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Professional Self-Efficacy as a Predictor of Burnout and Engagement: The Role of Challenge and Hindrance Demands

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ABSTRACT. The objective of the current study is to analyze the role of professional self-efficacy as a predictor of psychosocial well-being (i.e., burnout and engagement) following the Social Cognitive Theory of Albert Bandura (1997). Structural Equation Modeling was performed in a sample of secondary school teachers ($n = 460$) and users of Information and Communication Technology ($n = 596$). Results show empirical support for the predicting role that professional self-efficacy plays in the perception of challenge (i.e., mental overload) and hindrance demands (i.e., role conflict, lack of control, and lack of social support), which are in turn related to burnout (i.e., erosion process) and engagement (i.e., motivational process). Specifically, employees with more professional self-efficacy will perceive more challenge demands and fewer hindrance demands, and this will in turn relate to more engagement and less burnout. A multi-group analysis showed that the research model was invariant across both samples. Theoretical and practical implications are discussed.

Keywords: professional self-efficacy, challenge demands, hindrance demands, engagement and burnout

CURRENTLY JOB STRESS IS CONSIDERED ONE OF THE MAIN COMPLAINTS SUFFERED BY WORKERS in relation to health at work (Eurofound, 2012). Among other factors, employees' stress is due to rapid changes in psychological and physiological conditions (Beehr & Newman, 1978). Particularly, the introduction of technologies seems to be a relevant stress factor nowadays. This kind of situation may increase demands on employees, such as those related to the intensification of work, the need to develop additional technological competences, and a poor work–life balance (Milczarek, Schneider, & Rial-González, 2009).

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Although job demands have been seen as factors that increase work-related strain from the traditional theoretical models of stress and well-being (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Johnson & Hall, 1998; Karasek, 1979; Schaufeli & Bakker, 2004), recent research has shown that the role that demands play in job stress is not so clear (Crawford, LePine, & Rich, 2010). This lack of clarity is perhaps the main reason for the ambiguity in some research findings where the relationships between job demands and well-being are positive (e.g., workload and mental overload has been related positively to engagement over time; Mauno, Kinnunen, & Ruokolainen, 2007) or negative (e.g., workload, work contents and physical work environment has been related positively to burnout over time; Hakanen, Schaufeli, & Ahola, 2008), or there is no direct relationship (time and method control have zero relationships with engagement; Llorens, Schaufeli, Bakker, & Salanova, 2007). One possible reason for this is that job demands have not been assessed correctly.

Thus, recent research (Crawford et al., 2010; LePine, Podsakoff, & LePine, 2005) indicates that demands do not necessarily have to be factors that increase strain, but rather it depends on how they are perceived, that is, whether they are seen as challenges or hindrances.

One of the key elements that influence the perception of work environment and psychosocial well-being is self-efficacy. According to the Social Cognitive Theory (SCT, Bandura, 1997, p. 3) it seems that people with high levels of self-efficacy tend to interpret demands and problems more as challenges than as hindrances or subjectively uncontrollable events. In this regard, self-efficacy is postulated as maybe playing a predictor role of psychosocial well-being (e.g., burnout and engagement) (e.g., Llorens, Schaufeli, et al., 2007; Salanova, Bresó, & Schaufeli, 2005; Salanova, Llorens, & Schaufeli, 2011).

Hence, the purpose of this study was to extend the Resources–Experience–Demands model (RED model; Salanova, Cifre, Llorens, Martínez, & Lorente, 2011) in two different samples: secondary school teachers and ICT users. We are interested in examining whether self-efficacy is related to well-being (i.e., engagement and burnout) through the perception of challenge and hindrance demands.

Extension of the RED Model

The hypothesized model in this study is an extension of the RED model (Salanova, Cifre, et al., 2011), which draws on the main assumptions of SCT and the Job Demands–Resources (JD–R) model (Demerouti et al., 2001).

The JD–R model assumes that the characteristics of work environments (i.e., job demands and resources) can trigger two relatively independent psychological processes: (1) erosion process, in which poorly designed jobs or chronic job demands exhaust employees' mental and physical resources, and may therefore lead to the depletion of energy and, as a result, health problems, and (2) a motivational

process, in which the availability of job resources leads to high work engagement, high organizational commitment, low cynicism, and excellent performance (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004).

However, JD–R model does not pay attention to resources that can help employees to cope with job demands, that is, personal resources. Personal resources affect both the stress process and the coping process. Related to the stress process, personal resources influence how a person appraises the situation. In addition, personal resources are important for coping with demands and to recover from job stress (Salanova, Bakker, & Llorens, 2006). In this regard, research has found that the self-efficacy plays a key role in coping with stress, and that job demands and resources mediated the relationship between self-efficacy, burnout (Consiglio, Borgogni, Alessandri, & Schaufeli, 2013; Vera, Salanova, & Lorente, 2012), and engagement (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

In this sense, the RED model (Salanova, Cifre, et al., 2011), in line with the SCT (Bandura, 1997), considers self-efficacy an important personal resource, which plays a predicting role in the development of the motivation and erosion processes of burnout and engagement at work. Empirical evidence of the positive relationship between self-efficacy and engagement across time supports that core self-evaluations or self-efficacy beliefs are crucial determinants of employee engagement (Judge, Bono, Erez, & Locke, 2005; Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). In addition, studies using longitudinal designs support the motivational process indicating that there are reciprocal relationship between self-efficacy and job resources and engagement (Xanthopoulou et al., 2009). In similar line, Vera et al. (2012) tested two processes: (1) motivational processes, in which high levels of self-efficacy enhance the perception of job resources, which in turn enhances engagement, and (2) erosion process, in which low levels of efficacy lead to the perception of more job demands, which produces burnout. Thus, employees with high self-efficacy perceive that they control the workplace effectively, and demands are seen as challenges and resources as being abundant and positive for accomplishing the task. As a result, employees tend to be more engaged and suffer from less burnout with their work (Llorens, Schaufeli, et al., 2007).

