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BURNOUT AND WORK ENGAGEMENT AMONG TEACHERS:

An application of the Job Demands-Resources Model

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INTRODUCTION

The nature of work has changed considerably over the last years, involving new working practices and rapid technological advances while decreasing the exposure to physical and chemical agents. At the same time, however, these changes have increased exposure to poor characteristics of the psycho-social work environment that can be considered potential psychosocial risk factors (Chmiel, 1998).

These psychosocial risk factors have been defined as those aspects which relate to the planning, organization and management of the job, as well as to the respective environmental and social contexts that have the potential to produce physical, social or psychological damage (Cox, Griffiths & Rial-Gonzàlez, 2000). Their assessment and their impact on the health and safety of workers have become important research topics in recent decades (Cox & Rial-Gonzàlez, 2005; Theorell & Hasselhorn, 2005; Kompier, 2005), and are indeed now among the priorities of European policies on workplace health and safety (see for example: Community Strategy 2007-2012 on health and safety at work; D. Lgs. 81/2008).

The enhancement of work-related well-being is of main concern to work and occupational health psychologists (for a review, see Schabracq, Jacques, Winnubst & Cooper, 2003).

In this regard, there is a large body of research studies on the antecedents and the consequences of employee well-being which also use models (e.g. Karasek, 1979; Siegrist, 1996) which may explain how and in what circumstances people experience ill-being vs well-being at work. However, these models have been restricted to a given and limited set of predictor variables that may not be relevant for all job positions, and therefore they are unable to capture the complexity of working life (Halbesleben & Buckley, 2004; Bakker & Demerouti, 2007). In addition, the vast majority of previous studies have focused on negative outcome variables, including burnout, ill health, and repetitive strain (Bakker & Demerouti, 2007).

In an attempt to overcome this theoretical shortcoming, a new heuristic and parsimonious model has been recently developed: the Job Demands-Resources (JD-

R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The advantage of this model is that it recognizes the uniqueness of each work environment, which has its own specific work characteristics responsible for employee well-being. It thus constitutes an occupation-specific model that provides a more rigorous and flexible theoretical context for comprehending well-being at work. This perspective is in line with the recent trend of so-called *Positive Psychology*: that is, the scientific study of human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). "The aim of positive psychology is to shift the emphasis away from what is wrong with people to what is right with people" (Luthans, 2002, p. 697), focusing mainly on strengths, resilience and virtues instead of on disease, disorder, disability, and damage (Diener, 2000; Snyder & Lopez, 2002). This approach is spreading rapidly, also in organizational research (e.g. Positive Organizational Behavior (POB), Luthans, 2002; Positive Organizational Scholarship (POS), Cameron, Dutton & Quinn, 2003). However, account should also be taken of the recent critical revision by Hackman (2009), who underlines the methodological and theoretical limitations of Positive Psychology, particularly in regard to the risk of overestimating individual variables.

Influenced by the ideas of positive psychology and based upon the JD-R model, the current dissertation focuses on school teachers. There were several reasons for choosing teachers as the study group. First, teaching has been identified as a particularly stressful occupation (Chaplain, 2008; Montgomery & Rupp, 2005). A large body of research literature shows that teachers are particularly at risk of stress, and that this is an international phenomenon (e.g. Borg & Falzon, 1990; Chan, 2002; Brown, Ralph & Bember, 2002; Van Horn, Schaufeli, Greenglass & Burke, 1997; Farber, 1991; Istituto di ricerca IARD, 2000). Second, many studies have shown that teachers are also satisfied with and enthusiastic about their work (Roth, Assor, Kanat-Maymon, Kaplan, 2007; Rudow, 1999), and that they are engaged in their jobs (Hakanen, Bakker & Schaufeli, 2006). This was a good precondition for capturing both positive and negative aspects of well-being.

As noted above, this dissertation is based upon the Job-Demands Resources Model and refers to the classification of psychosocial risk factors in two general categories: *Job Demand* and *Job Resources* (Schaufeli & Salanova, 2002). Job demands are the

physical, psychological, social, or organizational aspects of the job that require physical and/or psychological effort, and are therefore related to physiological and/or psychological costs (Bakker & Demerouti, 2007). Job resources are the physical, psychological, social, or organizational aspects of the job that (1) are functional in achieving work goals, (2) reduce job demands and the related physiological and psychological costs, and (3) stimulate personal growth and development (Bakker & Demerouti, 2007).

The basic premise of the JD-R model (Demerouti et al., 2001) is that these two categories of work characteristics evoke two relatively independent psychological processes that determine employee well-being: (1) A *health impairment process* in which high job demands exhaust employees' mental and physical resources and may therefore lead to energy depletion (i.e. burnout) (Demerouti et al., 2001). And (2) a *motivational process* in which job resources, owing to their motivational potential, induce employees to fulfill their work goals, and in turn, may lead to work engagement (Demerouti et al., 2001; Schaufeli & Bakker, 2004). The JD-R model therefore posits that job demands are the most important antecedents of burnout, whereas job resources are the most important antecedents of work engagement (Hakanen, Bakker & Schaufeli, 2006; Schaufeli & Bakker, 2004).

Traditionally, burnout has been defined as a persistent, negative, work-related state of mind characterized by emotional exhaustion (the depletion or draining of mental energy caused by interpersonal demands), depersonalization (negative or inappropriate attitudes toward clients), and reduced personal accomplishment (the belief that one is no longer effective in fulfilling one's work with recipients) (Maslach, Schaufeli & Leiter, 2001). It is measured with the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981), which has been the measure of job burnout most widely used in the empirical literature (Schaufeli & Enzmann, 1998). Emotional exhaustion and depersonalization have been regarded as the "core components" of burnout (e.g. Green, Walkey & Taylor, 1991; Schaufeli & Taris, 2005) as evidenced by the relatively low correlations of personal efficacy with both the other components (Lee & Ashforth, 1996). However, it seems likely that previous findings largely reflect a statistical artefact: the accomplishment items are positively worded, while the items on the exhaustion and depersonalization scales are

negatively worded (see: Bresó, Salanova & Schaufeli, 2007). Moreover, although burnout was originally restricted to the so-called *helping professions*, it was subsequently extended to all occupations (Maslach et al., 2001).

As a consequence, the three original dimensions of burnout were redefined in slightly broader terms to take account of the job itself, in order to consider burnout levels not only as related to working with recipients (like in *helping professions*) but also as related to a person's work in general. A new instrument, the MBI-General Survey (MBI-GS), was thus developed (Schaufeli, Leiter, Maslach, & Jackson, 1996).

Particularly, the dimension which has changed substantially from the original conceptualization is depersonalization. Although, conceptually speaking, both depersonalization and cynism are manifestations of mental distancing, in the former case this distancing is directed toward recipients, whereas in the case of cynism it is directed toward the job itself (Salanova, Llorens, Garcia-Renedo, Burriel, Bresó, & Schaufeli, 2005).

In our opinion, it is possible to find both types of mental distancing (that is, depersonalization and cynicism) among teachers. On the one hand, in fact, teachers' relationships with students are crucial for their work performance and their feelings of efficacy. On the other, mental distance from their work is increasingly observed among teachers, owing to the changes that have recently affected their profession (i.e., increased pressure by society for them to expand their roles beyond education, a devaluation of the profession whereby teachers find their credibility being eroded within the wider community).

In light of these considerations, the first main aim of this dissertation is to examine the two components of the MBI considered most problematic, seeking to revise the instrument. Specifically, on the one hand, it will investigate the role of efficacy beliefs using negatively worded inefficacy items instead of positive ones; on the other, it will verify the existence of both kinds of mental distance – depersonalization and cynism – among teachers, by adding also the cynism scale to the three traditional burnout dimensions. Although there are numerous studies which have investigated the internal structure of MBI, few analyses have addressed the issues described

above. Moreover, to my knowledge, this study is the first to consider a four-dimension model in which the Personal Accomplishment items are negatively worded.

On the basis of the JD-R Model that points out the importance of considering positive and negative aspects of quality of the work life, this dissertation focuses also on work engagement.

In fact, in contrast to burnout, work engagement is defined as a positive, fulfilling, work-related state of mind characterized by vigor (high levels of energy and mental resilience while working, willingness to invest effort in work, and persistence in the face of difficulties), dedication (being involved in one's work, sense of enthusiasm, inspiration, pride, and challenge), and absorption (being happily engrossed in one's work, whereby time passes quickly and one has difficulties detaching oneself from work) (Schaufeli, Salanova, González-Romá, & Bakker, 2002).

Based on this definition of work engagement, a self-report questionnaire (namely the Utrecht Work Engagement Scale, UWES; Schaufeli, Salanova, González-Romá, & Bakker, 2002) as well as a short version (UWES-9; Schaufeli, Bakker & Salanova, 2006) have been developed.

The second main aim of this dissertation is to further extend knowledge about the psychometric properties of the Italian version of both the UWES versions.

To our knowledge, this is the first study developed in Italy which compares the two versions of the UWES, besides investigating the stability of the construct over time.

Burnout and work engagement are therefore the two core aspects of both the health impairment and the motivational process of the JD-R Model, respectively.

Although there is substantial empirical support for the JD-R model's main assumptions, there are still certain points that need to be addressed (Bakker & Demerouti, 2007).

These authors underline for example the importance of using longitudinal studies and taking into account the role of the workers' personal characteristics in order to have a more exhaustive image of this complex phenomenon. Indeed, an important recent

extension of the JD-R model includes personal resources as well (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Personal resources are those aspects of the self linked with resilience, and they concern the perception of individuals that they can successfully control and impact upon their environment (Hobfoll, Johnson, Ennis & Jackson, 2003).

More recently, also the dynamic nature of the JD-R model has been tested, by examining time varying predictors of state well-being and using a diary approach (e.g., Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008; Xanthoupolou, Bakker, Demerouti, & Schaufeli, 2009). However, as far as the JD-R model is concerned, these studies have focused mainly on the motivational process.

In light of these considerations, the third main aim of this dissertation is to test -for the first time- the JD-R model in the Italian context and to make a significant contribution to the theoretical development of this model.

First, we explore the role of personal resources, particularly by considering the role of self-efficacy beliefs. Social Cognitive Theory (Bandura, 1997, p.3) defines efficacy beliefs as the "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments". Self-efficacy beliefs contribute to motivation by influencing the challenges that people pursue, the effort they spend, and their perseverance in the face of obstacles (Bandura, 1989). Moreover, there is evidence that efficacy beliefs may act as important determinants of work engagement (Llorens, Schaufeli, Bakker & Salanova, 2006). Indeed, efficacy beliefs act as self-motivating mechanisms: people perceive their levels of competences to be high, and consequently set themselves goals and are motivated to spend considerable effort and persistence in overcoming obstacles (Bandura, 2001). Moreover, teachers with high levels of self-efficacy appear to have high levels of job satisfaction and low levels of burnout (Bandura, 1997; Van Dierendonck, Schaufeli & Buunk, 2001).

Secondly, we test the Job-Demands Resources model in a longitudinal way by testing the impact of a variety of job demands, job and personal resources that discriminate teachers who experience burnout from those who do not, as well as teachers who experience work engagement from those who do not.

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Thirdly, we investigate the dynamic character of the JD-R model, by testing between- and within-person variations with regard to both motivational and health impairment processes of the JD-R model. Testing between-person fluctuations is obviously important because it describes how employees differ from each other in their general reactions to work, well-being and performance. At the same time, however, it is also important to understand why employees who are generally engaged in their jobs have 'off-days', or why employees who are generally exhausted are satisfied and feel good on certain days. Perspectives that take within-person differences into account provide such information because they focus on momentary well-being, as well as on the fluctuations in job demands and job resources, which may thus differ from day to day (Xanthoulopolou, 2007).

To summarize, the present dissertation focuses on burnout and work engagement among teachers, with especial focus on the Job-Demands Resources Model. The objectives described above have been pursued by means of four empirical studies. The purposes of the next chapters in this thesis are now briefly outlined:

Chapter 1 focuses on teacher burnout. It aims to investigate the role of efficacy beliefs using negatively worded inefficacy items instead of positive ones and to establish whether depersonalization and cynism can be considered two different dimensions of the teacher burnout syndrome.

Chapter 2 investigates the factorial validity of the instruments used to measure work engagement (i.e. Utrecht Work Engagement Scale, UWES-17 and UWES-9; Schaufeli, et al., 2002; Schaufeli et al., 2006). Moreover, because the current study is partly longitudinal in nature, also the stability across time of engagement can be investigated. Finally, based on cluster-analyses, two groups that differ in levels of engagement are compared as far as their job- and personal resources (i.e. possibilities for personal development, work-life balance, and self-efficacy), positive organizational attitudes and behaviours (i.e., job satisfaction and organizational citizenship behaviour) and perceived health are concerned.

Chapter 3 tests the JD-R model in a longitudinal way, by integrating also the role of personal resources (i.e. self-efficacy). This chapter seeks answers to questions on what are the most important job demands, job and personal resources contributing to discriminate burned-out teachers from non-burned-out teachers, as well as engaged teachers from non-engaged teachers.

Chapter 4 uses a diary study to extend knowledge about the dynamic nature of the JD-R model by considering between- and within-person variations with regard to both motivational and health impairment processes.

Finally, a general discussion integrates and discusses the main findings of the studies reported in this dissertation.

CHAPTER 1

Depersonalization or Cynism, Efficacy or Inefficacy: What are the Dimensions of Teacher Burnout?

Summary

The aims of the present study were: (1) to investigate the role of efficacy beliefs using negatively worded inefficacy items instead of positive ones; (2) to establish whether depersonalization and cynism can be considered two different dimensions of the teacher burnout syndrome. Our results showed that compared with efficacy beliefs inefficacy beliefs relate more strongly to the other burnout dimensions. Moreover, using partial disaggregation method, we found a better fit for the four-factor model with separate depersonalization and cynism dimensions, than for the three-factor model in which depersonalization and cynism were collapsed into one factor. It is concluded that future research on teacher burnout should use the inefficacy scale as the "third dimension" of burnout, rather than efficacy, and include the cynism and depersonalization constructs.

Keywords: Burnout, MBI-ES, Inefficacy, Cynism, Mental distancing

Introduction

Traditionally, burnout is defined as a three-dimensional syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment (Maslach, Schaufeli & Leiter, 2001). It is measured with the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981), which has been the measure of job burnout most widely used in the empirical literature (Schaufeli & Enzmann, 1998).

Emotional exhaustion (depletion or draining of mental energy caused by interpersonal demands) is the dimension on which there is the most agreement, and it is considered to be the core aspect of burnout (Maslach, Leiter & Schaufeli, 2008).

Depersonalization (negative or inappropriate attitudes toward clients) is considered to be the attitudinal component of burnout (Maslach et al., 2001). Although depersonalization has been regarded as the other core component of burnout, together with emotional exhaustion (e.g. Green, Walkey & Taylor, 1991; Schaufeli & Buunk, 2003), its validity has been questioned (Garden, 1987; Iwanicki & Schwab, 1981): in fact, compared with the two other burnout dimensions, its internal consistency is often found to be relatively low (Lee & Ashforth, 1996; for a review see Worley, Vassar, Wheeler, & Barnes, 2008).

