, respectively, shows a superior fit compared to

a model that assumes that all six scales refer to one underlying general, undifferentiated dimension ('well-being').

METHOD

Samples and Procedure

Sample 1 consisted of 314 undergraduate students of the University of Castellón, Spain (214 females – 68% and 100 males – 32%). Their mean age was 22.3 years (SD = 3.7); 45% was in their first year, 23% in their second year, 14% in their third year, and 18% in their final year, respectively. The questionnaire was administered in the spring of 1999 to students enrolled in several classes, the majority in psychology (55%), followed by tourism (20%), computer science (18%), and other studies (7%).

Sample 2 consisted of 619 employees (291 females – 47% and 328 males – 53%) from 12 Spanish private and public companies¹. They were employed in various jobs and occupational fields, such as clerical jobs (33%), technical and support staff (23%), human services (16%), management (9%), sales (7%), laboratory settings (7%), and production line operators (5%). The mean age of the sample was 32.8 (SD = 8.36). The questionnaire was distributed in 1999 by professionals of the human resources departments of the organizations that participated in the study.

Instrument

Burnout was assessed with the Spanish version (Salanova and Schaufeli, 2000) of the MBI-GS (Schaufeli et al., 1996) that was slightly adapted for use in the student's sample (e.g., instead of 'I feel emotionally drained from my work', 'I feel emotionally drained from my study'). The MBI-GS consists of 16 items that are scored on three scales: *Exhaustion* (EX) (5 items; e.g., the above mentioned item); *Cynicism* (CY) (5 items; e.g., 'I have become less enthusiastic about my study/work'); *Efficacy* (EF) (6 items; e.g., 'I can effectively solve the problems that arise in my study/work'). All items are scored on a 7-point frequency rating scale ranging from 0 ('never') to 6 ('always'). High scores on EX and CY and low scores on EF are indicative for burnout (i.e. all EF-items are reversibly scored). Internal consistencies (Cronbach's α) for the EX, CY, and EF scales were 0.66, 0.64,

and 0.74 (Sample 1) and 0.85, 0.78, and 0.73 (Sample 2), respectively. After, removing one item ('When I'm in class or I'm studying I don't want to be bothered') the value of the initial α coefficient of CY was substantively increased to 0.79 (Sample 1) and 0.84 (Sample 2). Thus, with one notable exception (EX in Sample 1), all α -values meet the criterion of 0.70 (Nunnally and Bernstein, 1994).

Engagement was assessed with 24 self-constructed items that were simultaneously formulated in Spanish and English. Subsequently, a bilingual psychologist checked the semantic and syntactic equivalence of both versions. The Spanish version for employees (Salanova et al., 2001) was slightly reworded for use in the student's sample.¹ The engagement items are supposed to reflect three underlying dimensions: *Vigor* (VI) (9 items; e.g., 'When I get up in the morning, I feel like going to class/work'); *Dedication* (DE) (8 items; e.g., 'I'm enthusiastic about my study/job'), and *Absorption* (AB) (7 items; e.g., 'When I'm studying/working, I forget everything around me'). The engagement items are similarly scored as those of the MBI-GS. In order to avoid answering bias, burnout and engagement items were randomly merged into a 40-item questionnaire. The psychometric properties of the engagement scales are reported in the next section.

Analyses

Reliability analysis

In a first step, internal consistencies (Cronbach's α) were computed for the three engagement scales whereby an iterative process was used to remove those items that either negatively affected values of α or that did not make a positive contribution to the level of α . As a result of the first step, three subscales emerged with a minimum number of items and maximum internal consistency.