Last, although diverse research demonstrates a clear relationship between job demands and burnout, it also shows the ambiguous role that job demands play in their relationship with engagement. Indeed, as we have already mentioned, some studies demonstrate that demands are negatively related with engagement, for example, high job demands produce low engagement (Hakanen et al., 2008), and more job insecurity and work–family conflict are related to low engagement (Mauno et al., 2007). Other studies, in contrast, have reported positive relationships between demands and engagement. For instance, the combination of high job demands (i.e., workload and mental overload) and high job resources produces a high level of engagement, specifically higher level of vigor and dedication (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Bakker, Demerouti,

& Schaufeli, 2005; Bakker, Van Emmerik, & Euwema, 2006; Mauno et al., 2007; Llorens, 2004). Last, results from other studies report no direct or weak relationship between job demands and engagement (Llorens, Bakker, Schaufeli, & Salanova, 2006; Schaufeli & Bakker, 2004). Thus, the relationship between demands and engagement will depend on the type of job demand in question.

Challenge and Hindrance Demands

To solve this ambivalence of the impact that demands have on psychosocial well-being, LePine and colleagues (LePine et al., 2005; Podsakoff, LePine, & LePine, 2007) proposed to differentiate the demands into two types, following previous findings obtained by Lazarus and Folkman (1984). These authors classified job demands as either challenges or hindrances. Job demands that are perceived by employees to be challenging or potentially promoters of their personal growth will exhibit positive outcomes, while job demands that are perceived as hindrances will exhibit negative outcomes.

From this perspective, challenge demands are defined as positively valued demands since they have the potential to promote personal gain or growth, trigger positive emotions and an active or problem-solving style of coping (e.g., increasing effort) (LePine et al., 2005). In a similar line, Podsakoff et al. (2007) performed a meta-analysis and considered the following variables as challenge demands: time pressure, responsibility, workload, and mental overload. Workers tend to perceive or to value these job demands as creative challenges and/or opportunities for personal development and accomplishment. On the other hand, and in line with Lazarus and Folkman (1984), hindrance demands are defined as the negative demands that may potentially harm personal growth or gain, which trigger negative emotions and a passive or emotional style of coping (e.g., withdrawing from the situation, rationalizing) (LePine et al., 2005). Podsakoff et al. (2007) considered inadequate resources, role conflict, role ambiguity, organizational politics, and concerns about job security as hindrance demands. Workers tend to perceive or value these job demands as obstacles to personal growth and task accomplishment.

Previous findings suggest that challenge demands are positively associated with performance, motivation, job satisfaction, positive emotions and attitudes toward work, and are negatively associated with job search behaviors and turnover intention.

Conversely, hindrance demands are negatively associated with performance, motivation, job satisfaction and organizational commitment (Boswell, Olson–Buchanan, & LePine, 2004; Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Lazarus & Folkman, 1984; LePine et al., 2005; Podsakoff et al., 2007).

In the current study, we extend the RED model by differentiating between challenge and hindrance demands, and their different effects on workers' psychological well-being (i.e., burnout and engagement). Moreover, LePine et al. (2010),

based on the SCT (Bandura, 1997), proposed self-efficacy should be taken as a predictor of psychosocial well-being.

Professional Self-Efficacy: The Power of Belief That You Can Do It . . .

In accordance with the SCT of Bandura (1997) then, one of the mechanisms which predominates the level of operation and the events that take place in our life is self-efficacy. It is defined as the beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997). These beliefs in one's own capacities may develop through successful past experiences, vicarious learning, verbal persuasion, and physiological and psychological states (Bandura, 1997), in such a way that self-efficacy may determine motivation, how we feel, what we think, and what we do (Bandura, 2001; Garrido, 2000). In this sense, people avoid doing tasks which are beyond their capacities, and they do those tasks that they feel they are able to control.

Theoretical and empirical research in self-efficacy in occupational contexts has shown that self-efficacy is a relevant factor in job stress. There are research findings that recognize the fundamental moderating role of self-efficacy in the models of stress, thereby suggesting that it helps to mitigate some of the consequences of stress, such as lack of satisfaction, physical symptoms, turnover, low organizational commitment (Jex & Bliese, 1999), anxiety and depression (Beas & Salanova, 2006), and burnout (Grau, Salanova, & Peiró, 2000; Salanova, Grau, Cifre, & Llorens, 2000; Salanova, Grau, Llorens, & Schaufeli, 2001; Salanova, Peiró, & Schaufeli, 2002). Other research highlights the mediating role of self-efficacy in negative consequences, that is, between techno-stress and burnout in a sample of secondary school teachers (Llorens, Salanova, & Ventura, 2007), and in positive consequences, that is, between job resources and engagement (Llorens, Schaufeli, et al., 2007; Xanthopoulou et al., 2007).

Last, recent research indicates that self-efficacy plays a predicting role in the development of the motivational process and erosion process of burnout (Vera et al., 2012) and engagement (Salanova, Llorens, et al., 2011; Vera et al., 2012) at work. As a result, self-efficacy was shown to influence how the environment is perceived by having the power to produce the desired effects. Without such beliefs, people would have little incentive to act or persevere when faced with difficulties. Therefore, those who display high levels of self-efficacy tend to interpret demands and problems as challenges and not as hindrances or subjectively uncontrollable events (Bandura, 1999, 2001).

Research carried out on self-efficacy and psychosocial well-being indicates that people with low self-efficacy have pessimistic feelings about their performance and their own personal achievements and, consequently, these low levels of efficacy are associated with depression and anxiety (Schwarzer, 1999), and with burnout in the long term (Cherniss, 1993; Llorens, García, & Salanova, 2005). On the other hand, people with high levels of self-efficacy have more optimistic thoughts, which

are in turn associated with persistence, dedication, satisfaction, and engagement (Llorens, Schaufeli, et al., 2007; Salanova, Llorens, et al., 2011; Vera et al., 2012).

In this way, self-efficacy is considered a clear forerunner of psychosocial well-being. Thus, successive efficacy crises would be responsible for the appearance of burnout (Cherniss, 1993; Llorens et al., 2005; Vera et al., 2012), whereas high levels of efficacy would enhance the development of engagement (Llorens, Schaufeli, et al., 2007; Salanova, Llorens, et al., 2011).