Finally, a lack of personal accomplishment (the belief that one is no longer effective in fulfilling one's work with recipients) is the most contradictory component of burnout, and its role has been critiqued from the empirical, theoretical and clinical points of view (see Bresó, Salanova, & Schaufeli, 2007). Particularly, most studies show that personal accomplishment has only a modest negative correlation with the two other dimensions of burnout (Lee & Ashforth, 1996; Maslach et al., 2008). Recently, some authors (Bouman, Te Brake, & Hoogstraten, 2002; Schaufeli & Salanova, 2007; Bresó et al., 2007) have argued that one possible explanation is that the Personal Accomplishment scale of the MBI is measured by positively worded items (which are subsequently reversed), whereas both the other dimensions are measured by negatively worded items. They have also pointed that if the intent is to assess *reduced* personal accomplishment or inefficacy, then the subscale should be composed of negatively worded items, instead of positive ones. For example, Bouman et al. (2002), using two separate student groups completing an efficacy and

an inefficacy scale, found that the way in which personal accomplishment items are phrased significantly affects the answers given. Moreover, both the sign and the magnitude of the correlations with the burnout dimensions change when the reworded scale is used. More recently, Bresó, Salanova and Schaufeli (2007), using a cross-cultural study, have compared a factor structure of the traditional MBI (in the version for students, i.e. MBI-SS) that includes an efficacy scale with a version that includes an inefficacy scale. The results from confirmatory factor analysis showed a better fit of the latter. Bresó and colleagues therefore concluded that in future research, an inefficacy rather than efficacy scale should be used as the "third dimension" of burnout.

Although the 22 MBI items were originally developed for use with human service professionals, many researchers subsequently employed them also to measure burnout among teachers (Worley et al., 2008). For this reason, an alternative version of the MBI – the MBI-Educators' Survey (MBI-ES) (Maslach, Jackson & Schwab, 1996b) – was created by replacing the word "recipient" with "student" in the respective items. In fact, as suggested by Maslach et al. (1996b, p. 29), "in the educational profession, students are the educators' recipients. This change was made to ensure clarity and consistency in the interpretation of the items". Several studies have supported the psychometric properties of the MBI-ES with these changes (Maslach, Jackson & Leiter, 1996a; Schaufeli, Daamen & Van Mierlo, 1994).

Teaching has been identified as a particularly stressful occupation (Chaplain, 2008; Montogomery & Rupp, 2005). The stressors may include, for example, disciplinary problems, inadequate salaries, conflict with colleagues or with parents, or having to reorganize teaching as a consequence of school reforms. It has been estimated that, in comparison with other professions (other human services and white collar jobs), teachers exhibit higher levels of exhaustion and cynism (Schaufeli & Enzmann, 1998; Kalimo & Hakanen, 2000 cited in Hakanen, Bakker & Schaufeli, 2006). When they feel themselves no longer able to respond to the needs of their students, they display symptoms of exhaustion, become more detached, and develop negative attitudes towards their work. And when teachers perceive that they are unable completely to fulfil their responsibilities, their sense of personal efficacy also diminishes (Byrne, 1999).

Moreover, although burnout was originally restricted to the so-called *helping professions*, it was subsequently extended to all occupations (Maslach et al., 2001). The three original dimensions of burnout were redefined in order to consider burnout levels as related to a person's work in general, and not only as related to working with recipients. A new instrument, the MBI-General Survey (MBI-GS), was thus developed (Schaufeli, Leiter, Maslach, & Jackson, 1996). The three dimensions were conceptualized in slightly broader terms to take account of the job itself, rather than the personal relationship associated with it (Maslach et al. 2001).

The dimension which has changed substantially from the original conceptualization is depersonalization. Although, conceptually speaking, both depersonalization and cynism are manifestations of mental distancing, in the former case this distancing is directed toward recipients, whereas in the case of cynism it is directed toward the job itself (Salanova, Llorens, Garcia-Renedo, Burriel, Bresó, & Schaufeli, 2005c).

To our knowledge, only one study (Salanova et al., 2005c) has to date tested both these mental distances (cynism and depersonalization) in relation to the other two burnout dimensions. Using two samples of teachers and blue-collar workers, Salanova et al. (2005c) found a better fit for a four-factor model comprising cynism, depersonalization, exhaustion and professional efficacy, with respect to a three-factor model in which cynism and depersonalization were collapsed into one factor. More recently, Lorente, Salanova, Martinez and Schaufeli (2008) have carried out a longitudinal study among teachers considering only the "core of burnout", that is, exhaustion and cynism, including also depersonalization.

In our opinion, it is possible to find both types of mental distancing (that is, depersonalization and cynism) among teachers. On the one hand, in fact, teachers' relationships with students are crucial for their work performance and their feelings of efficacy. On the other, mental distance from their work is increasingly observed among teachers, owing to the changes that have recently affected their profession (i.e., increased pressure by society for them to expand their roles beyond education, a devaluation of the profession whereby teachers find their credibility being eroded within the wider community). The existence of diverse mental distances has been corroborated by the fact that they are related in different ways to different outcomes. For example, in a study of customer services representatives, Abraham (2000) found

that different types of organizational cynism (i.e. personality cynism, societal/institutional cynism, employee cynism, organizational change cynism, work cynism) were related in slightly different ways to several outcomes, such as job satisfaction, organizational commitment, alienation and organizational citizenship behaviors.

Purpose of the Current Study

The aim of this study is to examine the two components of the MBI considered most problematic. Specifically, on the one hand, we shall investigate the role of efficacy beliefs using negatively worded inefficacy items instead of positive ones; on the other, we shall verify the existence of both kinds of mental distance – depersonalization and cynism – among teachers. Although there exist numerous studies which have investigated the internal structure of MBI, few analyses have addressed the issues described above. Moreover, to our knowledge, this study is the first to consider a four-dimension model in which the personal accomplishment items are negatively worded.

More specifically, the following hypotheses are formulated:

H1: Inefficacy is positively and more strongly correlated with other burnout dimensions (EX, DP and CY) compared with the original efficacy scale.

H2: The mean scores of the two groups on the personal accomplishment subscales are different. In other words, compared to the group that filled out the traditional efficacy scale, the group completing the inefficacy scale shows higher levels of personal accomplishment when the answers are rescored. In fact, this is a replication of the results of Bouman et al. (2002) with teachers.

H3: The four-factor model with EX, DP, CY and INEF fits the data better than the one-factor model assuming that all items weight on one latent factor (i.e. burnout) (H3a), and better than the three-factor model with DP and CY collapsed into one factor (H3b).

Method

Participants

A total of 963 Italian teachers were invited to participate in the study, which was part of a broader project examining organizational well-being (response rate: 58.5%). Missing values (maximum 7 % of the total of pull of items) were replaced by series means.

Participants were distributed into three groups, which differed only in terms of the version of the Maslach Burnout Inventory (MBI) which the respondents had to fill in. *Pilot study*. 48 teachers (71% women) were used as a pilot study. Most respondents were middle-aged and had long teaching experience. They had to fill in a version of the MBI in which the items for Personal Accomplishment were phrased either positively and negatively.

Group 1 consisted of 290 teachers working in different types of schools (23% in elementary schools; 57% in lower–secondary, and 20% in upper-secondary schools). The majority were women (86%); 66% were married. 17% of the teachers were aged under 36, 29% were aged between 36 and 45 years, 21% between 46 and 50 years, and 33% were aged over 50 years. Most respondents had considerable length of service: in fact, 47% of them had over 20 years of teaching experience. On average, participants worked 30.5 h per week (S.D.=7.5). This group had to fill in the original version of the MBI (the items of Emotional Exhaustion, Depersonalization and Cynism were phrased negatively and the items of Personal Accomplishment positively).

Group 2 consisted of 225 teachers (82% women; 66% married), also working in different types of schools (29% in elementary schools; 35% in lower-secondary and 36% in upper-secondary schools). The teachers in Group 2 had similar socio-demographic characteristics to those in Group 1 and in the pilot study. In fact, most respondents were middle-aged: 17% of them were aged under 35, 26% were aged between 36 and 45 years, 20% between 46 and 50 years, and 37% were aged over 50. Moreover, 47% of them had over 20 years of teaching experience. On average, participants worked 30.3 h per week (S.D.=7.8). This group had to fill in the version of the MBI in which the items of all four subscales were phrased negatively.

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Procedure

After information meetings with school principals and teachers' representatives at each school, all the teachers received a paper-and-pencil questionnaire and a return envelope at their school. The questionnaire was accompanied by a letter, signed by the coordinator of the University research unit, which briefly explained the general aim of the study and emphasised the confidentiality and anonymity of the replies. The teachers were requested to fill out the questionnaire and to post it in a special box made available at their school so as to guarantee completely privacy. The questionnaires were processed only by the research team. The procedure was the same for all groups.

Measures

Emotional Exhaustion (EX), *Depersonalization* (DP) and *Personal Accomplishment* (i.e. *Efficacy*; EF) were assessed using the MBI-ES (Maslach et al., 1996). The MBI-ES consists of 22 items grouped into three scales: Emotional Exhaustion (9 items; e.g., I feel emotionally drained from my work), Depersonalization (5 items; e.g., I feel students blame me for some of their problems) and Efficacy (8 items; e.g., I can easily create a relaxed atmosphere with my students). Moreover, to assess *Inefficacy* (INEF), the scale from MBI-ES measuring Efficacy was rephrased: that is, all items were rephrased negatively (INEF). For example, the item "I can easily create a relaxed atmosphere with my students" was rephrased as "I can't easily create a relaxed atmosphere with my students".

Finally, Cynism (CY) was measured with the corresponding scale of the original MBI-GS (Schaufeli et al., 1996): this scale consists of five items, of which an example is: "I have become less interested in my work since I started this job".

All items were scored on a 7-point frequency scale, ranging from "0" (never) to "6" (always).

As shown in Table 1, except for DP and CY, internal consistencies (Cronbach's α) of scores on all other scales satisfied the criterion of .70 (Nunnally & Bernstein, 1994). However, for DP, slightly α values were more often found, and on average they were

similar to those obtained by other validation studies (i.e., Aluja, Blanch & Garcia, 2005; Leiter & Maslach, 1988). Moreover, in spite of the low alpha values of CY, to be noted is that if one item "I just to want to do my job and not be bothered" was deleted, the internal consistency of the scale increased to .70 for Group 1, and to .75 for Group 2 (see Table 1). Similar results have been obtained by other studies (e.g., Salanova & Schaufeli, 2000; Schaufeli, Salanova, Gonzalez-Romá & Bakker, 2002; Salanova, Bresó & Schaufeli, 2005b). Thus, as suggested by Schutte, Toppinnen, Kalimo and Schaufeli (2000) this item was excluded, and a 4-item CY subscale was used in the remaining analysis.

Results

Descriptives

The means, standard deviations, correlations and internal consistencies were computed for the four burnout scales in each group separately (Table 1).

Hypothesis 1: Testing correlations of efficacy and inefficacy

First, correlations of all variables in the pilot study were inspected in order to check the relationship of EF and INEF with the other MBI scales. As far as the number of participants in the pilot study was small, correlation analysis revealed that, as expected (hypothesis 1), INEF was significantly correlated with EX (r=.56, p<.001), DP (r=.34, p<.05) and CY (r=.40, p<.01), whereas EF showed significant correlation only with DP (r=-.39, p<.05). When compared with EF, INEF had a significantly higher correlation with EX ($t_{(45)}$=2.35, p<.05), but not with CY ($t_{(45)}$=1.30, p=ns) . Moreover, contrary to expectations, EF showed an higher correlation with DP than INEF, although this difference was not significant ($t_{(45)}$=0.35, p=ns). The results thus partially supported hypothesis 1.

Moreover, in order to conduct a further test of hypothesis 1, interscale correlations for the two groups were inspected. The results showed that correlations of the four subscales for Group 2 were higher than the interscale correlations for Group 1. In fact, correlations for the Group 2 revealed that INEF had significantly positive

correlations with EX (r=.65, p<.001), DP (r=.58, p<.001) and CY (r=.62, p<.001). For Group 1 the analysis found that EF was negatively related to EX (r=-.36, p<.001), DP (r=-.40, p<.001) and CY (r=-.37, p<.001). Following Cohen and Cohen (1983), we calculated a z'-score (based on Fisher's r-to-z' transformation) to test the significance of the difference between these correlation coefficients. The results showed that INEF in Group 2 was significantly more strongly correlated with EX (z=5.27, p<.001), DP (z=3.37, p<.001) and CY (z=3.47, p<.001) than EF in the Group 1.

Table 1
Means (*M*), Standard Deviations (*SD*), Internal Consistencies (Cronbach's α), and Zero-Order Correlations for Group 1 (N=290) and Group 2 (N=225)

	M (*SD*)		α (n items)		1	2	3	4
	Group 1	Group 2	Group 1	Group 2				
1. EX	1.79 (1.24)	1.75 (1.15)	.89 (9)	.88 (9)		.46**	.65**	.69**
2. DP	.57 (.70)	.54 (.73)	.56 (5)	.69 (5)	.42**		.58**	.62**
3. CY	1.13 (1.13)	1.04 (1.09)	.61 (5)/ .70 (4)	.68 (5)/ .75 (4)	.58**	.56**		.64**
4. PA	4.65 (.89)	4.45 (.96)	.75 (8)	.80 (8)	-.36**	-.40**	-.42**	

Notes: **p<.001; Correlations among variables for the Group2 are above the diagonal.
EX= Emotional exhaustion, DP=Depersonalization, CY=Cynism, PA=Personal accomplishment

Hypothesis 2: Testing group differences

In order to test Hypothesis 2, the replies of the subjects in Group 2 were rescored. The two groups had no significant mean scores on Emotional Exhaustion ($t_{(513)}$=.35, p=*ns*), Depersonalization ($t_{(513)}$=.55, p=*ns*) and Cynism ($t_{(513)}$=.98, p=*ns*) but they had significantly different means on Efficacy ($t_{(513)}$=2.36, p<.05). Group 1 scored higher on Efficacy than did Group 2. Hence hypothesis 2 was partially confirmed; in fact, although we found a difference between the groups on the Efficacy subscale, the direction was the reverse to that found by Bouman et al. (2002).

Hypothesis 3: Model Testing

In order to test Hypotheses 3a and 3b, only participants of Group 2 were retained for the analysis.

