

## In Search of the “Third Dimension” of Burnout: Efficacy or Inefficacy?

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This article contributes to the ongoing debate about whether or not lack of efficacy constitutes the “third dimension” of burnout. This debate is obscured by the fact that lack of efficacy is measured by positively framed efficacy items that are reversed in order to be indicative of burnout. Instead, this study includes an *inefficacy* scale that consists of negatively worded items that are *not* reversed. In two samples of university students from Spain ( $n = 193$ ) and The Netherlands ( $n = 235$ ), the factor structure of the traditional Maslach Burnout Inventory-Student Survey (MBI-SS), that includes an “efficacy” scale, is assessed and compared with that of academic burnout that includes an “inefficacy” scale instead. Confirmatory factor analyses in both samples showed a slightly better fit of the latter. Furthermore, results were remarkably similar across samples, which illustrates the robustness of our findings. It is concluded that in future research, instead of efficacy, an inefficacy scale should be used to assess burnout.

Cet article contribue à savoir si le manque d'efficacité est ou n'est pas la troisième dimension constitutive du burnout. Au lieu de mesurer le manque d'efficacité au moyen d'items efficacité construits positivement et qui sont inversés pour être des indicateurs du burnout, cette étude introduit une échelle d'inefficacité composée d'items formulés négativement et qui n'ont donc pas à être inversés. Deux échantillons d'étudiants espagnols ( $n = 193$ ) et néerlandais ( $n = 235$ ) ont répondu au traditionnel Maslach Burnout Inventory-Student Survey (MBI-SS) qui comprend une échelle d'efficacité. La structure factorielle qui s'en dégage a été comparée à celle qui inclut une échelle d'inefficacité. Comme attendu, les analyses factorielles sur les deux échantillons montrent une légère supériorité de la seconde. En outre, les résultats des deux échantillons sont particulièrement proches ce qui illustre la robustesse de nos résultats. En conclusion, on peut dire que dans les recherches futures, plutôt qu'une échelle d'efficacité pour mesurer le burnout, on pourrait lui préférer une échelle d'inefficacité.

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## INTRODUCTION

Traditionally, burnout is considered as a three-dimensional syndrome (i.e. emotional exhaustion, depersonalisation, and reduced personal accomplishment) that is measured with the Maslach Burnout Inventory-Human Services Survey (MBI-HSS; Maslach & Jackson, 1981). Emotional exhaustion, which refers to feelings of being depleted of one's emotional resources, is regarded as the basic individual stress component of the syndrome. Depersonalisation, referring to negative, cynical, or excessively detached responses to other people at work, represents the interpersonal component of burnout. Finally, reduced personal accomplishment refers to feelings of decline in one's competence and productivity, and to one's lowered sense of efficacy, representing the self-evaluation component of burnout (Maslach, 1998). To date, well over 1,000 studies have used the MBI to assess burnout so that it can be considered the "gold standard" for measuring the construct (Schaufeli & Enzmann, 1998). In this article we question the validity of the third dimension of the MBI—reduced personal accomplishment—because it is assessed by *reversing positively framed items*. We argue that using negatively worded items that reflect poor accomplishment or inefficacy is a better strategy that improves the construct validity of the MBI. The current study is the first to challenge the MBI as "gold standard" by comparing the original (reversed) positively worded third dimension with a negatively worded subscale. The study was carried out among students of two different countries in order to demonstrate the robustness of our findings.

### Student Burnout

Originally, all three dimensions of the MBI-HSS referred to contacts with recipients like students, patients, or clients. However, nearly a quarter of a century of research and practice has shown that burnout also exists outside the realm of the human services. Therefore, the concept of burnout was broadened to include *all* employees and not only those who do "people work" of some kind (Maslach & 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, Leiter, Maslach, & Jackson, 1996) and consists of the three dimensions that 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 MBI-GS 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. The latter was called "depersonalisation" in the MBH-HSS. Finally, professional efficacy has a

broader focus compared to the corresponding MBI-HSS scale, encompassing both social and non-social aspects of occupational accomplishment. Psychometric research with the MBI-GS using confirmatory factor analysis demonstrated that this three-factor structure is invariant across occupations such as Canadian clerical and maintenance employees, technical staff, nurses, and managers (Leiter & Schaufeli, 1996), Dutch software engineers and university staff (Taris, Schreurs, & Schaufeli, 1999), Dutch, Swedish, and Finnish blue-collar and white-collar workers (Schutte, Toppinen, Kalimo, & Schaufeli, 2000), Spanish and Dutch information and communication workers (Salanova, Schaufeli, Llorens, Peiró, & Grau, 2000), Norwegian police officers, traffic controllers, journalists, and managers (Richardson & Martinissen, 2005), and Dutch human services professionals and other occupational groups (Bakker, Demerouti, & Schaufeli, 2002). In addition, the factor-structure of the MBI-GS proved to be cross-nationally invariant across samples from Sweden, Finland, and The Netherlands (Schutte et al., 2000), and Spain and The Netherlands (Salanova et al., 2000).