Model testing using structural equation modeling (SEM)

SEM methods as implemented by AMOS (Arbuckle, 1997) were used to test various models simultaneously in both samples – the so-called multiple-group method. First, the hypothesized correlated three-factor model of the MBI-GS was tested across both samples and compared to the fit of a one-factor model that assumes that all items load on one single underlying dimension. Second, in a similar vein, the hypothesized correlated three-factor model of engagement was tested across

both samples and compared to a one-factor model. Finally, the relationship of burnout and engagement was studied by testing two alternative models across both samples: (1) a model (M1) that assumes that all burnout and engagement scales refer to one underlying 'general well-being' dimension; that is, M1 consists of one second-order dimension on which all burnout and engagement scales are supposed to load; (2) a model (M2) that assumes that burnout and engagement are two different but related constructs; that is, M2 consists of two correlated second-order dimensions 'burnout' and 'engagement' on which the burnout and engagement scales are supposed to load, respectively.

Fit indices

Maximum likelihood estimation methods were used and the input for each analysis was the covariance matrix of the items. The goodness-of-fit of the models was evaluated using absolute and relative indices. The absolute goodness-of-fit indices calculated were (*cf.* Jöreskog and Sörbom, 1986): (1) the χ^2 goodness-of-fit statistic; (2) the Root Mean Square Error of Approximation (RMSEA); (3) the Goodness-of-Fit Index (GFI); (4) the Adjusted Goodness-of-Fit Index (AGFI). The χ^2 -test is a test of the difference between the observed covariance matrix and the one predicted by the specified model. Non-significant values indicate that the hypothesized model fits the data. However, this index is sensitive to sample size, so that the probability of rejecting a hypothesized model increases as sample size increases. To overcome this problem, the computation of relative goodness-of-fit indices is strongly recommended (Bentler, 1990). The error of approximation refers to the lack of fit of the model to the population covariance matrix, and RMSEA is a measure of the discrepancy per degree of freedom for the model. Values smaller than 0.08 are indicative of an acceptable fit, and values greater than 0.1 should lead to model rejection (Cudeck and Browne, 1993). The GFI is a measure of the relative amount of variance accounted for by the model, whereas the AGFI also takes model parsimony into account. Since the distribution of the GFI and the AGFI is unknown, no statistical test or critical value is available (Jöreskog and Sörbom, 1986).

The relative goodness-of-fit indices computed were (*cf.* Marsh et al., 1996): (1) Normed Fit Index (NFI); (2) Non-Normed Fit Index (NNFI) – also called the Tucker Lewis Index (TLI); (3) Comparative Fit Index (CFI). The NFI represents the point at which the model being

evaluated falls on a scale running from an unconstrained null model to perfect fit of the hypothesized model. This index is normed to fall on a 0–1 continuum. In contrast, the NNFI – which in addition takes model parsimony into account – could fall outside this range due to sampling fluctuation. Finally, the CFI is a population measure of model misspecification that is particularly recommended for model comparison purposes (Goffin, 1993). For all three relative fit-indices, as a rule of thumb, values greater than 0.90 are considered as indicating a good fit (Hoyle, 1995).

RESULTS

In the first step, internal consistencies were computed for the three engagement scales in each sample. Initial α coefficients for the three engagement scales were: VI (9 items), $\alpha = 0.68$ (Sample 1) and $\alpha = 0.80$ (Sample 2); DE (8 items), $\alpha = 0.91$ (in both samples); AB (7 items), $\alpha = 0.73$ (Sample 1) and $\alpha = 0.75$ (Sample 2). In the student's sample, the value of α could be improved for VI when three items were eliminated ($\alpha = 0.78$), whereas the value of α remained virtually the same for the employees (0.79). For reasons of parsimony three items could be excluded from DE without substantially decreasing the scale's internal consistency; $\alpha = 0.84$ and $\alpha = 0.89$ for the students and the employees, respectively. For similar reasons, one AB-item was eliminated without seriously affecting α -values: $\alpha = 0.73$ and $\alpha = 0.72$ for students and employees, respectively. Appendix includes the resulting items of the three engagement scales. Table I shows mean values, standard deviations, internal consistencies, and inter-correlations of the burnout and engagement scales in both samples.