Job Burnout and Engagement

Burnout is defined as a persistent, negative, work-related state of mind in normal individuals that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviors at work (Schaufeli & Enzmann, 1998). In this case, burnout is composed of a tri-dimensional structure made up of exhaustion (i.e., fatigue produced by excessive efforts made at work), cynicism (i.e., indifference and distant attitudes toward the work one does in general), and lack of professional efficacy (i.e., the tendency to assess one's own work negatively, and it involves less sense of competence and performance at work) (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Maslach, & Marek, 1993).

Even though high levels of exhaustion and cynicism, and low levels of professional efficacy are general indicators of burnout, there is empirical evidence to show that exhaustion and cynicism constitute what has become known as the core of burnout (Green, Walkey, & Taylor, 1991). From this empirical viewpoint, the results of a meta-analysis show the independent role of professional efficacy compared with the dimensions of exhaustion and cynicism (Lee & Ashforth, 1996). Indeed, some studies have found that burnout is a consequence of a crisis in efficacy (Leiter, 1992; Llorens et al., 2005); it is that lack of confidence in one's own competence that is a critical factor in the development of burnout (Cheniss, 1993). In accordance with these previous findings, in this study professional efficacy is not considered a dimension of burnout, but instead one of its key predictors.

The construct of engagement is the theoretical opposite of burnout and can be defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002).*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* refers to being strongly involved in one's work, and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Last, *absorption* refers to being fully concentrated and happily engrossed in one's work, where time is felt to pass quickly and one has difficulties with detaching oneself from work.

Previous research shows that engagement is positively related to self-efficacy (Llorens, Schaufeli, et al., 2007; Salanova et al., 2010; Xanthopoulou et al., 2007).

Therefore, from SCT we may state that engagement is intrinsic work-driven motivation, and is a result of people's high levels of self-efficacy (Salanova, Bresó et al., 2005; Salanova, Llorens, et al., 2011).

Current Study: Self-Efficacy, Challenge and Hindrance Demands, Engagement, and Burnout

This research study considers an extended version of the RED model by proposing the differentiation between challenge and hindrance demands, following the proposition put forward by LePine et al. (2005) according to which not all demands are negative in the occupational context. Indeed their potential role depends on how they are perceived. Based on the SCT of Bandura (1997), the objective of this study is to analyze the role of professional self-efficacy as a predictor variable of the perception of challenge and hindrance demands, and its relationship with burnout and engagement in two different samples: secondary school teachers and ICT users. Specifically, the model hypothesized for this study proposed three basic premises: (1) it explains psychosocial well-being in terms of two job characteristics: challenge and hindrance demands (LePine et al., 2005; Podsakoff et al., 2007); (2) it considers a personal resource, self-efficacy, which influences the perception of the work environment; and (3) it explains the psychosocial well-being process in terms of two basic processes: the erosion and motivational processes. This theoretical model is depicted in Figure 1.

More specifically, it is expected that:

Hypothesis 1: Professional self-efficacy will be negatively related with burnout through hindrance demands (i.e., erosion process) when samples are analyzed independently and in the multi-group analysis. That is, low levels of professional self-efficacy are related to the perception of more hindrance demands, which is further related to high levels of burnout.

Hypothesis 2: Professional self-efficacy will be positively related with engagement through challenge demands (i.e., the motivation process) when samples are analyzed independently and in the multi-group analysis. That is, high levels of professional self-efficacy are related to the perception of more challenge demands, which is further related to high levels of engagement.

Hypothesis 3: Professional self-efficacy will be negatively related with burnout through challenge demands when samples are analyzed independently and in the multi-group analysis. That is, low levels of professional self-efficacy are related to the perception of less challenge demands, which is further related to high levels of burnout.

Hypothesis 4: Professional self-efficacy will be positively related with engagement through hindrance demands when samples are analyzed independently and in the multi-group analysis. That is, high levels of professional self-efficacy are related to the perception of less hindrance demands, which is further related to high levels of engagement.

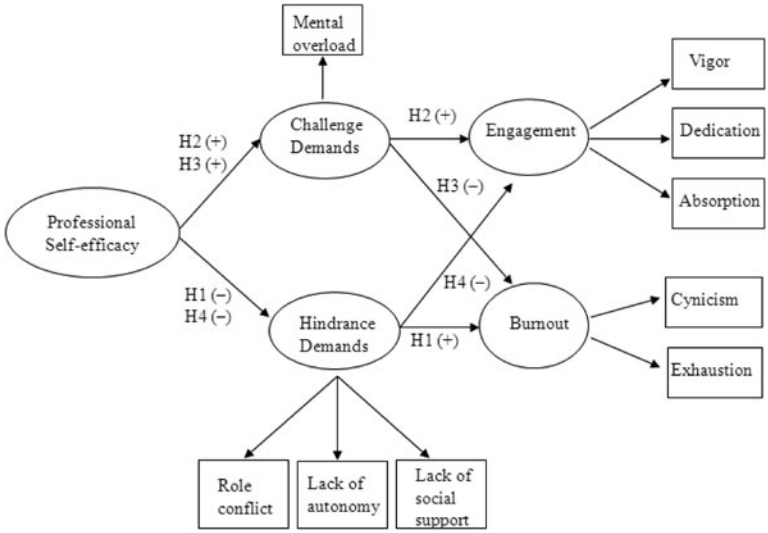

FIGURE 1. Research model of professional self-efficacy, challenge and hindrance demands, burnout, and engagement.

Method

Participants and Procedure

This study was conducted using two convenience samples: secondary school teachers and ICT users. The first sample was made up of a total of 460 secondary school teachers (81% response rate) from 34 public and private schools in Spain: 56% were women and the average age was 40 years ($SD = 8.2$ years).