In recent years, the number of studies about burnout has increased spectacularly and the study of burnout has been extended to almost every job, and even to non-occupational samples, for example students (Balogun, Helgemoe, Pellegrini, & Hoerberlein, 1996; Chang, Rand, & Strunk, 2000; Fimian, Fastenau, Tashner, & Cross, 1989; Gold, Bachelor, & Michael, 1989; Martínez, Marques, Salanova, & Lopez da Silva, 2002; McCarthy, Pretty, & Catano, 1990; Schaufeli, Salanova, González-Romá, & Bakker, 2002b; Yang, 2004). These studies assessed “academic burnout” in students, using a slightly modified version of the MBI-GS. Although, formally speaking, students are neither employed nor do they hold jobs, from a psychological perspective their core activities can be considered “work”. Thus, they are engaged in structured, coercive activities (e.g. attending classes, completing assignments) that are directed towards a specific goal (i.e. passing exams). Hence, being a work-related phenomenon, burnout may also exist in students, where it manifests itself by feeling exhausted because of study demands, having a cynical and detached attitude towards one’s study, and feeling incompetent as a student (see also McCarthy et al., 1990; Meier & Schmeck, 1985). In a similar vein, several studies on stress in academic life have considered students as a kind of employee as well (e.g. Chambel & Curral, 2005).

### The “Third Dimension”: Efficacy or Inefficacy

The past 25 years of research on burnout have answered many questions and have increased our understanding of workers’ (and students’) well-being (see Schaufeli & Buunk, 2002, for an overview). However, a main question about the structure of burnout still needs to be answered; namely the role of the so-called “third dimension” of burnout—lack of professional efficacy.

Three kinds of criticism have been raised against the burnout construct that pertain to the exceptional role of professional efficacy.

First, from an empirical point of view, most studies show consistently that professional efficacy has a relatively low correlation with exhaustion and cynicism (for a meta-analysis, see Lee & Ashforth, 1996). This has led Green, Walkey, and Taylor (1991) to the conclusion that exhaustion and cynicism constitute the “core of burnout”. Furthermore, Schaufeli, Martínez, Marqués-Pinto, Salanova, and Bakker (2002a) have shown that instead of loading on burnout, professional efficacy loads on the opposite, positive concept of work engagement together with vigour, dedication, and absorption, thus leaving exhaustion and cynicism as core burnout dimensions. Moreover, professional efficacy seems to develop in parallel to exhaustion and cynicism (e.g. Leiter, 1992; Taris, Le Blanc, Schaufeli, & Schreurs, 2005). Finally, professional efficacy is particularly related to job resources, whereas both other burnout dimensions are also related to job demands (see Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998).

Second, from a conceptual point of view, instead of a genuine burnout dimension, professional efficacy has been considered similar to a personality construct (Cordes & Dougherty, 1993; Shirom, 2003). Some etiological models also posit that burnout develops out of feelings of inefficiency and that therefore it can be considered a crisis of professional efficacy. For example, Cherniss (1980, 1993) assumes that the lack of trust in one’s own competences is a critical factor in the development of burnout. Also Leiter (1992) regards burnout essentially as an “efficacy crisis”. Recent studies seem to confirm the etiological role that lack of professional efficacy plays in the development of burnout (Salanova, Llorens, Cifre, Martínez, & Schaufeli, 2003; Salanova, Peiró, & Schaufeli, 2002; Van Dierendonck, Schaufeli, & Buunk, 2001).

Third, clinical experience with burned-out patients suggests that exhaustion and cynicism appear together, whereas lack of professional efficacy is observed much less frequently (Brenninkmeijer & Van Yperen, 2003; Roelofs, Verbraak, Keijsers, De Bruin, & Schmidt, 2005). So it seems that in psychotherapeutic clients, burnout manifests itself by both core dimensions, but not by lacking efficacy. Taken together, empirical, theoretical, and clinical evidence exists for the particular role that professional efficacy plays as the “third dimension” of burnout.

However, in our opinion, the special role of lacking professional efficacy might, at least in part, reflect an artefact. Namely, this “third dimension” of burnout is measured by positively worded items, whereas both other dimensions (i.e. exhaustion and cynicism) are measured by negatively worded items. These positively worded efficacy items are then reversed in order to achieve an indicator of inefficacy or reduced efficacy. In other words, a high score on efficacy is assumed to be equivalent to a low score on inefficacy, and vice versa. This procedure of reversing the scores of efficacy items is questionable,

though, because it assumes that efficacy and inefficacy are perfect opposites; or to put it differently, it is assumed that efficacy and inefficacy are scaled along the same uni-polar dimension. However, this is not very likely to be the case. Instead, we argue that efficacy and inefficacy are more likely to be strongly (but not perfectly) negatively related to each other. For instance, imagine a student who has a high score on the efficacy item “In my opinion, I am a good student”. Reversing his score on this item makes him score low, meaning that he is not a good student. But not being a good student does not necessarily imply that one is a poor student. This would be the case when the student would agree with the inefficacy item “In my opinion I am a poor student”.