As can be seen from Table I – as expected – all burnout and engagement scales are negatively related, whereas interrelations of the burnout and engagement scales are all positive. Furthermore, the engagement scales are stronger interrelated (mean $r = 0.63$ in Sample 1 and mean $r = 0.70$ in Sample 2) than the burnout scales (mean $r = 0.35$ in Sample 1 and mean $r = 0.40$ in Sample 2). The mean r of the burnout and engagement scales is -0.38 in Sample 1 and -0.42 in Sample 2. Of the burnout scales, EX is least strongly related to the engagement scales (particularly AB), whereas EF is most strongly related to these scales. As expected, DE is fairly strongly

TABLE I
Means, standard deviations, correlations, and internal consistencies (Cronbach's α for students/employees on the diagonal) of the burnout (EX, CY, reduced EF) and engagement (VI, DE, AB) scales in the student sample ($N = 314$) and the employee sample ($N = 619$)

	Students		Employees		Correlations						
	M	SD	M	SD	F	EX	CY	rEF	VI	DE	AB
EX	3.61	1.11	2.24	1.23	227.52	0.66/0.85	0.59***	0.21***	-0.34***	-0.30***	-0.16*
CY	2.45	1.17	1.87	1.21	48.50	0.46***	0.79/0.84	0.41***	-0.47***	-0.55***	-0.39***
rEF	1.98	1.00	1.65	0.86	29.22	0.21***	0.38***	0.74/0.73	-0.60***	-0.55***	0.44***
VI	3.30	1.13	3.82	0.86	55.89	-0.20***	-0.27***	-0.64***	0.78/0.79	0.69***	0.69***
DE	4.41	1.20	3.74	1.29	60.70	-0.14*	-0.51***	-0.68***	0.60***	0.84/0.89	0.72***
AB	3.37	1.12	3.53	1.00	4.51	-0.12*	-0.22***	-0.60***	0.74***	0.56***	0.73/0.72

Notes: EX = Exhaustion, CY = Cynicism, rEF = reduced Efficacy, VI = Vigor; DE = Dedication; AB = Absorption; Correlations for students below the diagonal; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; all F-values $p < 0.001$, except AB ($p < 0.05$).

negatively related to CY ($r = -0.51$ in Sample 1 and $r = 0.55$ in Sample 2), whereas – contrary to expectations – VI is *not* particularly strongly negatively related to EX ($r = -0.20$ and -0.34 in Sample 1 and Sample 2, respectively). Finally, although the mean values of burnout and engagement differ significantly in both samples (multivariate $F(6, 926) = 114.11, p < 0.001$), the pattern of correlations is remarkably similar across students and employees. More specifically, compared to employees, students report significantly *higher* levels of burnout (EX: $F(1, 926) = 277.52, p < 0.01$; CY: $F(1, 926) = 48.50, p < 0.01$; rPF: $F(1, 926) = 29.22, p < 0.01$) and *lower* levels of VI ($F(1, 926) = 55.89, p < 0.01$) and AB ($F(1, 926) = 4.51, p < 0.05$), but *higher* levels of DE ($F(1, 926) = 60.70, p < 0.01$). Thus, with the exception of DE, employees score more favorable than students.

Next, two alternative models for burnout and engagement were fitted to the data: (1) a one-factor model (M1) that assumes *one* latent variable underlying all burnout and engagement items and (2) a three-factor model (M2) that assumes *three* latent but correlated scales (EX, CY, PE and VI, DE, AB, respectively). The fit of the hypothesized burnout (MBI-GS) models is summarized in Table II.