Structural equation modelling methods, as implemented by AMOS 5 (Arbuckle, 2003) with maximum likelihood estimation methods, were used to test the fit of three models: a one-factor solution (M1) which assumed that all items weight on one single underlying dimension; a three-factor solution (M2) which assumed three latent and correlated factors in which DP and CY collapsed into one factor (EX, DP+CY, INEF); and a four-factor solution (M3) which assumed four correlated factors with separate DP and CY dimensions (EX, DP, CY, INEF). The partial disaggregation method was used in order to reduce the number of parameters to be estimated with respect to sample size, and to reduce the level of random error (Bagozzi & Heatherton, 1994). The partial disaggregation method is considered to be a compromise between the total disaggregation approach (in which each item is used as a separate indicator of the construct) and the total aggregation method (in which a single composite variable is made up of the sum of all items measuring a construct) (Bagozzi & Heatherington, 1994). Partial disaggregation "allows one to proceed with meaningful research by combining items into composites to reduce higher levels of random error and yet it retains all the advantages of structural equations, including accounting for measurement error, allowing for multiple, multidimensional variables, and testing for hierarchical factor structure" (Dabholkar, Thorpe, & Rentz, 1996, p. 9).

Operationally, partial disaggregation was accomplished by randomly aggregating items that related to a given construct, so that there were two or three combined indicators for each dimension of burnout instead of several single-item indicators. The rationale for random combination is that it is expected that any combination of a construct's variable indicators should yield the same model fit (Dabholkar et al., 1996).

To test the hypotheses, several nested models were compared by means of Chi-squares differences tests (Jöreskog & Sörbom, 1986). Moreover, to establish fit, the

following indexes were used for all tests: the χ^2 goodness-of-fit statistic, the Comparative Fit Index (CFI; Bentler, 1989, 1990), the Non-Normed Fit Index (NNFI; Tucker & Lewis, 1973; Bentler & Bonnett, 1980), and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1989). Because the χ^2 is sensitive to sample size, the use of relative goodness-of-fit measures is strongly recommended (Bentler, 1990). The fit can be considered acceptable when the CFI and NNFI are greater than .90 and the RMSEA is equal to or smaller than .08 (Bentler, 1990; Steiger, 1990). Nevertheless, Hu and Bentler (1999) suggest more stringent criteria, and propose accepting a model when the NNFI and the CFI are equal to or greater than .95 and the RMSEA is less than .06.

Table 2 shows the fit indices for all models. M1 fitted the data poorly, with none of the fit indices meeting its criterion. The fit of M2 was superior to that of the M1, as indicated by the statistically significant values of $\Delta\chi^2$ ($\Delta\chi^2$ (df=3) =160.74, p<.001). The fit of M3 was superior to that of M1 ($\Delta\chi^2$ (df=6) =191.35, p<.001) and M2 ($\Delta\chi^2$ (df=3) =31.61, p<.001). Partial disaggregation of this model yielded a very good fit, as shown in Table 2. This means that Hypotheses 3a and 3b were fully supported, respectively. A graphical illustration of the final model (M3) is presented in Figure 1.

Table 2
The fit of the MBI models (N=225)

Model	χ^2	df	RMSEA	NNFI	CFI
M1	252.2**	35	.17	.79	.84
M2	91.5**	32	.09	.94	.96
M3	59.9*	29	.07	.96	.98

Notes: For M1-M3 see text; ** p<.001; *p<.01

Figure 1
Results of the confirmatory factor analysis (final model: M3); N=225
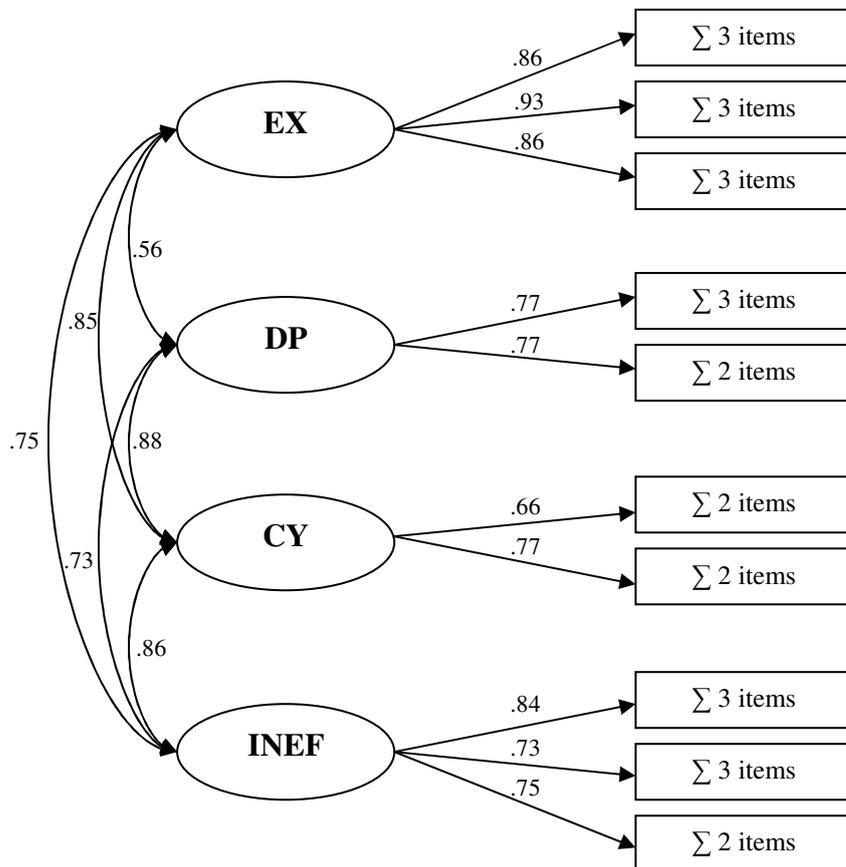
Note: EX= Emotional exhaustion, DP=Depersonalization, CY=Cynism and INEF=Inefficacy.

Discussion

The main aims of this study were to investigate the role of efficacy beliefs in burnout, and to establish whether depersonalization and cynism can be considered two different dimensions of the teacher burnout syndrome.

Hypothesis 1 was only partially supported; in fact, in regard to participants in the pilot study, only with EX were the positive correlations of inefficacy with other burnout dimensions significantly stronger than the negative correlations considering efficacy. However, taking the small number of participants in the pilot study into account, we performed a further analysis of the interscale correlations of the four scales of MBI for Group 1 and Group 2. The results revealed that the correlations were significantly stronger in Group 2, that is, the correlations were higher in the case of inefficacy scale than in that of the efficacy scale. We thus replicated the findings of previous studies using students and general workers (Bouman et al., 2002; Salanova, Bresó, & Schaufeli, 2005b; Bresó et al., 2007) with a sample of school teachers.

Hypothesis 2, which assumed that the mean scores of the two groups on the Personal Accomplishment subscales were different, was also partially supported. In fact, after rescoring the answers of subjects in Group 2, we found that the two groups had significantly different means on Efficacy. This supports the assumption that positive and negative affects tend to function relatively independently (e.g. Clark & Watson, 1991; Diener & Emmons, 1984). Hence it appears important also to investigate the antecedents of the Inefficacy scale, as well as those of the Efficacy one. In fact, as suggested by Compton (2005), studying the predictors of negative emotions does not automatically yield knowledge about the predictors of positive emotions. Likewise, our results show that measuring Efficacy is not the same as measuring Inefficacy. However, contrary to Bouman et al. (2002), as well as to Salanova et al. (2005b), we found that subjects answering positively phrased Personal Accomplishment items reported a higher level of efficacy feeling than did subjects answering negatively phrased Personal Accomplishment items.

Taken together, our results suggest that for the MBI-ES, too, the "third dimension" of burnout is constituted by the inefficacy scale, rather than the (reversed) efficacy

scale. We agree with Maslach, Jackson and Schawb (1996b) that a feeling of low efficacy is particularly crucial for educators, because it is strictly related to their professional mission: when they do not feel that they are contributing to their students' growth, they are more likely to experience intense frustration.

Hypothesis 3 concerned the second aim of this study, which was to investigate whether depersonalization and cynism can be considered two different dimensions of teachers' burnout, or whether they can be collapsed into one construct of mental distance. Moreover, to our knowledge, this is the first study to have investigated this issue by considering the inefficacy scale as the "third dimension" of burnout. Using partial disaggregation method, we found a better fit for the four-factor model with separate depersonalization and cynism dimensions, than for the three-factor model in which depersonalization and cynism were collapsed into one factor. This was in line with the results of Salanova et al. (2005c), who used, however, the traditional efficacy scale.

The results of this study therefore indicate that the MBI-ES is a suitable tool with to examine burnout among teachers. But the use of the Inefficacy dimension rather than the Efficacy one, and the addition of the Cynism dimension, improves the measurement. The results confirm, in fact, that teachers have different types of mental distancing: for example, a distancing from pupils, from work, from colleagues, and a distancing from the organization. We have been able to identify at least two types of distance in this study, but future research should pay closer attention to this particular aspect in order to yield a broader view of teacher burnout.

We believe that this finding has a practical implication as well. In fact, considering both depersonalization and cynism on the one hand preserves the relational specificity of burnout (which, moreover, is the construct's most distinctive feature with respect to others, like stress), whilst on the other, it allows reference to be made to an attitude of detachment from the job regardless of the interpersonal relation.

Study Limitations

The study also has some limitations that should be mentioned. Firstly, we used two separate groups which completed an efficacy and an efficacy scale respectively. Consequently, their concurrent validity could not be assessed. Given that the results

of the pilot study counselled partially in favour of the use of the inefficacy scale in the MBI-ES with a rather small number of subjects, we chose to administer the two scales to two different groups. Survey problems, in fact, prevented us from administering questionnaires which comprised both versions.

Moreover, we focused only on the relationships among burnout dimensions: that is, we did not consider the role of job characteristics and outcomes variables. In our opinion, including variables of this kind could be an interesting direction for future research, because it may be that Efficacy and Inefficacy, as well as Depersonalization and Cynism, have different antecedents (i.e., job demands and job resources) as well as outcomes (i.e., job satisfaction, job performance, turnover, absenteeism). As a consequence, several patterns of intervention could be expected and thus explored.

Finally, although the focus of this study has been on the factor structure of MBI-ES, using only school-teachers restricts the generalizability of the results across other occupations. We therefore suggest that other organizational contexts should be studied, as well as other versions of MBI used, in order to capture the real and broader meaning of burnout, which is also reflected in its factor structure.

Final note

In sum, for future research we recommend using the inefficacy scale as the "third dimension" of burnout, rather than efficacy, and including cynism in addition to the three traditional burnout dimensions of the MBI-ES.

CHAPTER 2

An Italian validation of the Utrecht Work Engagement Scale: characterization of profiles in a sample of school teachers

Summary

The aims of the present study were: (1) to investigate the factor structure and the stability of the original 17-item and a recently developed short 9-item versions of the Utrecht Work Engagement Scale (UWES) in a sample of Italian school teachers; (2) to classify teachers on the basis of their work engagement levels, using cluster-analyses, and to determine whether engaged teachers differ from their less engaged colleagues in terms of job- and personal resources, positive organizational attitudes and behaviour and perceived health. Confirmatory factor analysis supported the hypothesized three-factor structure –vigor, dedication, absorption– of both UWES scales.
Results of the cluster analysis revealed that teachers who feel more engaged experience more job- and personal resources, more positive organizational attitudes and behaviours and better health compared to those less engaged. In sum, our findings showed that the short version of the UWES can be used in Italy among teachers for assessing and monitoring levels of work engagement.

Keywords: Work engagement, UWES, Positive Psychology, Teachers

Introduction

Since almost one decade increased attention has been paid to the so-called *Positive Psychology*, that is the scientific study of human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). "The aim of positive psychology is to shift the emphasis away from what is wrong with people to what is right with people" (Luthans, 2002, p. 697), focusing mainly on strengths, resilience and virtues instead of on disease, disorder, disability, and damage (Diener, 2000; Snyder & Lopez, 2002).

Although there are many organizational behavior constructs that are positively oriented (e.g. positive reinforcement, positive emotions, work satisfaction, commitment, and motivation), the balance is clearly in favour of the more negative constructs (Luthans, 2002). However, much more than before, organizations need to promote their human capital and to retain employees who are "healthy" not just in the traditional way – that is free of symptoms – , but who are expected "to go the extra mile" (Schaufeli & Salanova, 2008). That means that organizations expect their employees to be proactive, to collaborate efficiently with others and to take responsibility for their own professional development (Bakker & Schaufeli, 2008).

In fact, this recent trend to focus on optimal functioning also aroused attention in organizational psychology, in which two fields of interest have emerged: Positive Organizational Behavior (POB) and the Positive Organizational Scholarship (POS). Although partly overlapping, the former is primarily concerned with individual psychological states and human strengths that can influence work performance (Luthans, 2002), whereas the latter is primarily focused on the positive aspects of the organizational context, on the processes and outcomes of organizations and their members (Cameron, Dutton & Quinn, 2003).

Within the framework of POB the concept of Work Engagement has emerged. Work engagement is defined as a positive, fulfilling, work-related state of mind, characterized by vigor (high levels of energy and mental resilience while working, willingness to invest effort in work, and persistence in the face of difficulties), dedication (being involved in one's work, sense of enthusiasm, inspiration, pride, and challenge), and absorption (being happily engrossed in one's work, whereby time

passes quickly and one has difficulties detaching oneself from work) (Schaufeli, Salanova, González-Romá, & Bakker, 2002).

Work Engagement: The Utrecht Work Engagement Scale (UWES)

Based on the definition of engagement above, a self-report questionnaire (the Utrecht Work Engagement Scale, UWES) has been developed. The original version of the UWES consisted of 24 items, but after psychometric evaluation seven unsound items were eliminated so that 17 items remained (Schaufeli & Bakker, 2003). The resulting scale (UWES-17) includes the three constituting dimensions of work engagement: vigor (six items), dedication (five items) and absorption (six items) (Schaufeli et al., 2002). Subsequent psychometric analysis revealed other two weak items (VI06 and AB06; see Schaufeli & Bakker, 2003), so that in some studies also a 15-item version has been used (Salanova, Schaufeli, Llorens, Peiró & Grau, 2000; Xanthopoulou, Bakker, Kantas, Demerouti, in press).

Generally speaking, previous studies have supported the hypothesized three-factor structure of the UWES-17 in various samples from different countries (Schaufeli et al., 2002, Salanova et al., 2000; Schaufeli & Bakker, 2003). However, few studies did not confirm the three-dimensional structure and suggested uni-dimensionality (Naudé & Rothmann, 2004; Sonnentag, 2003). Empirical results also confirm the internal consistency and the stability of the UWES-17: values of Cronbach's alpha generally range between .80 and .90 (e.g., Schaufeli & Bakker, 2004; Durán Extremera & Rey, 2004, Salanova et al., 2000; Salanova, Bresó & Schaufeli, 2005). Although longitudinal studies of work engagement are rare, scores on the three subscales of the UWES-17 are relatively stable across time; in a two-year follow-up study the test-retest correlations for the three subscales ranged between .67 and .73 (Mauno, Kinnunen & Ruokolainen, 2007). Moreover, in two longitudinal studies carried out in Australia and Norway stability coefficients ranged between .58 and .64 for the Australian Salvation Army officers and between .69 and .71 for the Norwegian paramedics, across a one-year interval time (see Schaufeli & Bakker, 2003).