Recently, Bouman, Te Brake, and Hoogstraten (2002) reworded the positive efficacy items into negatively framed inefficacy items in a sample of students. Compared to the group that filled out the traditional efficacy scale, the group that completed the inefficacy scale showed much higher (positive) correlations with exhaustion and depersonalisation ( $r_s < -.20$  versus  $r_s > .45$ , respectively). Thus, negatively rewording the efficacy items leads to higher correlations with both other burnout dimensions. So not only the sign, but also the *size* of the correlation changes, which suggests that the low correlations of efficacy with both other dimensions might reflect an artefact caused by reversing positively worded items. Unfortunately, Bouman et al. (2002) used two separate groups that completed an efficacy and an inefficacy scale, respectively, so that their concurrent validity could not be assessed.

In a similar vein, Salanova, Bresó, and Schaufeli (2005) showed that efficacy and inefficacy play a different role when it comes to predicting future academic self-efficacy among Spanish and Belgian university students. Results indicated that past performance is positively related to efficacy, and negatively to inefficacy. In its turn, efficacy beliefs seem to be involved in a positive, upward spiral (current efficacy beliefs → engagement → high future academic self-efficacy), whereas inefficacy beliefs seem to be involved in a negative, downward spiral (current inefficacy beliefs → burnout → poor future academic self-efficacy).

## Hypotheses

The main aim of the current study is to investigate the role of the “third dimension” of burnout, using positive (tapping efficacy) as well as negatively worded items (tapping inefficacy) instead of reversing positively worded items, as is the usual procedure. More specifically, we hypothesise that:

*H1:* Compared with the original efficacy scale, inefficacy is positively and more strongly correlated with both other burnout dimensions (i.e. cynicism and exhaustion). In fact, this is a replication of the results of Bouman et al. (2002).

*H2*: The three-factor model constituted by exhaustion, cynicism, and inefficacy fits the data.

*H3*: The hypothesised three-factor model (i.e. exhaustion, cynicism, and inefficacy) is invariant across samples from different countries (i.e. Spain and The Netherlands).

## METHOD

### Sample and Procedure

*Sample 1* consisted of 193 undergraduate students from Jaume I University (Castellón, Spain); 140 females (73%) and 57 males (27%). Their mean age was 22.4 years ( $SD = 4.2$ ). The questionnaires were filled before classes by psychology students, and participation was voluntary.

*Sample 2* consisted of 235 undergraduate students of Utrecht University (The Netherlands); 204 females (87%) and 31 males (13%). Their mean age was 21.8 years ( $SD = 3.4$ ). The questionnaires were distributed during breaks and filled out voluntarily by students of the social faculty.

### Instruments

In order to assess exhaustion, cynicism, and efficacy a modified version of the Maslach-Burnout Inventory-General Survey (MBI-GS; Schaufeli, Leiter, Maslach, & Jackson, 1996) was used that was slightly adapted for use in student samples: the MBI-SS (Maslach Burnout Inventory-Student Survey (Schaufeli et al., 2002b)). For instance, the item “*I feel emotionally drained from my work*” was rephrased as “*I feel emotionally drained from my studies*”. The MBI-SS consists of 16 items that are grouped into three scales: Exhaustion (EX; five items), Cynicism (CY; five items), and academic Efficacy (EF; six items). All items were 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 of burnout (i.e. all EF items were reverse-scored). As suggested by Schutte et al. (2000), one CY item (“*When I’m in class or I’m studying I don’t want to be bothered*”) was eliminated because it was shown to be ambivalent and thus unsound. For the Dutch and Spanish samples, the previously adapted published Dutch (Schaufeli & Van Dierendonck, 2000) and Spanish (Salanova & Schaufeli, 2000) translations of the MBI-SS were used, respectively.

Finally, to assess “inefficacy” the scale from the MBI-SS measuring academic efficacy was reworded, that is, all items were rephrased negatively (INEF) (see Appendix). In order to avoid answering bias, in both samples the positive and negatively worded items were presented in random order.

## Data Analyses

*Structural Equation Modelling* (SEM) methods as implemented by the AMOS program (Arbuckle & Wothke, 1999) were used to test the factorial model that includes exhaustion, cynicism, and academic inefficacy. In addition, the traditional model including exhaustion, cynicism, and academic efficacy was fitted to the data. Before performing SEM, the frequency distributions of the scales were checked for normality and multivariate outliers were removed. First, the model with academic inefficacy was tested in each sample separately (Spain and The Netherlands) and next a multiple group analysis (Byrne, 2001, pp. 173–199) was performed in order to assess factorial invariance across both national samples.