As noted before, the models were simultaneously fitted to both samples, thus rendering one set of fit indices indicating how well the hypothesized model fits *across* both samples. The three-factor model fits reasonably well to the data, with the RMSEA meeting the criterion of 0.08 and CFI approaching 0.90. As expected, the fit of the three-factor model is significantly better than that of the one-factor model: $\Delta\chi^2(8) = 1532.59, p < 0.001$. By definition, the correlations between the latent factors are higher than those between the observed variables (*cf.* Table I): $r(\text{EX.CY}) = 0.65/0.69, r(\text{EX.rPE}) = 0.36/0.28,$

TABLE II

The fit of the MBI-GS; Multiple group analyses including students ($N = 314$) and employees ($N = 619$)

	χ^2	Df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
1-factor	2340.02	182	0.72	0.62	0.11	0.56	0.51	0.57
3-factors	807.43	174	0.89	0.85	0.06	0.85	0.85	0.87
3-factors (r)	661.81	168	0.91	0.88	0.06	0.87	0.88	0.90

Notes: GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = Root Mean Square Error of Approximation; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; (r) = revised.

$r(rPE.CY) = 0.53/0.55$ (Sample 1/Sample 2). Based on the so-called Modification Indices, the fit of the three-factor burnout model can be slightly improved by allowing three pairs of errors to correlate.² Despite the danger of chance capitalization (MacCallum et al., 1992) we decided to include these error terms since they were exactly similar to those that were included by Schutte et al. (2000) in their revised three-factor MBI-GS model that was simultaneously fitted to the data of Dutch, Swedish, and Finnish employee samples. Our revised three-factor model – that is exactly similar to the model of Schutte et al. (2000) – fits significantly better to the data than the original three-factor model ($\Delta\chi^2(6) = 145.62, p < 0.001$) with the three relative fit-indices equal or close to 0.90 (see Table II). Accordingly, it is concluded that the three-factor structure of the MBI-GS is replicated in two independent samples of Spanish students and employees.

The fit of the hypothesized engagement models is summarized in Table III. The analyses indicate that the three-factor model fits reasonably well to the data with the RMSEA and the CFI satisfying their criteria of 0.08 and 0.90, respectively, and NFI and NNFI approaching 0.90. In addition – as expected – this model fits significantly better than the alternative one-factor model: $\Delta\chi^2(6) = 284.81, p < 0.001$). The correlations between the three latent factors were: $r(VI.DE) = 0.77/0.84$, $r(DE.AB) = 0.75/0.91$, $r(VI.AB) = 0.98/0.93$, (Sample 1/Sample 2). Particularly, the latter correlation between VI and AB is quite high, so that we also fitted a two-factor model in which VI and AB were collapsed into one factor. It appears that, formally speaking, the fit of this model is inferior to that of the three-factor model; $\Delta\chi^2(4) = 24.30, p < 0.001$. Also, the remaining fit indices of the three-factor model are slightly better than that of the two-factor model (see Table III). Hence,

TABLE III

The fit of the Engagement scales; Multiple group analyses including students ($N = 314$) and employees ($N = 619$)

	χ^2	Df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
1-factor	1237.47	238	0.84	0.80	0.07	0.83	0.83	0.85
2-factors	976.96	236	0.88	0.85	0.05	0.86	0.87	0.89
3-factors	952.66	232	0.89	0.85	0.05	0.87	0.88	0.90

Notes: GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = Root Mean Square Error of Approximation; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index.

it is concluded that the hypothesized three-factor model of engagement with VI, DE and AB as separate but (highly) correlated factors fits quite well to the data of both samples.

Finally, two models are tested that specify relationships between burnout and engagement scales: M1 that assumes that all scales load on one latent ('well-being') dimension; M2 that assumes that the three burnout scales load on a latent 'burnout' factor, whereas the three engagement scales load on a correlated latent 'engagement' factor. Again, the models were simultaneously fitted to the data of both samples. In contrast to the previous analyses, however, we did not include item-scores but scale-scores instead so that more parsimonious models were assessed. In order to account for the measurement errors of the scales, α -values were included in the model by fixing the paths from the error term to the observed scale-score using the formula $\sqrt{1 - \alpha}$. Results of these analyses are summarized in Table IV.