Recently, a short 9-item version (UWES-9) has been developed (Schaufeli, Bakker & Salanova, 2006). In this shortened version, vigor, dedication and absorption are assessed by three items per dimension. Previous studies have also supported the correlated three-factor structure of the UWES-9 (Schaufeli et al., 2006; Hallberg & Schaufeli, 2006). For the UWES-9 values of Cronbach's alpha are good as well, ranging from .70 and .80 (Schaufeli, Bakker & Salanova, 2006; Schaufeli & Bakker, 2003). In the longitudinal studies mentioned above in Australia and Norway, the stability coefficients for the three subscales of the UWES-9 ranged between .56 and .61 for the former sample and between .63 and .71 for the latter sample (Bakker & Schaufeli, 2003). Moreover, a recent study in Finland (Seppälä, Mauno, Feldt, Hakanen, Kinnunen, Tolvanen & Schaufeli, in press) showed that while the structure of the UWES-17 did not remain the same across time, the structure of the UWES-9 remained relatively unchanged. Finally, although the previous studies cited above have supported the assumed three-factor structure of the UWES-17 and the UWES-9, they have also shown that the three factors of work engagement are strongly interrelated. For this reason, an alternative one-factor structure of the UWES-17 and the UWES-9 has been tested (Schaufeli & Bakker, 2003; Hallberg & Schaufeli, 2006). Results of CFA have shown that the three-factor structure fitted significantly better to the data than the alternative one-factor structure (which assumes an undifferentiated engagement factor). However, all things considered, Schaufeli et al. (2006) recommend, particularly for practical purposes, that the total score on the UWES can be used as a single indicator of work engagement.

Currently, to our knowledge, there are two studies that investigated the Italian version of the UWES: the first study assess the factor structure of the UWES-17 (Pisanti, Paplomatas & Bertini, 2008), whereas the second study investigates the factor structure of the UWES-9 (Balducci, Fraccaroli & Schaufeli, 2008), by using Italian and Dutch white collar employees. The present study seeks to further extend our knowledge about the psychometric properties of the Italian version of the UWES. First, the current study is partly longitudinal in nature, so that the stability across time of engagement can be investigated. Second, based on cluster-analyses two groups that differ in levels of engagement are compared as far as their job- and personal resources (i.e. possibilities for personal development, work-life balance, and

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self-efficacy), positive organizational attitudes and behaviours (i.e., job satisfaction and organizational citizenship behaviour) and perceived health are concerned.

Work Engagement and Related Concepts

Several studies have investigated the relationships between work engagement and other constructs, such as, job resources, personal resources, organizational attitudes and behaviours, and employee health (e.g. Schaufeli et al., 2002; Schaufeli & Salanova, 2008; Schaufeli & Bakker, in press). For instance, job resources are positively related with work engagement in a reciprocal way: employees who perceived more job resources (e.g. autonomy, possibilities for learning and development, and social support) are more likely to feel engaged and, over time, engaged employees are successful in mobilizing their job resources (Schaufeli & Salanova, 2008). In a similar way, it appears that employees who experience a positive balance between work and home (and vice versa) exhibit higher levels of work engagement compared to those for whom there is no positive interplay between the two different life domains (Montgomery, Peeters, Schaufeli & Den Ouden, 2003).

Another interesting result concerns the role of self-efficacy (Salanova, Grau, Llorens & Schaufeli, 2001), which seems an antecedent as well as a consequence of work engagement, suggesting the existence of a gain spiral. Self-efficacy fuels engagement that, in turn, increases self-efficacy and so on (Salanova, Bresó & Schaufeli, 2005; Llorens, Schaufeli, Bakker & Salanova, 2007).

Concerning the possible consequences, engaged employees are more satisfied with their jobs, feel more committed to the organizations they work for, and show lower turnover intention (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Schaufeli & Bakker, 2004). Moreover, they exhibit personal initiative and more proactive behaviors compared to employees who don't feel engaged (Sonnentag, 2003; Salanova & Schaufeli, 2008). Finally, engaged employees show higher levels of mental health and lower levels of depression, anxiety and distress (Demerouti et al., 2001; see Schaufeli & Salanova, 2008).

Purpose of the Current Study

The present study has two purposes: (1) to investigate the factor structure and the stability of the original 17-item and a recently developed short 9-item versions of the Utrecht Work Engagement Scale (UWES) in a sample of Italian school teachers; (2) to classify teachers on the basis of their work engagement levels, using cluster-analyses, and to determine whether engaged teachers differ from their less engaged colleagues in terms of job- and personal resources (i.e. possibilities for personal development, work-life balance, and self-efficacy), positive organizational attitudes and behaviours (i.e., job satisfaction and organizational citizenship behaviour) and perceived health.

More specifically, the following hypotheses are formulated:

H1a: The correlated three-factor structure of the UWES-17 fits better to the data than the one-factor structure.
H1b: The correlated three-factor structure of the UWES-9 fits better to the data than the one-factor structure.

H2a: The correlated three-factor structure of the UWES-17 is relatively stable across time.
H2b: The correlated three-factor structure of the UWES-9 is relatively stable across time

H3: Teachers who feel more engaged will show higher levels of personal development (H3a), self-efficacy (H3b), job satisfaction (H3c), organizational citizenship behaviors (H3d), work-life balance (H3e), and fewer health problems (H3f) compared to teachers who feel less engaged.

Method

Participants

Participants in the present study were 535 Italian teachers, working in different types of schools (response rate 62%). The majority were women (84,4%); 65,8% was married. Most respondents were middle aged and had a high job tenure (see table 1). About 82% of the sample had a permanent job, and 18% had a fixed-term contract. On average, participants worked 30.3 h per week (S.D.=7.6).

A sub-sample of 465 teachers received the questionnaire three times with an interval of four months each time; the three waves correspond to the beginning of the academic year (T1; N = 299; response 57,8%), the end of the first term (T2; N = 166; response 55,5%) and the end of the academic year (T3; N = 106; response 63,9%). So that 106 teachers completed the questionnaire all three times.

Table 1
Demographic characteristic of the sample

	N	%
Level of school		
elementary	121	24.2
lower secondary	234	48.5
upper secondary	127	26.3
Age		
under 35	81	16.7
between 36 and 45	129	26.5
between 46 and 50	103	21.1
over 50	174	35.7
Job tenure		
under 5 years	71	15.1
between 6 and 10	74	15.7
between 11 and 20	100	21.2
between 21 and 30	147	31.2
over 30 years	79	16.8

Procedure

After informative meetings with school principals and representatives of teachers of each school, all teachers received a paper-and-pencil questionnaire and a return envelop at their school. The questionnaire was accompanied by a letter signed by the

coordinator of the University research unit, in which the general aim of the study was briefly explained, and the confidentiality and anonymity of the answers were emphasized. The teachers were kindly requested to fill out the questionnaire within ten days after the delivery and to post it in a special box at their school to guarantee completely privacy. The questionnaires were processed only by the research team. As noted above, a sub-sample received the same questionnaire after four and eight months, using a similar procedure.

Measures

Demographics. Participants indicated gender, age, job tenure, school level teaching, and the number of hours worked per week.

Work Engagement was assessed with the UWES-17 and UWES-9 (Schaufeli et al., 2002; Schaufeli et al., 2006). The items of the UWES-17 are grouped into three subscales that reflect the three underlying dimensions of work engagement: Vigor is measured with six item (1, 4, 8, 12, 15, 17; e.g., "At my job, I feel strong and vigorous"; Dedication with five items (2, 5, 7, 10, 13; e.g., "I'm enthusiastic about my job") and Absorption is measured with six items (3, 6, 9, 11, 14, 16; e.g., "When I am working, I forget everything else around me"). The shortened version of the UWES (UWES-9; Schaufeli & Bakker, 2003; Schaufeli, Bakker & Salanova, 2006), is constituted by 9 items that similarly reflect the three underlying dimensions of engagement, each of which is represented by three items: Vigor (items 1, 4, 8), Dedication (items 5, 7, 10) and Absorption (items 9, 11, 14).

In both versions, all items were scored on a 7-point frequency rating scale ranging from 0 ("never") to 6 ("always").

Personal development at work was assessed with five item of the Psychosocial Work Environment and Stress Questionnaire (PWSQ; Agervold & Mikkelsen, 2004); this scale assesses the possibility of employing one's abilities and the perceived meaningfulness of one's work; sample item: "The job provides me with ample opportunities to use my skills and qualifications". Responses were given on a frequency scale, ranging from 1 ("never") to 5 ("very often").

Work-Family balance was measured with three self-constructed items assessed on a frequency 5-point scale ranging from 1 ("never") to 5 ("very often"). An example item is: "The anxieties and the working worries do not interfere with my possibility to satisfy the needs of my family".

Teacher Self-efficacy was assessed by an eight item scale (Di Fabio & Taralla, 2006) which follows Bandura's recommendations (1997) to tailor scales of perceived self-efficacy to the particular domain of functioning that is the object of interest. Participants responded on a 5-point scale which ranged from 1 ("totally false") to 5 ("totally true"). Sample item: "Thanks to my resources I'm able to manage unexpected situations in my job".

Job satisfaction was assessed with a single item (Wanous, Reichers & Hudy, 1997). The statement was "Overall, how satisfied are you with your job?", scored on a 5-point scale ranged from 1 ("totally unsatisfied") to 5 ("totally satisfied").

Organizational Citizenship Behavior was assessed with two scales of a slightly adapted version to the school context of an Italian scale (Perrone & Chiacchierini, 1999); Altruism (four items; e.g., "I help people who have a lot of work to do") and Civic Virtue (four items; e.g., "I attend meeting that are not obliged, but that they are considered important") and all items scored on a 7-point scale ranged from 1 ("totally false") to 7 ("totally true").

Perceived health was assessed with the General Health Questionnaire-12 (Goldberg, 1992). The scale asks whether the respondent has experienced a particular symptom or behavior recently. Each item is rated on a 4-point scale, ranging from 0 to 3, where higher scores it indicate a worse perceived health. As in previous studies (Politi, Piccinelli & Wilkinson, 1994) two dimensions were distinguished: (1) "social dysfunction", includes 6 items and assess the ability to perform daily activities and to cope with everyday problems (sample item: "Been able to concentrate on what you're doing"); (2) "general dysphoria", includes 6 items related to anxiety and depression (sample item: "Felt constantly under stress").

Results

Descriptives

Data screening analysis were conducted to check deviations from normality (i.e. kurtosis and skewness) and to detect univariate and multivariate outliers. We dropped from the analysis 18 cases which presented kurtosis and skewness values > |1| on all items of the UWES. Because of these indexes are affected by the presence of outliers, we calculated the z-scores on the variables of interest and we eliminated all cases with z-scores > |3| (Tabachnick & Fidell, 2001). Using the critical value of Mahalanobis distance (χ^2 (3) > 16.26, p< .001), two multivariate outliers were identified and subsequently dropped from the final analysis. Missing values (maximum 6 % of the total of pull of items) were replaced by series mean. Thus, a total of 488 subjects were finally included in the analysis.

The means, standard deviations, correlations and internal consistencies for all study variables are presented in Table 2. All significant relationships between the variables were in the expected direction.

Correlation analysis revealed that the three factors of work engagement were strongly interrelated, ranging from .71 to .85, as in previous studies cited above (i.e. Hallberg & Schaufeli, 2006; Salanova et al., 2000, Schaufeli & Bakker, 2003). Moreover, the three subscales of the UWES were positively associated with personal development, work-family balance, self-efficacy, satisfaction and organizational citizenship behaviors, whereas they were negatively related to negative health.

Internal consistency for all variables ranged between .77 and .91 (Table 2); thus, all values of Cronbach's alpha exceeded the value of .70, that is traditionally used of a rule of thumb (Nunnally & Bernstein, 1994). Moreover, for most of the variables, alpha satisfied the more stringent value of .80 that is now considered a generally accepted standard (Henson, 2001).

Table 2
Means (M), Standard Deviations (*SD*), Internal Consistencies (Cronbach's α), and Zero-Order Correlations of the Study (N=488)

Variable	M	SD	α	1	2	3	4	5	6	7	8	9	10	11
1. Vigor-3	4.41	1.01	.80											
2. Dedication-3	4.61	1.12	.85	.85**										
3. Absorption-3	4.69	.98	.79	.71**	.75**									
4. Personal Development	4.01	.73	.84	.65**	.71**	.60**								
5. Work-Family Balance	2.17	.88	.77	.27**	.19**	.10*	.29**							
6. Self-efficacy	3.85	.67	.89	.46**	.42**	.39**	.38**	.16**						
7. Satisfaction	3.85	.81	n.a.	.59**	.59**	.42**	.55**	.31**	.32**					
8. Altruism	5.17	1.08	.79	.29**	.32**	.31**	.32**	.10*	.28**	.26**				
9. Civic Virtue	5.02	1.21	.78	.28**	.31**	.28**	.31**	.07	.32**	.25**	.48**			
10. Social Dysfunction	1.08	.39	.86	-.33**	-.32**	-.24**	-.31**	-.25**	-.25**	-.26**	-.11*	-.17**		
11. General Dysphoria	.69	.58	.85	-.36**	-.31**	-.24**	-.34**	-.48**	-.24**	-.37**	-.05	-.10*	.44**	

Note: *p<.05. **p<.01

Confirmatory Factor Analysis (Hypothesis 1)

Structural equation modelling methods as implemented by AMOS 5 (Arbuckle, 2003) with maximum likelihood estimation methods, were used to test the fit of four models: 1-factor solution (M1) and 3-factor solutions (M2) of the UWES-17, and the 1-factor solution (M3) and 3-factor solutions (M4) of the UWES-9.

To establish fit, the following indexes were used for all tests: the χ^2 goodness-of-fit statistic, the Comparative Fit Index (CFI; Bentler, 1989, 1990), the Non-Normed Fit Index (NNFI; Tucker & Lewis, 1973; Bentler & Bonnett, 1980), and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1989). Because the χ^2 is sensitive to simple size, the use of relative goodness-of-fit measures is strongly recommended (Bentler, 1990). The fit can be considered acceptable when the CFI and NNFI are greater than .90 and the RMSEA is equal to or smaller than .08 (Bentler, 1990; Steiger, 1990). Nevertheless, Hu and Bentler (1999) suggest more stringent criteria, and propose accepting a model when the NNFI and the CFI are equal to or greater than .95 and the RMSEA is less than .06.

Table 3 shows the fit indices for all models. In accordance with previous studies (e.g. Schaufeli, Martínez, Marques-Pinto, Salanova, & Bakker, 2002; Schaufeli et al., 2002) the hypothesized 3-factor structure of the UWES is superior to the 1-factor model, both for the UWES-17 ($\Delta\chi^2$ (df=3) =136.7, p<.001) as well as for the UWES-9 ($\Delta\chi^2$ (df=3) =68.7, p<.001). This means that Hypotheses 1a and 1b were supported, respectively. Furthermore, considering all fit-indices, the best fit is obtained for 9-item solution, compared with the UWES-17. However, although the three-factor model of theUWES-9 fitted the data significantly better than the alternative 1-factor model, its fit did not reach the recommended criterion of good fitted models for all indices (notably, RMSEA=.11). In order to improve the fit, the so called Modification Indices for M4 were inspected. In fact, the fit was ameliorated by correlating the following three error covariances: VI-1/VI-2; AB-1/AB-2; AB-1/AB-3. The revised model (M5) fitted significantly better to the data than M4 ($\Delta\chi^2$ (df=3) =85.7, p<.001) with RMSEA, NNFI and CFI meeting their respective criteria (see Table 3).The standardized factor loadings for the final model (M5) were all statistically significant with a p<. 001 and ranged from .69 to .89.