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 (see Jöreskog & Sörbom, 1986): (1) the  $\chi^2$  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). Non-significant values of  $\chi^2$  indicate that the hypothesised model fits the data. However,  $\chi^2$  is sensitive to sample size, so that the probability of rejecting a hypothesised model increases as the sample size increases. To overcome this problem, the computation of relative goodness-of-fit indices is strongly recommended (Bentler, 1990). Values of RMSEA smaller than .08 indicate an acceptable fit and values greater than 0.1 should lead to model rejection (Cudeck & Browne, 1993). In contrast, the distribution of the GFI and the AGFI is unknown, so that no statistical test or critical value is available (Jöreskog & Sörbom, 1986).

The relative goodness-of-fit indices computed were (see Marsh, Balla, & Hau, 1996): (1) the Non-Normed Fit Index (NNFI)—also called the Tucker Lewis Index; (2) the Incremental Fit Index (IFI); (3) the Comparative Fit Index (CFI). The latter 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 .90 are considered as indicating a good fit (Hoyle, 1995).

## RESULTS

First, descriptive analyses were performed and internal consistencies were computed for the four burnout scales in each sample separately (see Table 1). Values of Cronbach's  $\alpha$  range between 0 to 1 in the case of multi-point formatted scales. The higher the score, the more reliable (i.e. internally consistent) the scale. Usually 0.7 is considered to be an acceptable value for Cronbach's  $\alpha$ , although lower levels are common for newly developed scales (Nunnally &



TABLE 1  
Means, Standard Deviations, PM-Correlations, and Internal Consistencies (Cronbach's  $\alpha$  for Spanish/Dutch Sample on the Diagonal) of the Burnout Scales (EX, CY, EF, and INEF) in the Spanish ( $N = 193$ ) and the Dutch Samples ( $N = 235$ )

	Spanish		Dutch		F	Correlations			
	M	SD	M	SD		EX	CY	EF	INEF
EX	2.41	1.13	1.98	.85	14.89**	.78/.68	.58**	-.38**	.44**
CY	1.65	1.18	1.36	1.03	7.76**	.29**	.80/.85	-.41**	.50**
EF	3.78	.85	3.64	.77	3.57	-.14*	-.28**	.70/.73	-.62**
INEF	2.80	.89	1.54	.73	267.75**	.48**	.40**	-.48**	.62/.65

Notes: EX = Exhaustion; CY = Cynicism; EF = Academic Efficacy; INEF = Academic Inefficacy; Correlations for the Dutch students below the diagonal; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Bernstein, 1994). In both samples almost all values of Cronbach's  $\alpha$  meet the criterion of .70. There are two exceptions: (1) the value of  $\alpha$  for EX in the Dutch sample is slightly lower than .70 (i.e. .68); (2) the value of  $\alpha$  for INEF does not meet the criterion, either in the in Dutch sample ( $\alpha = .65$ ) or in the Spanish sample ( $\alpha = .62$ ). In spite of the low alpha values for INEF, they are nevertheless considered acceptable because for newly developed scales a minimum value of .60 is recommended (Nunnally & Bernstein, 1994). More detailed item analyses revealed that the item-rest correlations were quite similar in size so that Cronbach's  $\alpha$  could not be improved by deleting one or more items from the INEF scale.

Before proceeding with the correlations and factor analysis, taking into account the preponderance of females particularly in the Dutch sample (87%), multivariate analyses of variance (MANOVAs) were carried out using country and gender as independent variables and EX, CY, EF, and INEF dimensions as dependent variables. It appeared that levels of burnout (EX, CY, EF, INEF) of male and female students do not differ across countries. That is, a non significant multivariate country  $\times$  gender interaction effect was observed ( $F(4, 410) = .99$ , n.s.). Hence, it is unlikely that the gender distribution in the samples affected our results.

As expected (Hypothesis 1), in both samples, the observed correlations of academic inefficacy with exhaustion and cynicism are higher than with academic efficacy. In the Spanish sample, INEF is significantly more highly correlated with EX ( $t = 1.9$ ;  $p < .05$ ) and with CY ( $t = 1.73$ ;  $p < .05$ ) than EF. The same is true for the Dutch sample with corresponding values of  $t = 8.16$  ( $p < .001$ ) and  $t = 7.43$  ( $p < .001$ ), respectively. On average, inefficacy is correlated .44 and .47 with both other burnout dimensions, against  $-.22$  and  $-.39$  for efficacy in the Dutch and Spanish samples, respectively. Furthermore, as can be seen from Table 1, the differences in correlations among academic



TABLE 2  
 Latent Intercorrelations between the Burnout Scales (EX, CY, EF, and INEF)  
 in the Spanish ( $N = 193$ ) and the Dutch Samples ( $N = 235$ )

	<i>EX</i>	<i>CY</i>	<i>EF</i>	<i>INEF</i>
Exhaustion	–	.72	–.48	.61
Cynicism	.41	–	–.42	.68
Ac. Efficacy	–.19	–.37	–	–
Ac. Inefficacy	.62	.61	–	–

Note: Correlations for the Dutch sample below the diagonal.

inefficacy and efficacy with the other burnout scales in the Dutch sample are higher than in the Spanish sample (i.e.  $|.22|$  versus  $|.08|$ ).