As can be seen M2 shows a significantly better fit to the data of both samples than M1; $\Delta\chi^2(2) = 48.94, p < 0.001$. In M2, the latent burnout and engagement factors are strongly negatively correlated: -0.90 and -0.70 in the student and employee samples, respectively. Although, except for AGFI, all fit indices are similar or marginally better for M2 compared to M1, none of them meets its respective criterion. Therefore, and because the Modification Indices indicated that allowing rPE to load on the latent engagement factor instead on the burnout factor would increase model fit, another two-factor model was fitted to the data. This model (M3) includes the so-called 'core of burnout' factor consisting of EX and CY (*cf.* Green et al., 1991, p. 463) and an extended engagement factor that also includes PE in addition to the three engagement scales.³ As can be seen from Table IV,

TABLE IV

The fit of three models that specify the relationship between burnout and engagement; Multiple group analyses including students ($N = 314$) and employees ($N = 619$)

	χ^2	Df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M1	451.64	18	0.87	0.70	0.16	0.83	0.72	0.83
M2	402.70	16	0.88	0.69	0.16	0.85	0.72	0.85
M3	216.29	18	0.93	0.83	0.11	0.92	0.87	0.92

Notes: For M1 to M3 see the text. GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = Root Mean Square Error of Approximation; NFI = Normed Fit Index; NNFI = Non-Normed Fit Index; CFI = Comparative Fit Index; (r) = revised.

M3 not only fits significantly better to the data as compared to M2 ($\Delta\chi^2(2) = 186.41, p < 0.001$) but in addition NFI and CFI meet their criterion, whereas NNFI is approaching 0.90.

Thus, instead of a structure with one general well-being factor (M1) or with two underlying constructs reflecting burnout and engagement (M2), it seems that a model (M3) with a burnout core factor (EX and CY) and an extended engagement factor (including EF) fits best to the data of both samples. These factors correlate -0.47 in Sample 1 and -0.62 in Sample 2, thus sharing between 22% and 38% of their variances.

DISCUSSION

The current study examines, for the first time, the structure of engagement and burnout using confirmatory factor analysis. Results in two independent samples including students and employees confirmed the original three-factor structure of the MBI-GS and corroborated the hypothesized three-factor structure of the newly constructed engagement questionnaire. Furthermore, the engagement and burnout scales used in the current study neither refer to one common, undifferentiated construct ('well-being') nor – as expected – to two separate underlying constructs: 'burnout' and 'engagement'. Rather, it is observed that a reduced burnout factor – consisting of exhaustion and cynicism – and an extended engagement factor – including efficacy in addition to the three original engagement scales – describes the structure of the data best. It is important to note that the data were analyzed *simultaneously* in both samples and that in the student's sample *adapted versions* of the burnout and engagement scales were used. The fact that nevertheless highly similar results were obtained in both samples illustrates the robustness of our findings

Burnout

More specifically, as far as burnout is concerned, the internal consistencies found in the current study meet the standard of 0.70 that is recommended by Nunnally and Bernstein (1994). There is one notable exception, though: in the student sample EX shows a slightly lower value of α which is quite remarkable because usually EX is the most reliable burnout scale (Lee and Ashforth, 1996; Schaufeli and

Enzmann, 1998). Probably, this result reflects the fact that an adapted student version was used in which some items were reworded. It cannot be ruled out that this might have led to a slight change in item meaning. Furthermore, one MBI-GS-item was eliminated ('When I'm in class or studying I don't want to be bothered by anything else'). Recently, Schutte et al. (2000) also had to eliminate this CY-item in their cross-national factorial validity study because of its ambivalence; the item refers to disengagement as well as to isolation by closing oneself off.