The second sample consisted of 596 ICT users from different Spanish public and private companies (80% response rate). 55% were males and the average age was 38 years ($SD = 8.3$ years). The sample was quite heterogeneous, with workers from the following occupational contexts: administration (55%), technical support (11%), laboratory (10%), blue-collar workers (8%), sales (7%), human resources (6%), and management (3%). Even though it was a heterogeneous sample in terms of the occupational group the subjects belonged to, the common denominator of all the workers was the use of ICT in their work (over 51% of their weekly work time).

In both cases, the research team explained the purpose of the study to the head teachers of the different schools or the Human Resources Officers (HR officers) of the enterprises, as well as offering them instructions on how to distribute the self-report questionnaire used in this research. Subsequently, the head teachers or

HR officers distributed the paper-and-pencil questionnaire in an envelope together with a cover letter explaining the purpose of the study and that participation was voluntary with guaranteed confidentiality. Respondents returned the completed questionnaires in a sealed envelope either to the person who had given them out (head teacher or HR officer) or directly to the research team.

Measures

We used 10 original, reworded, or adapted versions of well-known, validated scales (see Table 1 for details) using Likert scales ranging from "never" to "always." *Professional self-efficacy* was measured with the professional self-efficacy version by Schwarzer (1999), which was adapted to a specific domain: the work setting.

Job demands were measured with five scales which were divided in terms of hindrance and challenge demands. *Hindrance demands* were tested by role conflict, lack of autonomy, and lack of social support.[1] *Challenge demands*, in contrast, were tested by mental overload.

Job Burnout was measured with the two "core of burnout" dimensions: exhaustion and cynicism, using the Spanish version of the MBI-GS (Salanova, Schaufeli, Llorens, Peiró, & Grau, 2000).

Work Engagement was measured with the subscales of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002) in its Spanish version (Salanova, Schaufeli, et al., 2000). The three dimensions of engagement were used: vigor, dedication, and absorption.

Data Analyses

Firstly, internal consistencies (Cronbach's α), descriptive analyses (i.e., means, standard deviations, and correlations), and intercorrelations were calculated using SPSS 19.0. As different Likert-type scales were used for measurement, variables were transformed into Z-scores (ranging from –1 to 1) in order to be able to compare and interpret the results correctly.

Secondly, Harman's single factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) was computed for the variables in the study in order to test for bias due to common method variance using multi-group analyses.

Thirdly, we have computed following analyses to evidence reliability and convergent validity among all variables: (1) multi-group Confirmatory Factor Analysis (CFA) for both samples simultaneously analysed, (2) Composite Reliability (CR), and (3) Analyses of Variance Extracted (AVE) (Fornell & Larcker, 1981).

Last, to be able to test the hypotheses of the study, the Structural Equation Modeling (SEM) method was implemented using the AMOS 19.0 (Analyses of Moment Structures; Arbuckle, 1997) software program. Three competitive models were tested independently in each sample: (a) the proposed model (M1) assumed that professional self-efficacy is related to burnout and engagement through hindrance and challenge demands, in such a way that there is greater self-efficacy,

TABLE 1. Scales, Number of Items, Range of Likert-Type Scales (for Secondary School Teachers/ICT Users), Source, and an Example of an Item

Scale	*Item*	*Range*	*Source*	*Example of item*
Professional self-efficacy	10/5	7/5	**Schwarzer, 1999	*"I will be capable of efficiently handling unexpected events in my work"*
Role conflict	8/3	7/5	**Rizzo, House, & Lirtzman, 1970	*"I receive incompatible demands from two people or more"*
Social support	3/5	7/5	Van Muijen et al., 1999	*"In this organization, people show interest and support for their colleagues' personal problems"*
Autonomy	5/5	7/5	**Jackson, Wall, Martin, & Davis, 1993	*"I can decide which tasks I will do each day"*
Mental overload	5/5	7/5	**Van Veldhoven & Meijman, 1994	*"My work requires that I am continuously alert"*
Exhaustion	5/5	7/7	*Salanova, Schaufeli, et al., 2000	*"I am emotionally exhausted by my work"*
Cynicism	4/4	7/7	*Salanova, Schaufeli, et al., 2000	*"I've lost interest in my work since I began this job"*
Vigor	6/6	7/7	*Salanova, Schaufeli, et al., 2000	*"At my work, I feel bursting with energy"*
Dedication	5/5	7/7	*Salanova, Schaufeli, et al., 2000	*"To me, my work is challenging"*
Absorption	6/6	7/7	*Salanova, Schaufeli, et al., 2000	*"Time flies when I'm working"*

Note.*reworded scale. **adapted scale.

the worker will perceive more challenge demands and fewer hindrance demands; (b) Model 2 (M2) considers that professional self-efficacy plays a mediating role between demands (challenge and hindrance), and engagement and burnout; and, (c) Model 3 (M3) considers that professional self-efficacy is a consequence of the influence that challenge and hindrance demands have on burnout and engagement. Last, we defined the Model 4 (M4) as the final model which includes only the significance relationship among the variables in each sample independently analyzed.

Furthermore, these M4 was tested using multi-group analyses (MLG; Byrne, 2001) in order to assess structural invariance across both samples. As a consequence of these MLG, Model 4 (the free model) was compared with other competing models in both samples simultaneously analyses: the full constrained model ($M4_{\text{full constrained}}$), the model with only constrained regression coefficients ($M4_{\text{regression constrained}}$), the model with only constrained factorial weights ($M4_{\text{factor constrained}}$), the model with covariances among the constrained errors ($M4_{\text{constrained covariances}}$), and the final model ($M4_{\text{final}}$), with only significant relationships and constrained parameters in both samples simultaneously analyzed.

Maximum likelihood estimation methods were used, in which the input for each analysis was the covariance matrix of the items. Two absolute goodness-of-fit indices were analyzed to evaluate the goodness-of-fit of the models: (1) the χ^2 goodness-of-fit statistic, and (2) the Root Mean Square Error of Approximation (RMSEA). The χ^2 goodness-of-fit index is sensitive to sample size, so the use of relative goodness-of-fit measures is recommended (Bentler, 1990). Hence, three relative goodness-of-fit indices were used: Comparative Fit Index (CFI), Normed Fit Index (NFI), and Incremental Fit Index (IFI). Last, the Akaike Information Criterion (AIC) index was also computed. For RMSEA, values smaller than .05 are considered to indicate an excellent fit, .08 are considered to indicate an acceptable fit, whereas values greater than .1 should lead to model rejection (Browne & Cudeck, 1993). For the relative fit indices, values greater than .90 are indicative of a good fit (Hu & Bentler, 1995). The lower the AIC index, the better the fit is (Akaike, 1987; Hu & Bentler, 1995).