Although the results from Table 1 support Hypothesis 1, we also performed Confirmatory Factor Analyses (CFA) in order to estimate the “true” correlations between the latent burnout components (see Table 2). By definition, these correlations are higher than the observed correlations, but the pattern is the same: latent correlations of inefficacy with both other burnout components (on average  $.65$  in the Spanish sample and  $.61$  in the Dutch sample) are higher than the corresponding latent correlations of efficacy (on the average  $.45$  in the Spanish sample and  $.28$  in the Dutch sample).

The differences in correlations of academic efficacy and inefficacy with both other burnout dimensions (i.e. exhaustion and cynicism) are larger for the latent than for the observed correlations in the Spanish sample:  $|.13|$  for exhaustion and  $|.26|$  for cynicism in favour of inefficacy, against  $|.08|$  and  $|.09|$  for the observed correlations, respectively. Hence, Hypothesis 1 is supported to a larger extent when instead of observed correlations the correlations between the latent burnout dimensions are considered.

Next, in order to test Hypothesis 2 first the three-factor model (M1) with INEF as “third dimension” was fitted to the data of both samples (see Table 3). M1 fits well in the Spanish sample, with values of IFI, CFI, and RMSEA satisfying their respective criteria. However, in the Dutch sample these fit indices only approached their criteria. But based on the so-called Modification Indices, the fit of the model could be improved in both samples by allowing three pairs of errors<sup>1</sup> to correlate so that—except for NNFI in the Dutch sample—the values of all fit indices are satisfactory. Hence, the three-factor model that includes exhaustion, cynicism, and academic inefficacy fits the data. This means that Hypothesis 2 is confirmed; albeit after some minor

<sup>1</sup> The error terms of inef2–inef5 were correlated in the Spanish sample as well as those of cy1–cy2 and inef4–inef5 in the Dutch sample.

TABLE 3

The Fit Indices of the Alternative Burnout Model (i.e. Exhaustion, Cynicism, and Academic Inefficacy) for the Spanish ( $N = 193$ ) and Dutch Samples ( $N = 235$ )

	<i>Model</i>	$\chi^2$	<i>df</i>	<i>GFI</i>	<i>AGFI</i>	<i>NNFI</i>	<i>IFI</i>	<i>CFI</i>	<i>RMSEA</i>
Spanish	M	176.52	87	.90	.86	.88	.90	.90	.07
	M(r)	157.12	86	.91	.87	.90	.92	.92	.06
	Null model	985.82	105	.44	.36	–	–	–	.21
Dutch	M	225.87	87	.88	.84	.83	.86	.86	.08
	M(r)	167.30	86	.91	.88	.88	.92	.92	.06
	Null model	1069.09	105	.49	.42	–	–	–	.20

Note: M(r) = Re-specified model.

modifications have been made (i.e. allowing three pairs of errors to correlate). Figures 1 and 2 show the estimated factor loadings and correlations between factors in the Spanish and Dutch samples, respectively.

By way of comparison, the original model that includes academic efficacy instead of inefficacy was also fitted to the data. This model fitted reasonably well in the Spanish sample ( $\chi^2 = 159.93$ ;  $df = 87$ ;  $GFI = .90$ ;  $AGFI = .86$ ;  $NNFI = .84$ ;  $IFI = .92$ ;  $CFI = .92$ ;  $RMSEA = .07$ ) but the fit to the data of the Dutch sample was rather poor ( $\chi^2 = 204.19$ ;  $df = 87$ ;  $GFI = .89$ ;  $AGFI = .85$ ;  $NNFI = .80$ ;  $IFI = .82$ ;  $CFI = .82$ ;  $RMSEA = .08$ ). Thus, compared to the model with INEF, the model with EF fitted less well in the Dutch sample but slightly better in the Spanish sample.

Finally, in order to test Hypothesis 3 a multiple-group analysis was carried out including both samples simultaneously. Multiple-group analysis provides more efficient parameter estimations than either of the two single-group models (Arbuckle & Wothke, 1999). Besides, using this method the equivalence of factor loadings and correlations between latent variables can be assessed. As expected, the model with INEF (M) provides a good fit to the data across both samples, with all fit indices meeting their corresponding critical values (see Table 4). However, the fit deteriorated significantly when all factor loadings and all correlations were constrained to be equal in both samples (Mc). This means that, although the underlying factor structure is similar in both samples, the size of the factor loadings and the correlations differs across samples.