Observed correlations between the MBI-GS scales are in both samples all within the range of the American test-manual (Maslach et al., 1996; p. 24), with the exception of the correlation between EX and EF that is slightly lower. Finally, and most importantly, the fit of the three-factor model is comparable to the fit found for Finnish, Swedish, and Dutch samples that were investigated by Schutte et al. (2000). The fit indices reported by Schutte et al. (2000) for these three samples ranged from 0.82 to 0.91 (AGFI), 0.85–0.94 (NNFI), 0.89–0.95 (CFI), whereas values in the current study (multiple group analysis) were 0.88, 0.88, 0.90 (see Table II), respectively. A previous study among Spanish workers, who used Computer-Aided Technologies at their jobs, found a four-factor model of burnout with EF split into two factors that were labeled 'goal attainment' and 'self-confidence' (Salanova and Schaufeli, 2000). According to the authors this divergent result might have been caused by translation problems or by the specific sample under study. Based on the current results, the first explanation is rather unlikely. In sum, it is concluded that the original three-factor structure of the MBI-GS is confirmed in both samples.

Engagement

As far as engagement is concerned, after eliminating seven unsound items three internally consistent scales were constructed that included 17 items altogether. Although these three scales are relatively strongly correlated (mean $r > 0.60$ in both samples) – also compared to the burnout scales (mean $r > 0.35$) – they do *not* appear to load on one underlying general engagement factor. However, the scales measuring vigor and absorption are highly correlated ($r > 0.90$ for the latent variables; $r > 0.70$ for the observed variables). Psychologically speaking a suchlike high correlation between AB and VI makes sense because it indicates that being fully immersed in one's activities goes along with high levels of energy and vice versa. Nevertheless, it appeared that

an alternative two-factor engagement model with DE and a collapsed VI and AB factor fitted slightly but significantly worse to the data compared to the hypothesized three-factor model.

In sum, it is concluded that the hypothesized three-factor structure of the newly developed engagement questionnaire fits quite well to the data of both samples. It should be noted, however, that the correlations between the latent engagement factors – particularly VI and AB – are very high. Future research on the divergent validity of the three engagement dimensions should reveal whether or not AB and VI have similar antecedents and consequences. Finally, according to most fit indices the fit of the three-factor engagement model (see Table II) is about similar to that of the revised three-factor burnout model (see Table III).

Burnout and Engagement

As expected, all burnout and engagement scales are significantly and negatively related. SEM analyses revealed that neither the one-factor model that assumes that all scales refer to one underlying construct (i.e. ‘general well-being’) fits well to the data of both samples nor the hypothesized two-factor model that assumes that two underlying constructs (i.e. ‘burnout’ and ‘engagement’) exist. In fact, the fit of these two models to the data is about similar but significantly inferior compared to the fit of an alternative model that includes a ‘core of burnout’ factor (Green et al., 1991) on the one hand, and an extended engagement factor that also includes EF on the other hand. Thus, put in a different way, the alternative model illustrates that EF loads on the ‘wrong’ factor; rather than being a burnout component EF appears to be an element of engagement. It cannot completely be ruled out that this finding reflects an artifact since like the engagement items all EF- items are also positively formulated, whereas all EX and CY- items are negatively formulated. As noted before, in trying to avoid answering bias we merged all – positive and negative – burnout and engagement items into one questionnaire. On the other hand, the extended engagement factor is in line with Maslach and Leiter (1997) who have argued that energy (i.e. vigor), involvement (i.e. dedication), and *efficacy* should be considered the constituting elements of engagement. In contrast to Maslach and Leiter (1997) and based on a theoretical analysis (Schaufeli and Bakker 2001) as well as on the results of a number of in-depth interviews (Schaufeli et al. 2001), we added absorption as another distinct

engagement component. Obviously, our results suggest that absorption as well as efficacy may be subsumed under the broader concept of engagement, which consequently leaves only two burnout components: exhaustion and cynicism. Our results agree with the cumulating evidence that points to the divergent role that lack of professional efficacy plays as compared to exhaustion and cynicism, which constitute the core of the burnout syndrome (Maslach et al., 2001). For instance, a series of studies of Leiter and his colleagues shows that professional efficacy develops largely independently from exhaustion and cynicism (for an overview see Leiter, 1993). Also, the results of a meta-analysis that included over 60 studies, confirm the independent role of professional efficacy, compared to both the other burnout components (Lee and Ashforth, 1996).