Table 3
The fit of the UWES-17 and UWES-9 Models (N=488)

Model	χ^2	df	RMSEA	NNFI	CFI
M1	805.3	119	.11	.84	.86
M2	668.6	116	.10	.87	.89
M3	247.4	27	.13	.89	.91
M4	178.7	24	.11	.91	.94
M5	93.0	21	.08	.95	.97

Notes: For M1-M5 see text; all χ^2, p<.001

Test-retest reliability (Hypothesis 2)

The test-retest correlations for the both versions of the UWES after four and eight months, respectively, are presented in Table 4.

Table 4
Test-retest reliability: Pearson correlation coefficients (N=106)

Variables	T2 (4-months after) r_t	T3 (8-months after) r_t
Vigor-3 (T1)	.81	.83
Dedication-3 (T1)	.85	.81
Absorption-3 (T1)	.79	.81
Vigor-6 (T1)	.82	.80
Dedication-5 (T1)	.87	.84
Absorption-6 (T1)	.79	.81

Note: All significant for p<.001

Cluster analysis (Hypothesis 3)

Following the results from the CFA, the three subscales (Vigor, Dedication and Absorption of the UWES-9) were used as grouping variables. As recommended by Gordon (1999), we followed a two-step procedure in identifying cluster groups: first, hierarchical clustering using Ward's (1963) clustering method with squared Euclidean distances were used to determine how many clusters to expect and where to place the initial cluster centers. Then, k-means cluster analysis procedures were

used to group individuals. This combination of clustering methods capitalizes on strengths of both methods and compensates for their weaknesses (Barbaranelli, 2006; Henry, Tolan & Gorman-Smith, 2005; Fisher & Ransom, 1995).

An examination of the agglomeration schedule, dendogram, and percentages of individuals in each cluster for each solution indicated that a two-cluster solution minimized the differences of individuals within clusters and maximized the heterogeneity of individuals between clusters. Using the two-cluster solutions and initial cluster centers obtained from the hierarchical analysis, a k-means cluster analysis was computed to reassign observations on the basis of the minimization of distances between each observation and cluster centers.

Interpretive criteria of the work engagement patterns of the two cluster groups were based on norm scores for the UWES-9, available from the Test manual for the UWES (Schaufeli & Bakker, 2003, downloadable at www.schaufeli.com); similar scores were obtained by applying to our sample the same definition of statistical norms of the International database (see Schaufeli & Bakker, 2003) and by using standard deviations as a cut-off criteria in order to identify groups.

The means for both clusters on all variables included in the study are presented in Table 5.

The first cluster (named "highly engaged"), characterizing 61,2% of the participants (n=299) shows high levels on all three subscales of UWES-9, whereas the second cluster (named "average engaged"), characterizing 38,8% of the participants (n=189), shows moderate levels on all UWES-9 subscales.

Organizational and personal characteristics. Using MANOVA, we evaluated statistically the differences between the two clusters on all scales presented above (see Table 5).

We found an overall significant multivariate effect of engagement group, with Wilks' λ = .59, F (8, 479) = 36.99, p=.000, η^2=.41. Subsequent univariate analysis of variance (ANOVAs) indicated that the clusters differed significantly on each scale considered (Table 5). In particular, teachers from cluster 1 showed higher levels of Personal Development, Work-family Balance, Self-efficacy, Work Satisfaction, Altruism and Civic Virtue, whereas they showed lower levels of Health Problems in comparison with cluster 2.

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Table 5
Between groups differences for all variables

Variable	Group 1 (High engaged) n=299		Group 2 (Average engaged) n=189		F(1,486)	η^2
	M	SD	M	SD		
Personal Development	4.36	.54	3.45	.63	280.15***	.37
Work-Family Balance	3.91	.88	3.69	.85	7.99**	.02
Self-efficacy	4.04	.63	3.55	.60	69.11***	.12
Satisfaction	4.15	.71	3.38	.74	130.22***	.21
Altruism	5.39	1.05	4.83	1.04	32.82***	.06
Civic Virtue	5.23	1.16	4.67	1.22	26.93***	.05
Social Dysfunction	1.01	.38	1.19	.38	27.66***	.05
General Dysphoria	.59	.55	.87	.60	28.27***	.06

Note: *** $p<.001$; **$p<.01$

Discussion

Work engagement is an emergent psychological concept that is relevant for optimal functioning of employees in organizations. As Schaufeli and Salanova (2008) have argued, in order to survive in today's continuously changing environment, modern organizations need engaged employees, that is employees who feel energetic and dedicated, and who are absorbed by their work. The present study produced new knowledge about the psychometric properties of the Italian version of the UWES, as well as the characterization of engagement profiles.

The first hypothesis that work engagement consists of three correlated factors was supported for both versions of the UWES (H1a; H1b). As in previous studies on work engagement (see Schaufeli & Bakker, 2003; Schaufeli et al. 2006) the correlated three-factor structure of the UWES fitted better to the data than the one-factor structure. Moreover, also in our sample, the three factors of work engagement were highly interrelated. Originally, the three factor structure of the UWES-17 did not show a good fit to the data, that is some fit indexes did not reach the acceptable criteria suggested by the literature (Bentler, 1990; Steiger, 1990; Hu & Bentler, 1999). Taken together all fit-indices, the UWES-9 showed an acceptable fit, that

could be further improved by allowing three measurement errors within subscales to correlate.

Furthermore, the internal consistency of the three scales of the UWES was good for the UWES-17 as well as for the UWES-9. Values for internal consistency were well above the suggested threshold of .70 (Nunnally & Bernestein, 1994).

As far as 8-months stability of the UWES is concerned, the magnitude was higher as that found in Australian (N=293) and Norwegian (N=2111) samples with an interval of one year (Schaufeli & Bakker, 2003). So that, it is probably that a school context is more stable than the context for paramedics or for Salvation Army officers. This means that, as hypothesized (H2a; H2b), work engagement has a more persistent nature, rather than being a momentary and transient state, which change across time.

The third hypothesis that teachers who feel more engaged would show higher levels of personal development (H3a), self-efficacy (H3b), job satisfaction (H3c), organizational citizenship behaviors (H3d), work-life balance (H3e), and fewer health problems (H3f) was fully supported. However, in some cases the effect size associated with the univariate F test was small (e.g. Work-family Balance, Civic Virtue and Social Dysfunction). Consistent with previous studies (see Schaufeli & Salanova, 2008; Schaufeli and Bakker, 2003), our findings suggested a strong relationship between work engagement and job resources. In particular, teachers who are more engaged may find it more easy to take advantage of opportunities provided by the work situation, e.g. personal development via work, that is the possibility of employing one's abilities and perceived meaningfulness of work (Agervold et al., 2004). As expected, teachers who feel more engaged also show more self-efficacy beliefs, which is in line with the hypothesised "upward spiral" (Llorens et al., 2007; Salanova et al., 2005). Moreover, considering a particular organizational citizenship behaviour such as altruism, our results are in line with previous findings concerning the link between engagement and positive organizational behavior, that suggest that engaged workers seem to be willing to "go the extra mile" (Salanova & Schaufeli, 2008, Schaufeli & Salanova, 2008; Sonnentag, 2003). Finally, teachers who feel more engaged seem to be more satisfied with their jobs and seem to enjoy better mental health, which is also in line with previous studies (Demerouti et al., 2001; Schaufeli & Bakker, 2003).

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Study Limitations

The current study has also some limitations that should be mentioned. First of all, the data were based on self-report measures. Objective indicators, such as biomedical measures (e.g. blood pressure), behavioral (e.g. sickness absence) and organizational measures (e.g. turnover), should be employed in future studies in order to minimize the potential effects of common method variance. The second limitation is that the data consisted only of school-teachers, which restrict the possibility to generalize the results across other occupations. Several studies suggest that work engagement and its three dimensions may have different predictors and different outcomes in different organizational contexts (Xanthoupoulou et al., 2007). Finally, with respect to the cluster analysis, we found only teachers that could be characterized as "average" or "highly" engaged; that is, we were not able to identify "low" engaged teachers. A check on the International database of the UWES, by selecting only the sample of school teachers (N=3506), shows that the scores that we found for Italian teachers were similar compared to those of teacher samples from other countries, with the exception of the Absorption dimension that seems to be higher (M=4.69; SD=.98 *vs* SD M=3.91; SD=1.21; $t_{(3992)}$=13,63; p=.000) compared to teachers included in the International database. However, our scores are quite in line with those of Hakanen, Bakker and Schaufeli (2006), who, in a sample of 2038 Finnish school teachers, used the two scales assessing Vigor (M=4.51, SD=.99; $t_{(2524)}$=2,00; p=.05) and Dedication (M=4.72; SD=1.12; $t_{(2524)}$=1,95; p=.05). Taken together these findings suggest that also in the International database, teachers shows on average "middle" or "high" scores on the three scales of the UWES.

Practical Implications

The results of the current study showed that the short UWES can be used in Italy among teachers for assessing and monitoring levels of engagement.

Consistent with previous studies (see Schaufeli & Salanova, 2008) our results indicate that engagement is positively related to job- and personal resources, organizational attitudes and behaviours, and perceived health. As a consequence it is evident that work engagement is not only important for individual employees, but

also for organizations. Moreover, research on the so-called *motivational process* of the Job-Demands and Resources Model (Bakker & Demerouti, 2007) suggest that engagement mediates the relationship between specific job resources and positive work outcomes. Thus, schools could increase the most important job resources for teachers (e.g., opportunities for learning and development), so that engagement and eventually positive organizational attitudes and behaviours are fostered.

Another aspect to take into consideration concerns the stability of the UWES. On one hand, the high stability of the UWES might point to the fact that the work environment of teachers, including their job resources, does not change so much over time. On the other hand, this high stability might also indicate that work engagement is a rather stable psychological feature. Seen from this perspective, it could be interesting to focus in future research on the role of personality and personal variables (see also Langelaan, Bakker, Van Doornen & Schaufeli, 2006; Hallberg, Johansson & Schaufeli, 2007).

Final Note

In sum, our findings provide empirical support for the factorial validity, internal consistency and stability of the UWES. In particular, we suggest to use the shortened 9-item version, considering also that short questionnaires decrease the likelihood of attrition of respondents.

Appendix. The Utrecht Work Engagement Scale (UWES)
1. At my work, I feel that I am bursting with energy *(Vi)**
2. I find the work that I do full of meaning and purpose *(De)*
3. Time flies when I'm working *(Ab)*
4. At my job, I feel strong and vigorous *(Vi)**
5. I am enthusiastic about my job *(De)**
6. When I am working, I forget everything else around me *(Ab)*
7. My job inspires me *(De)**
8. When I get up in the morning, I feel like going to work *(Vi)**
9. I feel happy when I am working intensely *(Ab)**
10. I am proud on the work that I do *(De)**
11. I am immersed in my work *(Ab)**
12. I can continue working for very long periods at a time *(Vi)*
13. To me, my job is challenging (*De*)
14. I get carried away when I'm working *(Ab)**
15. At my job, I am very resilient, mentally *(Vi)*
16. It is difficult to detach myself from my job *(Ab)*
17. At my work I always persevere, even when things do not go well *(Vi)*

Note: * Short version; Vi = Vigor; De = Dedication; Ab = Absorption
Source: Schaufeli & Bakker (2003)

CHAPTER 3

Using the Job Demands-Resources model to discriminate burned-out vs non-burned-out and engaged vs non-engaged teachers over time.

Summary

By utilizing a 3-waves longitudinal design, the present study tested the Job-Demands Resources model among Italian school teachers (n=108). The study seeks to answer to questions on what are the most important job demands, job and personal resources that discriminate burned-out teachers from non-burned-out ones, as well as engaged teachers from non-engaged ones.

Our result supported the validity of the JD-R model over time, which predicts that opposite patterns of job demands and job and personal resources are associated with burnout and work engagement. Moreover, our results suggest that, particularly in the case of work engagement, the pattern of variables that predicts engaged vs non-engaged teachers are quite stable over time.

Keywords: Burnout, Work Engagement, Job Demands-Resources model, 3-waves longitudinal design

Introduction

Teaching has been identified as a particularly stressful occupation (Chaplain, 2008; Montgomery & Rupp, 2005). A large body of research literature shows that teachers are particularly at risk of stress, and that this is an international phenomenon (e.g. Borg & Falzon, 1990; Chan, 2002; Brown, Ralph & Bember, 2002; Van Horn, Schaufeli, Greenglass & Burke, 1997; Farber, 1991; Istituto di ricerca IARD, 2000). The stressors may include, for example, disciplinary problems, inadequate salaries, conflict with colleagues or with parents, time pressures and workload, problems to do with management, or having to reorganize teaching as a consequence of school reforms (for a review see for example: Kyriacou, 2001). It has been estimated that, in comparison with other professions (other human-services and white-collar jobs), teachers exhibit higher levels of exhaustion and cynicism (Schaufeli & Enzmann, 1998). When they feel no longer able to respond to the needs of their students, they display symptoms of exhaustion, become more detached, and develop negative attitudes towards their work. And when teachers perceive that they are unable completely to fulfil their responsibilities, their sense of personal efficacy also diminishes (Byrne, 1999).

At the same time, however, it should be noted that many teachers are satisfied with and enthusiastic about their work (Roth, Assor, Kanat-Maymon, Kaplan, 2007; Rudow, 1999), and that they are engaged in their jobs (Simbula, Guglielmi, Schaufeli & Depolo, 2008b; Hakanen, Bakker & Schaufeli, 2006).

To date, most models of occupational health have focused exclusively on job stress and negative outcomes, neglecting the potentially positive effects of work, such as engagement (Schaufeli & Bakker, 2009). We believe, however, that it is of great interest to gain deeper knowledge of the antecedents of teachers burnout as well as of their work engagement. Consequently, in the research reported here we use the Job-Demands Resources Model in order to take a more balanced approach that seeks to explain negative (burnout) as well as positive (work engagement) aspects of well-being by linking them to a strain and motivational process, respectively (Bakker & Demerouti, 2007).

The aim of this study is to test the Job-Demands Resources model in a longitudinal way by testing the impact of a variety of job demands, job and personal resources that discriminate teachers who experience burnout from those who do not, as well as teachers who experience work engagement from those who do not.