Next, in order to assess the invariance of the model in greater detail, two additional models were tested with the data: (1) a model that assumes only the correlations between factors to be invariant (Mco); (2) a model that assumes only the factor loadings to be invariant (Mfa). As can be seen from Table 4, the fit of both models is inferior compared to that of M. This means that the correlations and the factor loadings differ systematically across both samples.

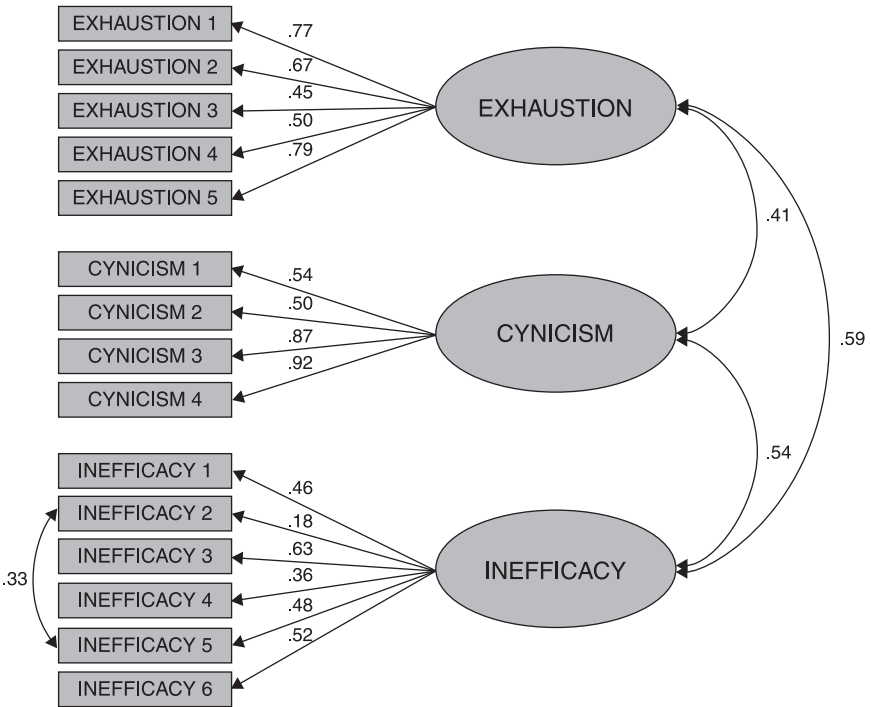


FIGURE 1. Results of the confirmatory factor analysis (i.e. exhaustion, cynicism, and academic inefficacy). Spanish students ( $N = 193$ ).

In the final step, an iterative process was used as recommended by Byrne (2001) in order to assess the invariance of each estimate separately (see also Schaufeli et al., 2002a). That is, the invariance of each factor loading and each correlation between factors was assessed individually by comparing the fit of the model in which a particular estimate was constrained to be equal across both samples with that of the previous model in which this was not the case. When the fit did *not* deteriorate, this constrained element was included in the next model in which another constrained estimate was added, and so on.

The final model ( $M_{\bar{n}}$ ) showed that the correlation between CY and INEF, as well as the factor loadings of two EX items (ex3, ex5), two CY items (cy3, cy4), and three INEF items (inef2, inef4, inef6), proved to be invariant across both samples. Thus, it appeared that the inefficacy scale contains the highest proportion of invariant items and that INEF is correlated equally strongly with CY in both national samples.

Hence, it is concluded that Hypothesis 3 is partly confirmed. That is, the underlying factor structure of the three-factor burnout model that includes