Results

Descriptive Results

Table 2 displays the results of the Cronbach's alpha descriptive analyses for each scale in both samples. The alpha values meet the criterion of .70 (Nunnally & Bernstein, 1994). The correlations of the scales are presented in Table 3.

Results of Harman's single factor test (see Podsakoff et al., 2003) using multi-group analyses ($N = 1056$) reveal a bad fit to the data χ^2 (10) = 170.178, p = .000, RMSEA = .116, CFI = .79, NFI = .79, TLI = .39, IFI = .80. Consequently, common method variance can be considered not to be a serious deficiency in this dataset.

TABLE 2. Means, Standard Deviations, and Internal Consistencies for Secondary School Teachers ($n = 460$) and ICT Users ($n = 596$)

	Secondary School Teachers			ICT Users		
	Mean	*SD*	α	Mean	*SD*	α
1. Professional self-efficacy	−.39	.91	.93	.30	.95	.83
2. Mental overload	.23	1.07	.85	−.18	.90	.84
3. Role conflict	.09	1.04	.83	−.08	.96	.73
4. Lack of social support	−.13	.91	.85	.10	1.05	.85
5. Lack of autonomy	−.37	.97	.92	.29	.92	.90
6. Vigor	.19	1.02	.85	−.15	.97	.80
7. Dedication	.09	.95	.90	−.07	1.03	.89
8. Absorption	.02	1.04	.80	−.02	.96	.71
9. Exhaustion	−.09	.92	.86	.08	1.05	.84
10. Cynicism	−.09	.99	.83	.07	.99	.86

Note. Means and Standard Deviations (*SD*) are Z-scores; α = Cronbach's alpha.

Reliability and Convergent Validity

Results of CFA for both samples presented an adequate fit to the data, $\chi^2(68) = 428.17, p < .00$, RMSEA = .06, CFI = .91, GFI = .94, IFI = .91, NFI = .90. Moreover, results of reliability and convergent validity among all variables showed: (1) for ICT users CR (ranges from .72 to .86) are higher of 0.7 with the exception of hindrance demands (CR = .30) and AVE (ranges from .57 to .77) are higher than .05 with the exception of hindrance demands (AVE = .24), and (2) for secondary school teachers CR (ranges from .70 to .88) are higher of 0.7 with the exception of hindrance demands (CR = .43), and AVE (ranges from .52 to .85) are higher than .05 with the exception of hindrance demands (AVE = .22). Furthermore, all factors loadings are highly significant since the regression weights are significantly different from zero at the 0.001 level (two-tailed).

Model Fit: Structural Equation Modeling

To compute SEM, we used the database that included professional self-efficacy, challenge demands, hindrance demands, engagement, and burnout in two different samples: secondary school teachers and ICT users. The results of the structural equation analyses are presented separately for both samples in Table 4.

By first focusing on the sample of secondary school teachers ($n = 460$), the model of the direct relationships between variables (M1) does not fit the data well, the modification indices thus suggesting the inclusion of a correlation between the errors of cynicism and dedication (the correlation between these

TABLE 3. Intercorrelations Between the Study Variables in a Sample of Secondary School Teachers ($n = 460$) and ICT Users ($n = 596$)

	2	3	4	5	6	7	8	9	10
Secondary School Teachers									
1. Professional self-efficacy	.91*	−.15**	−.21***	−.26***	.43***	.45***	.30***	−.37***	−.43***
2. Mental overload	—	.30***	−.04	−.06	.09*	.14**	.18***	.25***	−.07
3. Role conflict		—	.23***	.18***	−.13**	−.15**	.02	.27***	.30***
4. Lack of social support			—	.19***	−.14**	−.20***	−.12*	.17***	.19***
5. Lack of autonomy				—	−.16**	−.17***	−.15*	.15**	−.11*
6. Vigor					—	.66***	.56***	−.39***	−.39***
7. Dedication						—	.62***	−.32***	−.57***
8. Absorption							—	−.15**	−.32***
9. Exhaustion								—	.51***
10. Cynicism									—
ICT users									
1. Professional self-efficacy	.17***	.01	−.06	−.19***	.24***	.20***	.16***	−.17***	−.20***
2. Mental overload	—	.25***	−.12**	−.15***	.28***	.45***	.36***	−.08*	−.13**
3. Role conflict		—	.08*	−.02	−.01	−.02	.06	.28***	.28***
4. Lack of social support			—	.20***	−.27***	−.35***	−.31***	.17***	.31***
5. Lack of autonomy				—	−.16***	−.22***	−.15***	.11**	.14**
6. Vigor					—	.65***	.65***	−.31***	−.41***
7. Dedication						—	.71***	−.26***	−.52***
8. Absorption							—	−.11**	−.35***
9. Exhaustion								—	.56***
10. Cynicism									—

Note. *p < .05. **p < .01. *** p < .001.