Burnout, Work Engagement and their relationships

Traditionally, burnout has been defined as a persistent, negative, work-related state of mind characterized by emotional exhaustion (the depletion or draining of mental energy caused by interpersonal demands), depersonalization (negative or inappropriate attitudes toward clients), and reduced personal accomplishment (the belief that one is no longer effective in fulfilling one's work with recipients) (Maslach, Schaufeli & Leiter, 2001). Emotional exhaustion and depersonalization have been regarded as the "core components" of burnout (e.g. Green, Walkey & Taylor, 1991; Schaufeli & Taris, 2005) as evidenced by the relatively low correlations of personal efficacy with both the other components (Lee & Ashforth, 1996). However, it seems likely that previous findings largely reflect a statistical artefact: the accomplishment items are positively worded, while the items on the exhaustion and depersonalization scales are negatively worded (see: Bresó, Salanova & Schaufeli, 2007; Simbula & Guglielmi, 2008a). Moreover, the third burnout component may act either as a precursor or as a consequence of burnout, depending on the perspective. (Schaufeli & Taris, 2005). In light of these considerations, only emotional exhaustion and depersonalization were examined in this study.

In contrast to burnout, work engagement is defined as a positive, fulfilling, work-related state of mind characterized by vigor (high levels of energy and mental resilience while working, willingness to invest effort in work, and persistence in the face of difficulties), dedication (being involved in one's work, sense of enthusiasm, inspiration, pride, and challenge), and absorption (being happily engrossed in one's work, whereby time passes quickly and one has difficulties detaching oneself from work) (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor and dedication are considered to be the "core components" of work engagement (Schaufeli & Bakker, 2004), whereas absorption appears similar to flow, that is, a state of optimal

experience (Csikszentmihalyi, 1990). Therefore, only these two engagement dimensions were examined in the analysis reported.

Vigor and dedication are considered to be the direct positive opposites of exhaustion and depersonalization, respectively. Indeed, conceptually speaking, the relationship between burnout and work engagement can be described in terms of two underlying dimensions labelled *energy* and *identification.* Exhaustion and vigor constitute the opposite poles of energy, whereas depersonalization and dedication constitute the opposite poles of identification (Schaufeli & Bakker, 2004; Gonzáles-Romá, Schaufeli, Bakker & Lloret, 2006).

The Job-Demands Resources Model

The antecedents of burnout and work engagement can be approached from the viewpoint of a relatively new occupational stress model termed the Job-Demands Resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Bakker & Demerouti, 2007). This model assumes that, although every occupation has its own specific work characteristics, these characteristics can be classified in two general categories: job demands and job resources.

Job demands are the physical, psychological, social, or organizational aspects of the job that require physical and/or psychological effort, and are therefore related to physiological and/or psychological costs. We included in our analysis three job demands identified as being important causes of psychological stress among teachers: (1) work/family conflict (Cinamon, Rich & Westman, 2007), (2) inequity (Van Horn, Schaufeli & Enzmann, 1999) and (3) emotional dissonance (Zapf, 2002). Work/family conflict refers to the individual's experience that joint role pressures from the work and family domains are incompatible in some respect, with the result that participation in one role is made more difficult by virtue of another role (Greenhaus, 1985). Many studies have shown that experiencing conflict between the work and family domains can have serious negative consequences for well-being, such as burnout and depression (Allen, Herst, Bruck & Sutton, 2000). In regard to inequity, according to equity theory (Adams, 1965), people pursue reciprocity in their interpersonal and organizational relationships. What they invest and gain from a relationship should be proportional to the investments and gains of the other party in

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the relationship. When people perceive relationships to be inequitable, they feel distressed and are motivated to restore equity (Walster, Walster & Bershcheid, 1978; Schaufeli, 2006). Teachers who invest more in relationships (e.g. with students or colleagues) than they receive may suffer a depletion of their emotional resources. If this lack of reciprocity becomes chronic, it may foster the development of the burnout syndrome (e.g., Van Horn, Schaufeli & Enzmann, 1999; Farber, 1991). Finally, emotional dissonance occurs when there is a discrepancy between felt emotions, on the one hand, and the emotional display that is required and appropriate in the work context on the other (Brotheridge & Lee, 1998). It is often associated with psychological and physical ill-health, as well as with adverse job outcomes (Abraham, 1998; Lewing & Dollard, 2003). Previous studies have shown that when emotional dissonance occurs, employees may suffer from burnout symptoms (Zapf, 2002; Bono & Vey, 2005).

Job resources are the physical, psychological, social, or organizational aspects of the job that are functional in achieving work goals, reducing job demands and the related physiological and psychological costs, and stimulating personal growth and development (Bakker & Demerouti, 2007). In the current analysis reported here, we included three job resources identified as being either important motivators that increase engagement or positive outcomes, or, when lacking, factors that increase burnout: (1) social support from the supervisor (Leiter & Maslach, 1988, Hakanen, Bakker & Schaufeli, 2006), (2) social support from colleagues (Halbesleben, 2006) and (3) opportunities to learn and develop (Hawley & Valli, 1999). Support from the supervisor and co-workers may be particularly important when examining the social support/burnout relationship (Halbesleben, 2006; Lee & Ashforth, 1996), as well as the relationship between support and work engagement (Schaufeli, Bakker & Van Rhenen, 2009; Xanthoupolou, Bakker, Demerouti & Scahufeli, 2009). In regard to the possibility of achieving personal development via work, Karasek and Theorell (1990) argued that jobs conducive to learning opportunities may result in employees being intrinsically involved in their jobs. Personal development is also expected in jobs with high procedural and temporal degrees of freedom, requirements for skill enhancement, decision making, and responsibility (Dunckel, 2002). Moreover, opportunities to learn are deemed important for Italian teachers because they may be

an important resources for coping with the changes introduced in recent years by reforms of the school system (e.g. new tasks concerning the local management of schools, appraisal of teaching performance).

According to the JD-R model, job demands and job resources are important because they evoke two relatively independent processes: a *health impairment process* in which high job demands exhaust employees' mental and physical resources and may therefore lead to energy depletion (Demerouti et al., 2001; Maslach, Schaufeli, & Leiter, 2001); and a *motivational process* in which job resources, due to their motivational potential, induce employees to fulfil their work goals, and in turn, may lead to work engagement. The JD-R model therefore posits that job demands are the most important antecedents of burnout, whereas job resources are the most important antecedents of work engagement (Hakanen, Bakker & Schaufeli, 2006; Schaufeli & Bakker, 2004). There is a large body of evidence indicating an association between high job demands or lack of resources and level of burnout (see: Lee & Ashforth, 1996; Llorens, Bakker, Schaufeli & Salanova, 2006; Hakanen, Schaufeli & Ahola, 2008; Schaufeli, Bakker & Van Rhenen, in press). Generally speaking, findings suggest that job demands are mainly related to the exhaustion component of burnout, and a lack of job resources is more closely related to the experience of depersonalization or distancing from work (see e.g. Demerouti et al., 2001; Hakanen et al., 2006; Llorens et al., 2006). Moreover, there is substantial evidence supporting the association between job resources and work engagement (e.g. Hakanen et al., 2006; Schaufeli & Bakker, 2004).

In regard to the impact of job demands on work engagement, previous studies have shown that, in contrast to burnout, work engagement seems particularly correlated with the resources available in the organization: that is, the relationship between job demands and engagement seem to be not significant or very weak (Llorens, Bakker, Schaufeli & Salanova, 2006; Mauno, Kinnunen & Ruokolainen, 2007).

An important recent extension of the JD-R model includes personal resources as well. Personal resources are those aspects of the self linked with resilience, and they concern the perception of individuals that they can successfully control and impact upon their environment (Hobfoll, Johnson, Ennis & Jackson, 2003).

Xanthopoulou, Bakker, Demerouti and Schaufeli (2007) examined the role of three personal resources (self-efficacy, organizational-based self-esteem, and optimism) in predicting exhaustion and work engagement. Although the results of structural equation modeling analyses, showed that personal resources did not buffer the relationship between job demands and exhaustion, personal resources partly mediated the relationship between job resources and work engagement. More recently, Xanthopoulou, Bakker, Demerouti and Schaufeli (in press) have shown that job resources, personal resources, and work engagement are reciprocally related over time.

In the present study we considered self-efficacy as a personal resource. Social Cognitive Theory (Bandura, 1997, p.3) defines efficacy beliefs "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments". Self-efficacy beliefs contribute to motivation by influencing the challenges that people pursue, the effort they spend, and their perseverance in the face of obstacles (Bandura, 1989). Moreover, there is evidence that efficacy beliefs may act as important determinants of work engagement (Llorens, Schaufeli, Bakker & Salanova, 2006). Indeed, efficacy beliefs act as self-motivating mechanisms: people perceive their levels of competences to be high, and consequently set themselves goals and are motivated to spend considerable effort and persistence in overcoming obstacles (Bandura, 2001). Moreover, teachers with high levels of self-efficacy appear to have high levels of job satisfaction and low levels of burnout (Bandura, 1997; Van Dierendonck, Schaufeli & Buunk, 2001).

As noted before, job demands and job resources initiate two different and independent processes, and thus have differential predictive value with regard to employee well-being. Indeed, the health impairment process is sparked by job demands, and, to a lesser extent by a lack of job resources, whereas the motivational process is sparked by job resources.

In an attempt to yield further understanding of how these mechanisms operate over time, this study pays especial attention to various psychosocial antecedent factors (i.e. job demands and job and resources) of burnout and work engagement, but also to the role of personal resources, by using three-wave longitudinal data gathered among Italian school teachers.

Purpose of the Current Study

The rationale behind this study is therefore that a variety of job demands or a lack of job and personal resources expose teachers to burnout in the long term, whilst job and personal resources enhance work engagement in the long term. The study seeks to answer to questions on what are the most important job demands, job and personal resources that discriminate burned-out teachers from non-burned-out ones, as well as engaged teachers from non-engaged ones.

More specifically, the following hypotheses are formulated:

H1a: Teachers who scored high (low) on exhaustion at T2 had reported more (less) job demands and less (more) job and personal resources at T1.

H1b: Teachers who scored high (low) on depersonalization at T2 had reported more (less) job demands and less (more) job and personal resources at T1.

H2a: Teachers who scored high (low) on vigor at T2 had reported more (less) job and personal resources and less (more) job demands at T1.

H2b: Teachers who scored high (low) on dedication at T2 had reported more (less) job and personal resources and less (more) job demands at T1.

In addition, because burnout and work engagement have been found to be relatively stable over time (Maslach et al., 2001; Schaufeli et al., 2002) we expected to observe a pattern of variables stable over time, that is:

H3a: Teachers who scored high (low) on exhaustion at T3 had reported more job demands and less (more) job and personal resources at T1.

H3b: Teachers who scored high (low) on depersonalization at T3 had reported more job demands and less (more) job and personal resources at T1.

H3c: Teachers who scored high (low) on vigor at T3 had reported more (less) job and personal resources and less (more) job demands at T1.

H3d: Teachers who scored high (low) on dedication at T3 had reported more (less) job and personal resources and less (more) job demands at T1.

Finally, we also expected that the same factors would predict burnout and work engagement across the same time period (i.e. replicability):

H4a: Teachers who scored high (low) on exhaustion at T3 had reported more (less) job demands and less (more) job and personal resources at T2.

H4b: Teachers who scored high (low) on depersonalization at T3 had reported more (less) job demands and less (more) job and personal resources at T2.

H4c: Teachers who scored high (low) on vigor at T3 had reported more (less) job and personal resources and less (more) job demands at T2.

H4d: Teachers who scored high (low) on dedication at T3 had reported more (less) job and personal resources and less (more) job demands at T2.

Method

Participants and Procedure

The study was part of a broader research project on teacher's well-being. 465 teachers received the questionnaire three times at intervals of four months; the three waves corresponded to the beginning of the academic year (T1; N = 299; response rate: 57.8%), the end of the first term (T2; N = 166; response rate: 55.5%) and the end of the academic year (T3; N = 108; response rate: 65%). Hence 108 teachers completed the questionnaire on all three occasions. We assumed that this time interval would be adequate because Italian teachers may spend three consecutive months on holiday after the end of the school year, during which period they can presumably recuperate (see Westman & Etzion, 2001).

Moreover, according to Zapf, Dormann & Frese (1996), it is common practice in longitudinal research to choose the particular time lag on the basis of organizational

reasons, rather than theoretical considerations. The authors also suggest conducting multiwave designs with the same time interval between all the waves.

The panel group (N=108) consisted of 97 female (90%) and 11 male (10%) teachers working in different types of schools (35% in elementary schools; 51% in lower–secondary, and 14% in upper-secondary schools). 71% were married. Most respondents were middle-aged: in fact, only 14% of the teachers were aged under 35, 28% were aged between 36 and 45 years, 25% between 46 and 50 years, and 33% were aged over 50. Most respondents had considerable length of service: in fact, 52% of them had over 20 years of teaching experience. About 92% of the sample had a permanent job, and 8% had some type of fixed-term contract. On average, participants worked 30.7 h per week (S.D.=7.7).

To test whether drop-outs differed from the panel group, we compared teachers in the panel group (N=108) with the drop-outs (N=191) in regard to demographic characteristics (i.e. gender, type of school, marital status, age, job tenure, type of contract) and also burnout and engagement dimensions, job demands and job and personal resources. The results from Chi-square analysis showed that the panel group differed from the drop-outs in terms of job tenure ($\chi^2(4)$=11.04, p<.05) and type of contract ($\chi^2(2)$=12.81, p<.01). In particular, the panel group comprised more teachers with fixed-term contracts, as well as teachers with brief teaching experience. There were no significant differences between the panel group and the drop-outs with regard to the mean values of the burnout and engagement dimensions, as well as job demands, job and personal resources (Wilks' λ =.96, F (11, 229)=.99, p=.459). We therefore concluded that the drop-outs were comparable to the panel group and that, with the exception of tenure and type of contract, no selective drop-out had occurred.

After information meetings with school principals and teachers' representatives at each school, all teachers received a paper-and-pencil questionnaire and a return envelope at their school. The questionnaire was accompanied by a letter signed by the coordinator of the University research unit which briefly explained the general aim of the research and emphasised that the answers would be confidential and anonymous. The teachers were requested to fill out the questionnaire within ten days from its delivery and to post it in a special box at their school to guarantee

completely privacy. The questionnaires were processed by the research team alone. By means of a similar procedure, the teachers received the same questionnaire after four and eight months.

Measures

Five groups of variables were considered: burnout, work engagement, job demands, job resources and personal resources:

Burnout

Burnout was assessed by using the emotional exhaustion and depersonalization dimensions of the MBI-Educators Survey (Maslach, Jackson & Schwab, 1996; Simbula & Guglielmi, 2008a). Exhaustion was measured with nine items (e.g. "I feel emotionally drained from my work"), and Depersonalization was measured by five items (e.g., "I feel students blame me for some of their problems"). All items were scored on a 7-point frequency scale, ranging from "0" (never) to "6" (always).