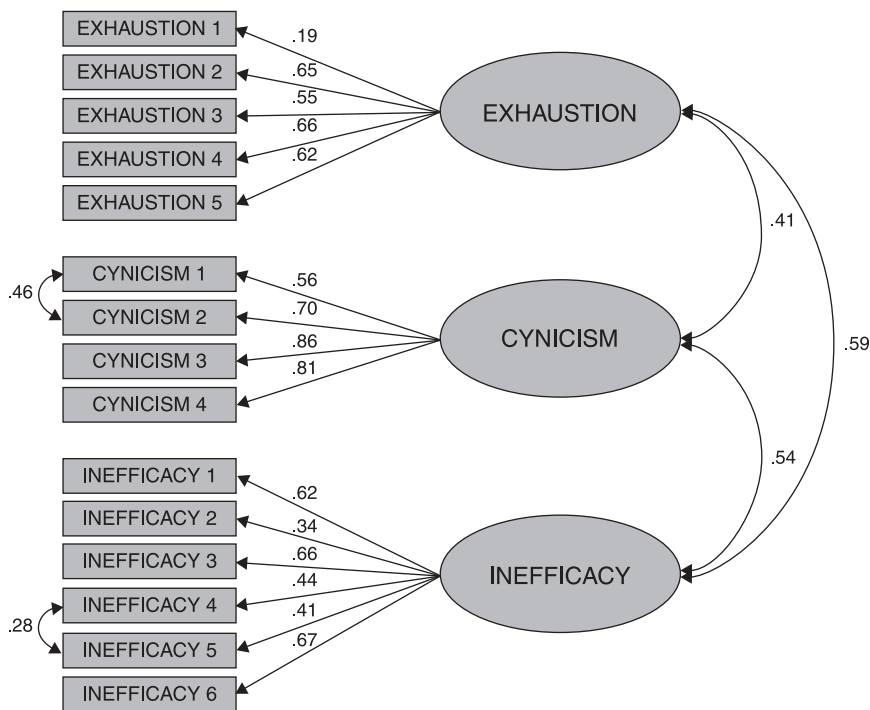


FIGURE 2. Results of the confirmatory factor analysis (i.e. exhaustion, cynicism, and academic inefficacy). Dutch students ( $N = 235$ ).

inefficacy instead of efficacy is similar in both student samples from Spain and The Netherlands. However, only seven of the 15 factor loadings and one of the three correlations between factors appeared to be invariant across both samples.

## DISCUSSION

The main aim of the current study was to investigate the role of the “third dimension” of burnout, using negatively framed inefficacy items instead of reversing positively worded efficacy items. First, it was shown that—as expected (Hypothesis 1)—the (positive) correlations of the inefficacy scale with both other burnout scales (exhaustion and cynicism) were higher than the (negative) correlations with the efficacy scale. This result was obtained in both the Spanish and the Dutch student samples, and it occurred for the observed correlations as well as for the latent correlations. The differences in the size of the correlations with efficacy and inefficacy were slightly larger among

TABLE 4  
 The Fit Indices of the Alternative Burnout Model ( $M_2$ ; i.e. Exhaustion, Cynicism, and Academic Inefficacy). Multiple Group Analyses Including the Spanish ( $N = 193$ ) and the Dutch Samples ( $N = 235$ )

<i>Model</i>	$\chi^2$	<i>df</i>	<i>GFI</i>	<i>AGFI</i>	<i>NNFI</i>	<i>IFI</i>	<i>CFI</i>	<i>RMSEA</i>	$\Delta\chi^2$	<i>df</i>
$M_2$	324.47	171	.91	.88	.90	.92	.92	.04		
$M_c$	395.75	186	.89	.86	.87	.89	.89	.05	$M - M_c = 71.28^{***}$	15
$M_{co}$	341.01	174	.91	.87	.89	.91	.91	.05	$M - M_{co} = 16.54^{***}$	3
$M_{fa}$	372.85	183	.90	.87	.88	.90	.90	.05	$M - M_{fa} = 48.38^{***}$	12
$M_{fi}$	339.29	179	.91	.88	.90	.92	.92	.04	$M - M_{fi} = 14.82$	8

*Notes:*  $\chi^2$  = Chi-square; *df* = degrees of freedom; *GFI* = Goodness-of-Fit Index; *AGFI* = Adjusted Goodness-of-Fit Index; *NNFI* = Non-Normed Fit Index; *IFI* = Incremental Fit Index; *CFI* = Comparative Fit Index; *RMSEA* = Root Mean Square Error of Approximation. All the  $\chi^2$  differences between the models are significant at  $p < .001$ ;  $M_2$  = Revised three-factor model (freely estimated);  $M_c$  = Full constrained revised three-factor model;  $M_{co}$  = Three-factor model with correlations between factors constrained;  $M_{fa}$  = Three-factor model with factor loadings constrained;  $M_{fi}$  = Final Model;  $^{***} p < .001$ .

Dutch students than among Spanish students, particularly as far as the observed correlations were concerned. Taken together, these results corroborate the results that were previously reported by Bouman et al. (2002). The relatively strong correlations of the inefficacy scale with both remaining burnout dimensions support the conceptualisation of academic burnout as a three-dimensional syndrome constituted by exhaustion, cynicism, and academic inefficacy, instead of (reversed) efficacy.

Results from a series of confirmatory factor analyses carried out in two independent samples of students from Spain and The Netherlands showed that the alternative model that includes an inefficacy scale fits the data of both samples (Hypothesis 2), albeit after allowing one pair of items to correlate in the Spanish sample (see Figure 1) and two pairs of errors in the Dutch sample (see Figure 2). Although this procedure might increase the risk of chance capitalisation (Cudeck & Browne, 1993), it is thought to be justified because the correlated error terms were allowed between items belonging to the *same* scale, and because at least one correlated error (between *cy1* and *cy2*) has been observed previously in other samples including students from Portugal, Spain, and The Netherlands (Schaufeli et al., 2002a) and including blue- and white-collar workers from Sweden, Finland, and The Netherlands (Schutte et al., 2000). The fact that initially, before re-specification, the model with INEF did not fit very well to the data in the Dutch sample is likely to be caused by other factors than the rewording of efficacy items because the original model with efficacy also showed a relatively poor fit to the data. Taken together, there are two indications that suggest that instead of using a (reversed) efficacy scale, using an inefficacy scale is a better strategy

to measure academic burnout among students. First, the model with INEF (M2) fits to the data of both samples; in fact the fit is slightly better than that of the traditional model with EF (M1). Second, compared with EF, the observed and latent correlations of INEF with both remaining burnout dimensions are stronger in both samples. Hence, the concurrent validity of INEF over EF was demonstrated.