TABLE 4. Fit Indices for Structural Equation Models in Secondary School Teachers ($n = 460$) and ICT Users ($n = 596$)

	χ^2	*df*	RMSEA	NFI	CFI	AIC	$\Delta\chi^2$	Δdf
Secondary School Teachers								
M1	235.17	38	.10	.86	.88	291.16		
$M1_r$	184.34	36	.09	.89	.91	244.34	$M1_r$ — M1 = 50.83***	2
M2	236.27	39	.10	.86	.88	290.27	M2 — M1 = 1.1	1
							M2 — $M1_r$ = 51.93***	3
M3	156.43	37	.08	.90	.93	214.43	M3 — M1 = 78.74***	1
							M3 — $M1_r$ = 27.91***	1
							M3 — M2 = 79.84***	2
M4	158.18	38	.08	.91	.93	214.18	M4 — M1 = 76.99***	0
							M4 — $M1_r$ = 26.16***	2
							M4 — M2 = 78.09***	1
							M4 — M3 = 1.75	1
ICT users								
M1	251.70	38	.10	.86	.89	307.71		
$M1_r$	236.42	37	.09	.88	.90	294.42	$M1_r$ — M1 = 15.28***	1
M2	454.97	40	.13	.79	.75	506.97	M2 — M1 = 203.27***	2
							M2 — $M1_r$ = 218.55***	3
M3	255.99	38	.09	.85	.86	311.98	M3 — M1 = 4.29***	0
							M3 — $M1_r$ = 19.57***	1
							M3 — M2 = 198.98***	2
M4	238.30	39	.09	.89	.90	292.30	M4 — M1 = 13.40***	1
							M4 — $M1_r$ = 1.88	2
							M4 — M2 = 216.67***	1
							M4 — M3 = 17.69***	1

Note. $\chi 2$ = Chi-square; *df* = degrees of freedom; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation; NFI = Normed Fit Index; CFI = Comparative Fit Index; AIC = Akaike Information Criterion; $\Delta\chi 2$ = chi-square difference; $\Delta\chi 2$ is significant at $^{***}p < .001$.

errors systematically appeared in other studies; see Salanova, Schaufeli, et al., 2000, Salanova, Bresó, et al., 2005; Schaufeli & Bakker, 2004). Moreover, the fit indices showed that it is advisable to include a correlation between the errors of the challenge and hindrance demands. Therefore, the reviewed model ($M1_r$), which includes these correlations between errors, significantly improves in relation to M1 $\Delta\chi^2(2) = 50.83$, $p < .001$.

Two alternative models are then tested. Results show that the first alternative model (M2), which proposes that professional self-efficacy mediates the relationship between job demands (challenge and hindrance) and psychosocial well-being (burnout and engagement), fits significantly worse than the reviewed model ($M1_r$) $\Delta\chi^2(3) = 51.93$, $p < .001$. The test of the second alternative model (M3), which proposed that professional self-efficacy is a consequence of the relationship between job demands (challenge and hindrance) and psychosocial well-being (burnout and engagement), reveals a better fit to the data than M1, $\Delta\chi^2(1) = 78.74$, $p < .001$, $M1_r$, $\Delta\chi^2(1) = 27.91$, $p < .001$, and M2, $\Delta\chi^2(2) = 79.84$, $p < .001$. Last, Table 4 depicts the final model (M4) which presents the best fit to the data in secondary school teachers, by including only the significant relationships among the variables. This model (M4), which includes $M1_r$ without the direct relationship between challenge demands and burnout, shows the best fit compared to M1, $\Delta\chi^2(0) = 76.99$, $p < .001$, $M1_r$, $\Delta\chi^2(2) = 26.16$, $p < .001$,and M2,$\Delta\chi^2(1) = 78.09$, $p < .001$, although no significant differences in fit were obtained compared with M3, $\Delta\chi^2(1) = 1.75$, *n.s.*

For the sample of ICT users ($n = 596$), we conducted a similar set of SEM analyses as in the case of the sample of secondary school teachers. These analyses reveal that the proposed M1 does not fit the data. Again the modification indices suggest the inclusion of a correlation between the errors of cynicism and dedication. Thus, the reviewed model ($M1_r$), which includes these correlations between the errors of cynicism and dedication, significantly improves the fit in relation to M1, $\Delta\chi^2(1) = 15.28$, $p < .001$. Similarly to the case of secondary school teachers, the alternative M2, which proposes that professional self-efficacy mediates the relationship between job demands (challenge and hindrance) and psychosocial well-being (burnout and engagement), fits the data worse than M1, $\Delta\chi^2(2) = 203.27$, $p < .001$, and $M1_r$, $\Delta\chi^2(3) = 218.55$, $p < .001$. Furthermore, M3, which proposes that professional self-efficacy is the result of the relationship between job demands (challenge and hindrance) on psychosocial well-being (burnout and engagement), fits the data worse than M1, $\Delta\chi^2(0) = 4.29$, $p < .001$, and $M1_r$, $\Delta\chi^2(1) = 19.57$, $p < .001$, but fits better than M2, $\Delta\chi^2(2) = 198.98$, $p < .001$. Last, Table 4 depicts the final model (M4) which presents the best fit to the data by including only the significant relationships among the variables M4 fits significantly better than M1, $\Delta\chi^2(1) = 13.40$, $p < .001$, M2, $\Delta\chi^2(1) = 216.67$, $p < .001$, and M3, $\Delta\chi^2(1) = 17.69$, $p < .001$, but it does not show significant differences from $M1_r$, $\Delta\chi^2(2) = 1.88$, *n.s.*

Multi-Group Analyses

Once the model has been tested separately in the two samples, a multi-group analysis is performed by testing the two samples simultaneously. As expected, M4 (free model) was tested simultaneously in both samples. Results shows a good fit with the data of both samples, and all the indicators present values above their criterion (see Table 5). Nonetheless, the fit deteriorates significantly when all coefficients are constrained to be equal in both samples ($M4_{full\ constrained}$). This means that, although the underlying structure of the model is similar in both samples, the sizes of some coefficients may differ.

In this way, and in order to be able to test the invariance of the model in more detail, three additional models were tested: (1) a model that assumes that only the regression coefficients are invariant ($M4_{regression\ constrained}$); (2) a model that assumes that only the factorial weights are invariant ($M4_{factor\ constrained}$); and (3) a model that assumes that only the covariance between errors is invariant ($M4_{constrained\ covariances}$). As can be seen from Table 5, although these new models fit the data, the fit worsens significantly in comparison to the free model (M4). This implies that the regression coefficients, the factorial weights and the covariance between the errors differ significantly and systematically between both samples.