Work Engagement

Work Engagement was assessed by using the vigor and dedication subscales of the Italian adaptation of the short version of the Utrecht Work Engagement Scale (Schaufeli et al., 2002; Simbula et al., 2008b). Vigor was measured with three items (e.g., "At my job, I feel strong and vigorous") as well as Dedication (e.g., "I'm enthusiastic about my job"). All items in both scales were scored on a 7-point frequency rating scale ranging from 0 ("never") to 6 ("always").

Job Demands

Work-Family conflict was measured with three self-constructed items assessed on a 5-point frequency scale ranging from 1 ("never") to 5 ("very often"). An example item is: "Anxieties about work interfere with my ability to satisfy the needs of my family".

Inequity was measured by a five-item scale (Van-Yperen, Hagedoorn & Geurts, 1996) assessed on a 5-point frequency scale ranging from 1 ("never") to 5 ("very often"). An example item is: "I invest more in my job than I gain from it"

 Emotional dissonance (i.e. having to express positive feelings that one does not actually feel, or when one actually feels irritation or anger, or feelings that one must suppress and cannot express spontaneously) was measured with a four-item scale (Agervold 2007) assessed on a 5-point frequency scale ranging from 1 ("never") to 5 ("very often"). An example item is: "I have to express positive emotions even if I don't feel them".

Job Resources

Opportunities to learn and to develop were assessed with five items from the Psychosocial Work Environment and Stress Questionnaire (PWSQ; Agervold & Mikkelsen, 2004). This scale assesses the possibility of employing one's abilities and the perceived meaningfulness of one's work. Sample item: "The job provides me with ample opportunities to use my skills and qualifications". Responses were given on a frequency scale ranging from 1 ("never") to 5 ("very often").

Co-workers support. The four-item Social Support Scale of the job content instrument (Karasek, 1985) was used to measure co-workers support. Sample item "People I work with are helpful in getting the job done".
Supervisor support. The four-item Supervisor Support Scale of the job content instrument (Karasek, 1985) was used to measure supervisor support (that is, the support from the school principal). Sample item "My supervisor is successful in getting people to work together".
In both scales, responses were given on a 4-point Likert scale ranging from 1 ("strongly disagree") to 4 ("strongly agree").

Personal Resources

Teacher Self-efficacy was assessed by an eight-item scale (Di Fabio & Taralla, 2006) which followed Bandura's recommendation (1997) to tailor scales of perceived self-

efficacy to the particular domain of functioning that is the object of interest. Participants responded on a 5-point scale which ranged from 1 ("totally false") to 5 ("totally true"). Sample item: "Thanks to my resources I'm able to manage unexpected situations in my job".

Data analyses

Discriminant analyses were used to identify a linear combination or different combinations of predictor variables (job demands and job resources as well as personal resources) that best characterized the differences among the study groups for the burnout and engagement dimensions respectively. This statistical method has the advantage that it uses the common variance of the individual aspects (job demands, job resources and personal resources) and thus ignores singularities that might otherwise blur the picture.

To achieve our objectives, three target groups were formed for each burnout dimension (exhaustion and depersonalization). Tertiles scores of the categorization of MBI for Italian school teachers (Sirigatti and Stefanile, 1993) were used to define high, medium and low scores on both scales at T2 and T3. Because we were primarily interested in discriminating between exhausted or depersonalized teachers and non-exhausted and non-depersonalized ones, in both discriminant analyses we included only the two extreme groups, namely the exhausted (n_{T2}=26; n_{T3}=29) versus non-exhausted teachers (n_{T2}=45; n_{T3}=45) and the depersonalized (n_{T2}=33; n_{T3}=37) versus non-depersonalized teachers(n_{T2}=46; n_{T3}=44).

To gain a longitudinal perspective, we first tested the impact of job demands, job resources and personal resources measured at T1 in the differentiation of the levels of exhaustion and depersonalization at T2 and at T3 (Hypotheses H1a, H1b, H3a, H3b), as well as the impact of job demands, job resources and personal resources measured at T2 in the differentiation of the levels of exhaustion and depersonalization at T3 (Hypotheses H4a, H4b).

Analogously to burnout, three target groups were formed for each work engagement dimension (vigor and dedication). Because statistical norms for the Italian version of the UWES do not yet exist, we decided to use three categories (low, medium and

high), again on the basis of tertiles on both scales at T2 and T3. This choice was motivated *inter alia* by considerations concerning coherence with the burnout categorization described above. Norm scores for the vigor and dedication were based on unpublished analyses on the data set (N=488) used to validate the Italian version of the UWES (see: Simbula et al., 2008). Thus, to identify the three groups, we utilized the following cut-off scores: scores ≤ 4.00 on vigor were considered to be low, whereas scores ≥ 5.00 were considered to be high. Finally, scores between 4.01 and 4.99 were considered to be "medium". As regards dedication, we utilized the following cut-off scores: scores ≤ 4.33 on dedication were considered to be low, whereas scores ≥ 5.33 were considered to be high. Finally, scores between 4.34 and 5.32 were considered to be "medium". Again, in both discriminant analyses, we included only the two extreme groups, namely the vigorous (n_{T2}=48; n_{T3}=44) versus non-vigorous teachers (n_{T2}=37; n_{T3}=35) and the dedicated (n_{T2}=43; n_{T3}=41) versus non-dedicated ones (n_{T2}=35; n_{T3}=33).

To gain a longitudinal perspective, we again tested the impact of job demands, job resources and personal resources measured at T1 in the differentiation of the levels of vigor and dedication at T2 and at T3 (Hypotheses H2a, H2b, H3c, H3d), as well as the impact of job demands, job resources and personal resources measured at T2 in the differentiation of the levels of vigor and dedication at T3 (Hypotheses H4c, H4d).

Results

Descriptives

The means, standard deviations, correlations and internal consistencies for all the study variables are presented in Table 1. All significant relationships between the variables were in the expected direction.

Internal consistency for all variables ranged between .63 and .94 (Table 1); thus, except for Depersonalization and Social Support from co-workers at T1, all values of Cronbach's alpha exceeded the value of .70, which is traditionally used as a rule of thumb (Nunnally & Bernstein, 1994). Moreover, for most of the variables, alpha satisfied the more stringent value of .80 that is now considered a generally accepted standard (Henson, 2001).

Before proceeding with the discriminant analyses, multivariate analyses of variance (MANOVAs) were carried out, using age, gender, teaching experience and type of school as independent variables and the burnout and engagement dimensions as the dependent variables. No significant differences appeared in levels of burnout and work engagement for any of demographic and biographical (age, gender, teaching experience and type of school) variables. They were therefore excluded from further analyses.

Table 1
Descriptive Statistics, Internal Consistencies and Correlations among Variables (N=108)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Exhaustion T1	16.25	11.37	(.90)														
2. Exhaustion T2	17.05	11.79	.81**	(.92)													
3. Exhaustion T3	16.50	11.53	.74**	.83**	(.92)												
4. Depersonalization T1	3.02	3.80	.45**	.48**	.47**	(.63)											
5. Depersonalization T2	3.39	4.48	.52**	.54**	.51**	.75**	(.73)										
6. Depersonalization T3	3.65	4.80	.59**	.58**	.64**	.67**	.77**	(.86)									
7. Vigor T1	4.41	1.23	-.63**	-.61**	-.55**	-.43**	-.46**	-.57**	(.89)								
8. Vigor T2	4.39	1.19	-.60**	-.72**	-.60**	-.42**	-.50**	-.54**	.82**	(.87)							
9. Vigor T3	4.37	1.24	-.65**	-.66**	-.69**	-.44**	-.40**	-.57**	.83**	.78**	(.93)						
10. Dedication T1	4.60	1.24	-.54**	-.52**	-.52**	-.40**	-.37**	-.53**	.82**	.72**	.75**	(.89)					
11. Dedication T2	4.55	1.23	-.53**	-.63**	-.62**	-.48**	-.46**	-.60**	.71**	.81**	.75**	.84**	(.88)				
12. Dedication T3	4.57	1.27	-.52**	-.54**	-.58**	-.46**	-.40**	-.55**	.71**	.68**	.88**	.82**	.81**	(.90)			
13. Inequity T1	3.24	.94	.35**	.45**	.39**	.07	.10**	.18	-.19*	-.26**	-.21*	-.21*	-.31**	-.15	(..83)		
14. Inequity T2	3.11	.96	.45**	.60**	.53**	.16	.20*	.28**	-.30**	-.40**	-.32**	-.26**	-.35**	-.23*	.69**	(.83)	
15. Inequity T3	3.13	.97	.44**	.57**	.53**	.15	.21*	.36**	-.29**	-.39**	-.37**	-.29**	-.36**	-.30**	.69**	.79**	(.86)
16. W-F Conflict T1	2.19	.87	.18	.14	.12	-.03	.00	.02	-.05	-.10	-.16	-.06	-.09	-.12	.23*	.19*	.31**
17. W-F Conflict T2	2.24	.92	.50**	.65**	.53**	.31**	.28**	.33**	-.33**	-.44**	-.35**	-.23*	-.39**	-.27**	.34*	.50**	.46**
18. W-F Conflict T3	2.27	.94	.46**	.64**	.62**	.31**	.30**	.39**	-.40**	-.43**	-.48**	-.32**	-.41**	-.41**	.34*	.47**	.51**
19. Emo. Dissonance T1	2.02	.85	.42**	.40**	.44**	.40**	.42**	.54**	-.42**	-.43**	-.38**	-.41**	-.45**	-.34**	.15	.17	.32**
20. Emo. Dissonance T2	1.92	.85	.32**	.42**	.30**	.37**	.39**	.41**	-.31**	-.51**	-.33**	-.31**	-.42**	-.31**	.11	.22*	.33**
21. Emo. Dissonance T3	1.96	.83	.44**	.47**	.40**	.45**	.44**	.54**	-.46**	-.49**	-.42**	-.48**	-.46**	-.43**	-.02	.14	.25**
22. Learning Opport. T1	4.07	.73	-.48**	-.53**	-.53**	-.38**	-.31**	-.40**	.66**	60**	.64**	.76**	.68**	.67**	-.21*	-.38**	-.38**
23. Learning Opport. T2	4.02	.75	-.44**	-.55**	-.55**	-.41**	-.40**	-.49**	.60**	.65**	.66**	.67**	.74**	.71**	-.31*	-.40**	-.47**
24. Learning Opport. T3	4.08	.70	-.47**	-.51**	-.56**	-.40**	-.40**	-.52**	.64**	.59**	.71**	.67**	.65**	.67**	-.23*	-.35**	-.45**
25. Coworkers Support T1	3.20	.44	-.26**	-.33**	-.24*	-.29**	-.33**	-.30**	.34**	.39**	.29**	.31**	.32**	.25**	-.17	-.29**	-.40**
26. Coworkers Support T2	3.17	.47	-.26**	-.29**	-.22*	-20*	-.28**	-.30**	.27**	.31**	.29**	.22*	.27**	.22**	-.22*	-.31**	-.42**
27. Coworkers Support T3	3.16	.50	-.27**	-.32**	-.25**	-.17	-.26**	-.24*	.31**	.38**	.29**	.23*	.26**	.26**	-.20*	-.21*	-.34**
28. Supervisor Support T1	3.05	.66	-.32**	-.34**	-.30**	-.17	-.34**	-.33**	.36**	.46**	.42**	.41**	.46**	.35**	-.26**	-.29**	-.29**
29. Supervisor Support T2	2.99	.72	-.21**	-.17	-.15	-.01	-.17	-.20*	.32**	.32**	.34**	.35**	.33**	.35**	-.24*	-.25*	-.32**
30. Supervisor Support T3	2.96	.74	-.30**	-.35**	-.29**	-.18	-.22*	-.24*	.28**	.38**	.36**	.30**	.37**	.34**	-.34**	-.35**	-.36**
31. Self-efficacy T1	3.80	.71	-.25**	-.24*	-.18	-.40**	-.32**	-.37**	.46**	.39**	.33**	.34**	.31**	.28**	.14	.01	.03
32. Self-efficacy T2	3.81	.71	-.18	-.23*	-.18	-.37**	-.33**	-.40**	.43**	.43**	.36**	.34**	.38**	.33**	.05	-.05	-.12
33. Self-efficacy T3	3.79	.75	-.28**	-.29**	-.31**	-.31**	-.25**	-.34**	.41**	.37**	.41**	.34	.33**	.35**	.01	-.12	-.17

Notes : **p<.01; *p<.05

Table 1 continued
Descriptive Statistics, Internal Consistencies and Correlations among Variables (N=108)

Variable	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1. Exhaustion T1																		
2. Exhaustion T2																		
3. Exhaustion T3																		
4. Depersonalization T1																		
5. Depersonalization T2																		
6. Depersonalization T3																		
7. Vigor T1																		
8. Vigor T2																		
9. Vigor T3																		
10. Dedication T1																		
11. Dedication T2																		
12. Dedication T3																		
13. Inequity T1																		
14. Inequity T2																		
15. Inequity T3																		
16. W-F Conflict T1	(.81)																	
17. W-F Conflict T2	.15	(.79)																
18. W-F Conflict T3	.18	.70**	(.83)															
19. Emo. Dissonance T1	.26**	.34**	.35**	(.86)														
20. Emo. Dissonance T2	.30**	.42**	.34**	.64**	(.89)													
21. Emo. Dissonance T3	.11	.28**	.28**	.64**	.58**	(.86)												
22. Learning Opport. T1	.01	-.31**	-.48**	-.31**	-.24*	-.33**	(.87)											
23. Learning Opport. T2	-.24*	-.40**	-.53**	-.49**	-.45**	-.44**	.71**	(.87)										
24. Learning Opport. T3	-.08	-.24*	-.41**	-.38**	-.27**	-.43**	.68**	.66**	(.86)									
25. Coworkers Support T1	-.31**	-.37**	-.28**	-.45**	-.43**	-.35**	.26**	.33**	.38**	(.66)								
26. Coworkers Support T2	-.43**	-.24*	-.22*	-.38**	-.42**	-.31**	.19	.31**	.31**	.64**	(.71)							
27. Coworkers Support T3	-.44**	-.33**	-.29**	-.41**	-.46**	-.34**	.19*	.35**	.25*	.62**	.73**	(.79)						
28. Supervisor Support T1	-.26**	-.18	-.20*	-.24*	-.19	-.17	.37**	.39**	.40**	.34**	.23*	.22*	(.86)					
29. Supervisor Support T2	-.41**	-.10	-.20*	-.14	-.11	-.02	.33**	.35**	.36**	.23*	.32**	.29**	.58**	(.87)				
30. Supervisor Support T3	-.34**	-.31**	-.32**	-.16	-.23*	-.15	.36**	.34**	.38**	.25**	.19*	.37**	.68**	.64**	(.88)			
31. Self-efficacy T1	-.06	-.09	-.14	-.30**	-.32**	-.38**	.27**	.27**	.31**	.17	.07	.10	.05	.03	.03	(.89)		
32. Self-efficacy T2	-.02	-.13	-.14	-.35**	-.35**	-.34**	.25**	.40**	.39**	.13	.06	.11	.19	.10	.08	.70**	(.91)	
33. Self-efficacy T3	.02	-.15	-.23*	-.34**	-.30**	-.46**	.26**	.28**	.48**	.29**	.06	.13	.09	-.02	.05	.57**	.50**	(.93)

Notes : **p<.01; *p<.05

Discriminant Analysis for Burnout dimensions (exhaustion and depersonalization)

Discriminating exhaustion groups

In order to test Hypothesis H1a, the first discriminant analysis (see Table 2) revealed a significant separation between the two exhaustion T2 groups (Wilk's λ=.47, $\chi^2(7)$=48.86, p<.001). The discriminant function had an eigenvalue of 1.11 and a canonical correlation of .73. Overall, 91.5% of the total sample could be correctly classified; which means that classification by this discriminant function is superior to a random assignment based on prior group membership probabilities (50%) (Tabachnik & Fidell, 2001). The Huberty test (Zh) was used to check statistically that the ratio of correct prediction was highly significant and different from a random classification (Huberty, 1984; Barbaranelli, 2003). The value of Zh obtained was 12.95 and thus statistically significant (p <.001). Since loadings > |0.30| are considered to be substantial (Barbaranelli, 2003) in discriminant analysis, the results showed that work/family conflict, learning opportunities, lack of equity, social support from the supervisor and emotional dissonance measured four months earlier at T1 discriminated the exhaustion groups four months later at T2. This means that the exhausted teachers at T2 had been characterized by high scores on work/family conflict, lack of equity, emotional dissonance and by low scores on learning opportunities and supervisor support four months before at T1. In regard to the role of personal resources, self-efficacy did not contribute to the discriminant function (loading=-.18). Hence, with the exception of self-efficacy, Hypothesis H1a was corroborated.