Finally, Hypothesis 3, that assumed invariance of the three-factor model across both national samples, was only partly confirmed with seven out of 15 factor loadings (47%) and one out of three (33%) intercorrelations between scales being invariant. Similar results were obtained by Schaufeli et al. (2002a) who fitted the traditional MBI-SS in three samples of Dutch, Spanish, and Portuguese samples; also in their cross-national study the MBI-SS proved only partly invariant. Obviously, the *structures* of the traditional and the alternative MBI-SS are similar across student samples from different nations in terms of latent underlying factors, but the contribution of various items to these latent factors seems to differ from one country to another. The same applies to some intercorrelations between latent factors. Most likely, language and cultural differences in interpretation of items might be responsible for this result.

As far as the internal consistencies of the traditional burnout scales are concerned, only EX in the Dutch sample did not meet the standard of .70 that is recommended by Nunnally and Bernstein (1994). The slightly lower value of .68 for EX in the Dutch sample is quite remarkable because usually EX is the most reliable burnout scale (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998). Inspection of the item-total correlations did not lead to the identification of a particular unsound EX item that would be responsible for the relatively low internal consistency. In addition, the internal consistencies found for the self-constructed scale that measures academic inefficacy did not meet the criterion of .70 for existing scales in either sample. Also in the case of INEF, additional item analyses did not reveal any weak or unsound items that after removal would increase internal consistency. This means that, in order to be applied in future research, the inefficacy scale needs to be improved, preferably by including additional items.

In conclusion, this study suggests that including an inefficacy scale to measure burnout instead of adhering to the traditional (reversed) efficacy scale seems to be a good strategy to capture the “real” meaning of burnout. Traditionally, the burnout construct is measured with two “negative” dimensions (i.e. exhaustion and cynicism) and one reversed “positive” dimension (i.e. efficacy). This has led to a paucity of results, suggesting a particular role for lacking professional efficacy as the “third dimension” of burnout as compared to the “core of burnout” that is constituted by exhaustion and cynicism (Green et al., 1991). The present study suggests that the particular role of lacking professional efficacy might be—at least partly—due to an artefact

caused by the fact that the positively worded efficacy items are reversed in order to obtain an indicator of burnout. Obviously, reversing positive scores yields different results than using “negative” items to measure the same construct. This agrees with research on the structure of affect where it is debated whether positive and negative affect are two independent factors, or whether they are two poles of a single bi-polar dimension (Russell & Carroll, 1999).

An obvious limitation of the present study is that only students were included. Although academic burnout is certainly an issue, future research should also focus on efficacy and inefficacy in occupational burnout. The major limitation of the current study is that it focused exclusively on the MBI and that we examined only the relationships of efficacy and inefficacy with both other burnout dimensions. Therefore, future research should include antecedents (e.g. work overload, role problems, lack of support) and consequences (e.g. depression, poor commitment, turnover, absenteeism) of burnout and evaluate their relationships with efficacy and inefficacy. In that way the true nature of the “third dimension” of burnout may be established.

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## APPENDIX

### MBI-SS (Maslach Burnout Inventory-Student Survey)

#### Exhaustion

1. I feel emotionally drained by my studies.
2. I feel used up at the end of a day at the university.
3. I feel tired when I get up in the morning and I have to face another day at the university.
4. Studying or attending a class is really a strain for me.
5. I Feel burned out from my studies.

#### Cynicism

1. I have become less interested in my studies since my enrolment at the university.
2. I have become less enthusiastic about my studies.
3. I've become more cynical about the use of my studies.
4. I doubt the significance of my studies.

#### Academic Efficacy

1. I can efficiently solve the problems that arise in my studies.
2. I believe that I make an effective contribution to the classes.
3. In my opinion, I am a good student.
4. I feel stimulated when I reach my study goals.
5. I learned many interesting things during my studies.
6. During class I feel confident that I am effective in getting things done.

#### Academic Inefficacy

1. I can't solve the problems that arise in my studies.
2. I believe that I don't make an effective contribution to the classes.
3. In my opinion, I am not a good student.
4. I don't feel stimulated when I reach my study goals.
5. I haven't learnt any interesting things during my studies.
6. During class I don't feel confident that I am effective in getting things done.