Moreover, as recommended by Byrne (2001), an interactive process is used in order to assess the invariance of each coefficient separately. That is, the invariance of each coefficient is individually assessed by comparing the fit of the model, when each particular constrained coefficient is included, with the free model. When the fit does not deteriorate, this constrained coefficient is included in the next model, to which another constrained coefficient is added, and so on. This process is repeated until a final model is found ($M4_{final}$) (see Figure 2). In this final model, the invariant coefficients in both samples are: the factorial weights of professional self-efficacy, each with its indicators, the vigor dimension and lack of autonomy, the regression weights from professional self-efficacy to challenge demands, and from hindrance demands to engagement; and the covariance between the errors of cynicism and dedication.

Last, professional self-efficacy explains 3% of the variance in challenge demands, and 41% of the variance in hindrance demands. Moreover, 58% of the variance of engagement is explained by demands (i.e., challenge and hindrance), and 79% of the variance of burnout is explained by hindrance demands.

Discussion

The aim of the current study was to analyze the role of professional self-efficacy as a predictor variable of the perception of challenge and hindrance demands, and its relationship with burnout and engagement in a sample of secondary school teachers and ICT users. This hypothesized model proposed three basics premises: (1) psychosocial well-being could be explained in terms of two job characteristics: challenge and hindrance demands (LePine, LePine, & Jackson,

TABLE 5. Fit Indices for Multi-Group Structural Equation Models in Secondary School Teachers (n = 460) and ICT Users (n = 596)

Model	χ^2	*df*	*RMSEA*	*NFI*	*IFI*	*CFI*	*AIC*	$\Delta\chi^2$	Δ*NFI*	ΔIFI	ΔCFI	Δ*AIC*
1. M4	396.49	77	.06	.89	.91	.91	506.49					
2. M4c: full constrained	457.30	89	.06	.87	.90	.89	543.30					
Diff. M4c & M4								60.81***	.2	.1	.2	36.81
3. M4r: regression constrained	431.50	82	.06	.88	.90	.90	531.50					
Diff. M4r & M4								35.01***	.1	.1	.1	25.01
4. M4f: factor constrained	422.19	83	.06	.88	.91	.90	520.19					
Diff. M4f & M4								25.69***	.1	0	.1	13.7
5. M4co: constrained covariance	403.61	78	.06	.89	.91	.91	511.61					
Diff. M4co & M4								7.12***	0	0	0	5.12
6. M4fi: final	405.56	82	.06	.89	.91	.91	505.56					
Diff. M4fi & M4								9.07	0	0	0	0.93

Note. $\chi 2$ = Chi-square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; NFI = Normed Fit Index; IFI = Incremental Fit Index; CFI = Comparative Fit Index; AIC = Akaike Information Criterion; $\Delta\chi 2$ = chi-square difference; ***$p < .001$.

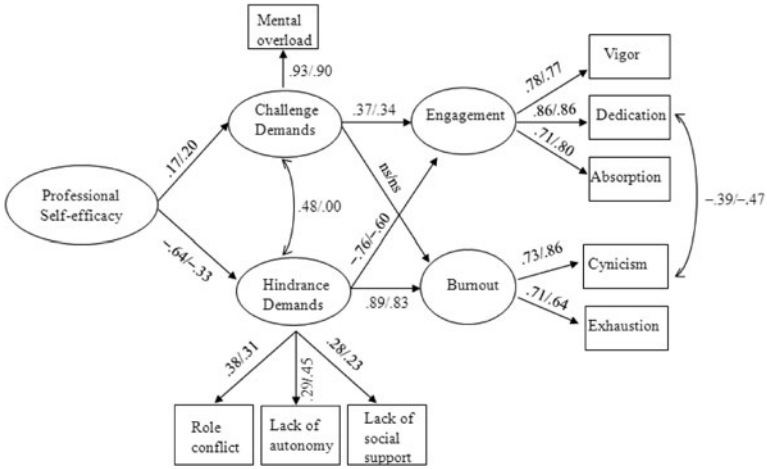

FIGURE 2. Multi-group SEM analyses in secondary school teachers ($n = 460$) and ICT users ($n = 596$). All coefficients represented here are significant at $^{***}p < .001$.

2004; LePine et al., 2005; Podsakoff et al., 2007), (2) professional self-efficacy has been considered to be a personal resource par excellence, such that professional self-efficacy would act as a predictor of social perception, and would act as a referent to perceive the work environment, and (3) to explain the psychosocial well-being process in terms of two processes: the erosion process (i.e., the presence of low levels of professional self-efficacy, generating the perception of more hindrance demands and greater burnout), and the motivation process (i.e., the presence of high levels of professional self-efficacy, generating the perception of challenge demands and greater engagement).

Findings concerning the SEM analyses for two independent samples with multi-group analyses supported the erosion process, thus supporting Hypothesis 1. More specifically, we found that professional self-efficacy was related with burnout through hindrance demands when samples are analyzed independently and in the multi-group analysis. In agreement with previous research (Podsakoff et al., 2007), workers perceive hindrance demands as stressors that may delimit their personal accomplishments and development. Furthermore, the results of the present study shed light on the understanding of how low levels of professional self-efficacy is positively related to the perception of more hindrance demands and their relationship with negative experiences such as burnout. Consequently, low levels of professional self-efficacy, in the presence of hindrance demands, is related to a reduction in levels of energy and persistence to face demands

(i.e., exhaustion), as well as a lack of identification with one's work (i.e., cynicism), as has been confirmed by previous research (e.g., Llorens et al., 2005; Xanthopoulou et al., 2007).

Conversely, the motivational process was supported by Hypothesis 2, which considered that professional self-efficacy would be positively related to engagement through challenge demands when samples are analyzed independently, and in the multi-group analysis. In accordance with previous research (Podsakoff et al., 2007), workers can perceive challenge demands as an opportunity to potentially increase their personal growth and development, which in turn trigger motivational processes. In this sense, workers with high levels of professional self-efficacy perceive more challenge demands and consequently more positive experiences such as engagement. Thus, high levels of professional self-efficacy are positively associated with high levels of energy and activation (i.e., vigor), enthusiasm, pride, and inspiration at work (i.e., dedication), and to an elevated state of concentration (i.e., absorption) aimed at fulfilling objectives (Salanova, Martínez, & Llorens, 2005).