In sum, results of the current study seem to confirm that to a certain extent burnout and engagement are antipodes. That is, both constructs are moderately negatively related, sharing about one-quarter to one-third of their variance. However, it should be noted that instead of a burnout component (lacking) professional efficacy seems to be an element of engagement.

Directions for Further Research

The current study exclusively assessed the internal psychometric features of two instruments without referring to their content validity. A logical next step would be to investigate the relationship of the engagement scales with other job-related variables in a similar fashion as has been done with burnout. Burnout research has shown that different types of variables are related to different dimensions of burnout (e.g., Lee and Ashforth, 1996; Schaufeli and Enzmann, 1998). For instance, emotional exhaustion is particularly related to job demands such as work load and time pressure, whereas cynicism or disengagement from work is more strongly related to poor job resources such as lack of feedback, poor job control, lack of social support, and lack of participation in decision making (Demerouti et al., 2001). Also, it has been found that burnout is related to various negative personal outcomes (e.g., depression, health problems) and organizational outcomes (e.g., absenteeism, job turnover, poor performance, and low quality of services) (for a review see Schaufeli and Enzmann, 1998, pp. 85–93). Given these results with burnout, it is an intriguing research question – with considerable relevance for practice – whether or not the ‘opposite’

engagement scales yield similar patterns but with reversed signs. For instance, when exhaustion is positively related to job demands and cynicism is negatively related to job resources, will vigor then be negatively related to demands and dedication be positively related to resources? Or, when burnout is associated with ill health, absenteeism, and poor performance, will engagement be associated with health, low absenteeism, and good job performance? We hope that the engagement instrument that is proposed in the current article will be used in future research on the ‘opposite’ of burnout. Such research might help us to rephrase questions like ‘How do we prevent burnout?’ into ‘How do we promote engagement at the job?’

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NOTES

¹ A part of this sample ($N = 514$) was used in Salanova et al. (2001).

² All item-pairs are within the same scales (CY1-CY2, CY4-CY5, PE4-PE5). For the content of the items see the MBI-test manual (Maslach et al., 1996).

³ In order to avoid identification problems, the variance of CY was fixed on 1.37 and 1.39 for Sample 1 and Sample 2, respectively. Both variance estimates were calculated on the basis of the corresponding standard deviations from Table I.

APPENDIX: THE ENGAGEMENT SCALES

Student Version

Vigor (VI)

1. When I get up in the morning, I feel like going to class.
2. When I’m doing my work as a student, I feel bursting with energy.
3. As far as my studies are concerned I always persevere, even when things do not go well.

4. I can continue studying for very long periods at a time.
5. I am very resilient, mentally, as far as my studies are concerned.
6. I feel strong and vigorous when I'm studying or going to class.

Dedication (DE)

1. To me, my studies are challenging.
2. My study inspires me.
3. I am enthusiastic about my studies.
4. I am proud of my studies.
5. I find my studies full of meaning and purpose.

Absorption (AB)

1. When I am studying, I forget everything else around me.
2. Time flies when I am studying.
3. I get carried away when I am studying.
4. It is difficult to detach myself from my studies.
5. I am immersed in my studies.
6. I feel happy when I am studying intensely.

Employee Version

Vigor (VI)

1. When I get up in the morning, I feel like going to work.
2. At my work, I feel bursting with energy.
3. At my work I always persevere, even when things do not go well.
4. I can continue working for very long periods at a time.
5. At my job, I am very resilient, mentally.
6. At my job I feel strong and vigorous.

Dedication (DE)

1. To me, my job is challenging.
2. My job inspires me.
3. I am enthusiastic about my job.
4. I am proud on the work that I do.
5. I find the work that I do full of meaning and purpose.

Absorption (AB)

1. When I am working, I forget everything else around me.
2. Time flies when I am working.
3. I get carried away when I am working.

4. It is difficult to detach myself from my job.
5. I am immersed in my work.
6. I feel happy when I am working intensely.

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