Hence, the hypothesized model contemplated two crossed relationships. First of all, Hypothesis 3 considered that professional self-efficacy would be negatively related with burnout through challenge demands when samples are analyzed independently, and in the multi-group analysis. But this hypothesis was not supported. The latter finding is in line with previous results in which no association between challenge demands and exhaustion was found (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). In addition, previous research has shown that the status of job challenge demands is perhaps less clear with regards to burnout. That is, some research results indicated negative relations between challenge demands and exhaustion (LePine et al., 2005), while other research has found that challenge demands were positively related to burnout (Crawford et al., 2010) and exhaustion (LePine et al., 2004). These contradictory results should stimulate future research to gain a deeper understanding of the relation between professional self-efficacy, challenge demands, and burnout.

Secondly, Hypothesis 4 considered that professional self-efficacy would be positively related to engagement through hindrance demands when samples are analyzed independently, and in the multi-group analysis. This hypothesis was supported, since results show that workers who possessed high levels of professional self-efficacy perceived lower levels of hindrance demands, which strengthened their levels of engagement. This hypothesis coincides with previous research, in which job demands (i.e., role conflict and lack of autonomy and lack of social support) may produce positive effects on well-being when workers show high levels of professional efficacy (Salanova et al., 2001).

By way of conclusion, this research has presented an extended version of the RED Model based on the SCT where we find two different processes: (1) the erosion process, where low levels of professional self-efficacy are related to the perception of more hindrance demands, which is further related to high levels of burnout (*Hypothesis 1*); and (2) the motivational process, where high levels of

professional self-efficacy are related to the perception of high levels of challenge demands (*Hypothesis 2*), and low levels of hindrance demands (*Hypothesis* 4), which is further related to high levels of engagement.

Limitations and Further Research

The present study has several different limitations. First, data were obtained using self-reported measures. Considering the nature of this study, which includes covert psychological phenomena (i.e., affects, attitudes, and beliefs), objective data cannot be employed. However, we followed Harman's test procedure (see Podsakoff et al., 2003) to check for common method variance in our data, and results show that it is not a serious problem in this study.

Second, we used a convenience sample. However, this sample includes different samples (secondary school teachers and ICT users from different enterprises).

Another limitation is that the study was based on cross-sectional research. This implies that the relationships obtained among professional self-efficacy, challenge and hindrance demands, and the burnout and engagement processes need to be interpreted carefully and no casual inferences must be made. A further step in research should be to consider testing the model longitudinally with at least three waves. In other words, research should be conducted to check whether professional self-efficacy increases challenge and hindrance demands at Time 1, which would increase burnout and engagement at Time 2, and would in turn increase professional self-efficacy at Time 3. This design would make it possible to test for the existence of negative and positive self-efficacy spirals over time.

As a starting point for future research, other occupational samples should be tested with the theoretical model proposed in the present study (e.g., police, medical professionals, university lecturers, etc.), and transcultural samples, as well as laboratory studies, using longitudinal designs in all the studies.

On the other hand, future studies ought to include a higher number of challenge demands (e.g., workload, job responsibility, pressure) and hindrance demands (e.g., routine, role ambiguity, organizational politics) because only one challenge demand (i.e., mental overload) and three hindrance demands (i.e., role conflict, lack of autonomy, and lack of social support) have been used in this study. In addition, it would be interesting to extend the number of personal resources at both the individual level (e.g., mental and emotional competences) and the group level (e.g., collective efficacy).

Last, there is the possibility of testing a socio-cognitive intervention with longitudinal studies for the purpose of improving levels of professional self-efficacy and to verify their effectiveness in the short, mid, and long term.

Theoretical and Practical Implications

The results obtained in the present study have important theoretical and practical implications for organizations. At the theoretical level, the present study extends the RED model (Salanova, Cifre, et al., 2011) by including professional

self-efficacy as an antecedent variable of the model. Further input was to consider the contributions of LePine et al. (2005) in the differentiation of challenge and hindrance demands in two different occupational samples: secondary school teachers and ICT users. Thus, the results of the present study provide evidence that might be instructive and even necessary to differentiate between challenge and hindrance demands and include personal resources, as important variables to be considered, in the different models of stress.

The basic contributions imply that psychosocial well-being is the result of two processes. Thus, results suggest that in order to prevent burnout, and to reduce the perception of hindrance demands, levels of self-efficacy should increase. On the other hand, high levels of self-efficacy are needed to increase or maintain levels of engagement and to increase the perception of challenge demands.

From a practical point of view, results can be used by Human Resources Management in order to increase levels of personal resources as a source of well-being that helps secondary school teachers and ICT users to be more engaged in their work and therefore less likely to suffer from burnout. Specifically, to achieve this aim, training should include a range of components that are consistent with theoretical keys to develop efficacy beliefs, that is, starting with the sources of self-efficacy as its forerunners (Bandura, 1997, 1999). In this way, professional self-efficacy may be increased through role-playing in order to promote successful experiences among secondary education teachers and ICT users, the development of performance models by vicarious learning, verbal persuasion (e.g., coaching), and moderating negative affective states (e.g., anxiety) with relaxation, meditation practices, and so forth (Martínez & Salanova, 2006). This is a way to generate "positive jobs," as well as "positive teachers" and ICT users from the Positive Occupational Health Psychology framework (Llorens, Salanova, & Martínez, 2008; Salanova, Martínez, et al., 2005).

To conclude, the present study provides evidence for the importance of professional self-efficacy, as it was shown to be related to perceptions of job demands and important outcomes (burnout and engagement). Accordingly, we propose that efficacy beliefs need to be developed in work settings in order to influence the perception of job demands (i.e., challenge and hindrance) and thus prevent negative psychosocial consequences such as those related to burnout, and thereby contribute to develop a healthy work environment.

NOTE

1. The items on the autonomy and social support scale (which were originally job resources) were reversed, so they were considered to negatively assess "lack of autonomy" and "lack of social support," just as indicated by Podsakoff et al. (2007).

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