Two further discriminant analyses were calculated to verify the stability over time and the replicability of the discriminant function obtained (Hypotheses H3a, H4a). We first tested the impact of job demands, job resources and personal resources measured at T1 in differentiating the levels of exhaustion at T3, and then the impact of job demands, job resources and personal resources measured at T2 in differentiating the levels of exhaustion at T3.

The discriminant analysis again showed that the discriminant function was significant for an optimal discrimination between the two groups (Wilk's λ=.58, $\chi^2(7)$=37.55, p<.001). This discriminant function had an eigenvalue of .73 and a

canonical correlation of .65. Overall, 82.4% of the total sample could be correctly classified (zH=11.41; p<.001). As expected, the analysis yielded results similar to those of the above discriminant function. Job demands, i.e. work/family conflict, lack of equity and emotional dissonance, as well as job resources, i.e. learning opportunities and social support from the supervisor, measured eight months earlier at T1, still discriminated the exhaustion groups eight months later at T3. It should be noted that the same pattern of variables was observed, although somewhat different loadings were sometimes observed. Thus Hypothesis H3a was supported.

Finally, also the last discriminant analysis showed that the two exhaustion groups at T3 could be significantly distinguished (Wilk's λ=.51, $\chi^2(7)$=46.38, p<.001). This function had an eigenvalue of .97 and a canonical correlation of .70. Overall, 81.1% of the total sample could be correctly classified (zH=11.14; p<.001). As shown in Table 2, the analysis yielded results similar to those of the above discriminant functions. Job demands, i.e. work-family conflict, lack of equity and emotional dissonance, as well as job resources, i.e. learning opportunities, measured four months earlier at T2, discriminated the exhaustion groups four months later at T3. Thus hypothesis H4a was supported.

Table 2.
Structure coefficients for the scales used in the discriminant function analyses (Exhaustion)

Predictor variable	T1→T2 N=71	T1→T3 N=74	T2→T3 N=74
Inequity	.54	.52	.67
W-F Conflict	.69	.58	.69
Emotional Dissonance	.33	.51	.31
Learning Opportunities	-.55	-.70	-.64
Co-workers Support	-.29	-.26	-.15
Supervisor Support	-.42	-.39	-.13
Self-efficacy	-.18	-.09	-.12

Discriminating depersonalization groups

Hypothesis H1b also implied that depersonalization at T2 was characterized by high scores on job demands and low scores on job and personal resources at T1. The first discriminant analysis (see Table 3) showed that the two depersonalization groups (low and high depersonalized) could be significantly distinguished (Wilk's λ=.67, $\chi^2(7)$=29.29, p<.001). The eigenvalue of the discriminant function was .49 and the canonical correlation was .57. Overall, 77.2% of the total sample could be correctly classified (zH= 10.72, p<.001). Table 3 shows that the discriminant function is a combination of job demands (i.e. emotional dissonance and work-family conflict), job resources (i.e. social support from supervisor and from colleagues, and learning opportunities) and personal resources (i.e. self-efficacy), thus corroborating hypothesis H1b.

Again, we tested the stability and the replicability over time of the first discriminant function analyzing the impact of job demands, job resources and personal resources measured at T1 in differentiating the levels of depersonalization at T3 (Wilk's λ=.69, $\chi^2(7)$=28.46, p<.001) and the impact of the same variables at T2 in differentiating of the two levels of depersonalization at T3 (Wilk's λ=.76, $\chi^2(7)$=20.63, p<.01). In the first analysis (T1→ T3) 75.3% of the total sample could be correctly classified (Zh=10.46, p<.001), while in the second analysis (T2→ T3) the percentage was 74.1% (Zh=10.20, p<.001). As expected, the analysis yielded results similar to those of the above discriminant function. In fact, the most depersonalized teachers were characterized by high scores on job demands and by low scores on job and personal resources (see Table 3). Thus, a similar pattern of variables was again observed, even if different loadings were also observed, partly corroborating Hypotheses H3b and H4b.

Table 3.
Structure coefficients for the scales used in the discriminant function analyses
(Depersonalization).

Predictor variable	T1→T2 N=79	T1→T3 N=81	T2→T3 N=81
Inequity	.02	.29	.57
W-F Conflict	.35	.30	.61
Emotional Dissonance	.71	.80	.75
Learning Opportunities	-.50	-.59	-.76
Co-workers Support	-.52	-.34	-.43
Supervisor Support	-.61	-.55	-.21
Self-efficacy	-.44	-.48	-.52

Discriminant Analysis for Engagement dimensions (vigor and dedication)

The same three-step procedure as described above for the two burnout dimensions
was followed to discriminate the engagement (vigor and dedication) groups.

Discriminating vigor groups

Hypothesis H2a implied that vigor at T2 was characterized by high scores on job and
personal resources and low scores on job demands at T1. The discriminant analysis
yielded a significant separation of the two groups, Wilk's λ=.48, $\chi^2(7)$=58.89,
p<.001. This function had an eigenvalue of 1.10 and a canonical correlation of .72.
Overall, 84.7% of the total sample could be correctly classified, indicating that
classification by this discriminant function was superior to a random assignment
(zH=12.71; p<.001). Table 4 shows the structure coefficients; and again loadings
≥.30 are considered substantial (Barbaranelli, 2003). Because positive values in a
discriminant function mean the predominance of the respective canonical (or
discriminant) variables, and negative values an under-representation of these
variables, the results show that the most vigorous teachers at T2 were characterized
by high scores on job and personal resources (i.e. learning opportunities, social
support from the supervisor, self-efficacy and social support from colleagues) and
low scores on, or the absence of, job demands (i.e. emotional dissonance,

work/family conflict and lack of equity) measured four months earlier at T1. Thus hypothesis H2a was confirmed.

In the cases of the stability hypothesis (that is, the effect of variables at T1 in discriminating vigor groups at T3) and the replicability hypothesis (i.e. the effect of variables at T2 in discriminating the two vigor groups at T3), the results are again in line with the hypotheses (H3c and H4c, respectively). In the first analysis (Wilk's λ=.50, χ^2(7)=51.46, p<.001), 82.3% of the total sample could be correctly classified (zH=11.79, p<.001). The variables that exhibited the most substantial loadings in discriminating high-vigorous teachers versus low-vigorous teachers were learning opportunities and supervisor support in a positive way, and work/family conflict followed by emotional dissonance, but in a negative way. Moreover, also self-efficacy contributed to discriminating between the two groups (loading=.32). Thus Hypothesis H3c was supported.

The two vigor groups could be distinguished in the second analysis as well (Wilk's λ=.54, χ^2(7)=45.34, p<.001). Overall, 83.5% of the total sample could be correctly classified (zH= 12.02, p<.001). As shown in Table 4, job resources, i.e. learning opportunities and social support from the supervisor, personal resources, i.e. self-efficacy, and job demands, i.e. lack of equity, emotional dissonance and work-family conflict measured four months earlier at T2, still discriminated the vigor groups four months later at T3. Thus Hypothesis H4c was also supported.

Table 4.
Structure coefficients for the scales used in the discriminant function analyses (Vigor).

Predictor variable	T1→T2 N=85	T1→T3 N=79	T2→T3 N=79
Inequity	-.30	-.23	-.41
W-F Conflict	-.37	-.41	-.39
Emotional Dissonance	-.42	-.37	-.41
Learning Opportunities	.70	.78	.91
Co-workers Support	.31	.26	.19
Supervisor Support	.62	.62	.41
Self-efficacy	.35	.32	.44

Discriminating dedication groups

Hypothesis H2b implied that dedication at T2 was characterized by high scores on job and personal resources and low scores on job demands at T1. The first discriminant analysis (see Table 5) showed that the two depersonalization groups (low and high depersonalized) could be significantly distinguished (Wilk's λ=.44, $\chi^2(7)$=58.82, p<.001). This discriminant function had an eigenvalue of 1.25 and a canonical correlation of .75. Overall, 87.2% of the total sample could be correctly classified (zH= 12.68, p<.001). The most important variable in discriminating high-dedicated from low-dedicated teachers was learning opportunities, followed by supervisor support. In regard to the role of job demands, work/family conflict, lack of equity and emotional dissonance contributed to discriminating between the two groups but in a negative way (see Table 5). We followed the same procedure as described above to test the stability and replicability hypotheses. That is, we considered the impact of job demands, job resources and personal resources measured at T1 differentiating the levels of dedication at T3 (Wilk's λ=.51, $\chi^2(7)$=45.92, p<.001) and the impact of the same variables at T2 in differentiating the two levels of dedication at T3 (Wilk's λ=.51, $\chi^2(7)$=45.72, p<.001). In the first analysis, only job and personal resources at T1 contributed to discriminating between the two vigor groups eight months later at T3 (see Table 5), partly corroborating Hypothesis H3d. The discriminant function correctly classified 83.8% of the total sample (Zh=11.68, p<.001). The second analysis showed the same pattern of variables from T1 to T2, although they entered the equation with somewhat different weights. The classification was as good as in the previous analysis, because 82.4% of the total sample could be correctly classified (Zh=11.41, p<.001).

Table 5. Structure coefficients for the scales used in the discriminant function analyses (Dedication).

Predictor variable	T1→T2 N=78	T1→T3 N=74	T2→T3 N=74
Inequity	-.36	-.13	-.24
W-F Conflict	-.38	-.27	-.20
Emotional Dissonance	-.32	-.26	-.23
Learning Opportunities	.75	.90	.89
Co-workers Support	.23	.16	.09
Supervisor Support	.54	.49	.39
Self-efficacy	.23	.38	.43

By way of summary, Table 6 includes the percentage of correctly classified cases for each of the dependent variables at T2 and T3.

Table 6. Classification Analysis for all Variables.

	Predicted group membership		
	T1→T2	T1→T3	T2→T3
Exhaustion	91.5%	82.4%	81.1%
Depesonalization	77.2%	75.3%	74.1%
Vigor	84.7%	82.3%	83.5%
Dedication	87.2%	83.8%	82.4%

Note: For each variable is reported the overall percentage of correctly classified cases.

Discussion

The first aim of the analysis was to test the Job-Demands Resources model in a longitudinal way by testing the impact of a variety of job demands, job and personal resources that discriminate teachers who experience burnout (exhaustion or depersonalization) from those who do not, as well as teachers who experience work engagement (vigor or dedication) from those who do not. The results confirm our hypotheses (H1, H2), which posited that high job demands and low job resources discriminate between the burnout and non-burnout groups, whereas job resources in particular discriminate between engaged and non-engaged groups. This means that a particular constellation of job demands and resources measured at the beginning of the school year predict high/low levels of burnout and engagement over time, that is, four months later. This is consistent with the JD-R model (e.g. Bakker, Demerouti & Schaufeli, 2003; Salanova, Agut & Peiró, 2005a), according to which job demands lead to burnout, whereas job resources are most likely to be among the job characteristics which result in motivational outcomes, such as work engagement.

In regard to the exhaustion dimension, the results from discriminant analyses showed that the most predictive variables at the beginning of the academic year in differentiation between teachers with the highest levels of exhaustion and those with low levels of exhaustion four months later were work/family conflict, learning opportunities (in a negative way) and inequity. Thus, problems in balancing the demands of work and family, few opportunities to develop, and perception of a lack of reciprocity, give rise to high exhaustion, which is in line with the findings of previous studies (Allen, Herst, Bruck & Sutton, 2000; Maslach et al., 2001; Schaufeli, 2006).

In the case of depersonalization, our results showed that the most predictive variables at T1 in differentiation between the two depersonalization groups (low *vs* high) at T2, were emotional dissonance in a positive way, supervisor and colleagues support and learning opportunities in a negative way. Considering the overall pattern of the variables, it is to be noted that only one of the job demands – i.e. emotional dissonance – obtained a substantial loading (> |0.30|) in the discriminant function.

This is in line with previous findings that a lack of job resources is more strongly related to depersonalization or distancing from work (Lee & Ashforth, 1996).

We have shown in this study that emotional dissonance has an effect in discriminating depersonalized from non-depersonalized teachers. Because, by definition, emotional dissonance only occurs among employees interacting with recipients, and because relationships are of prime importance in the teaching profession (e.g. with students, colleagues, supervisor) its association with depersonalization, that is, the interpersonal component of burnout, is not surprising (Maslach, Leiter & Schaufeli, 2008).

As noted above, support from the supervisor and colleagues may be particularly important when examining the social support/burnout relationship (Halbesleben, 2006). Our results showed that lack of support from the supervisor is especially important, even more so than support from co-workers, which is in line with the findings of other studies (see: Maslach, Schaufeli & Leiter, 2001).

As regards vigor, our results showed that the best predictive variables at T1 in differentiation between the two vigor groups at T2 were learning opportunities, supervisor support and, to a lesser extent, emotional dissonance (but in a negative way). This implies that when teachers perceive the possibility of developing new skills to assist students in the management and organization of knowledge, feel supported by their supervisor, and are able to express their genuine emotions, they are likely to be more vigorous (Nir & Bogler, 2008; Hakanen, Bakker & Schaufeli, 2006).

Our findings relative to dedication showed that the best important variables at T1 in differentiation between the two dedication groups four months later were again learning opportunities, supervisor support and, to a lesser extent, work/family conflict (but in a negative way).

Vigor and dedication are thus predicted by relatively similar antecedent factors, in line with previous studies (e.g. Mauno et al., 2007). Job resources exhibited a rather similar relationship with these two dimensions of work engagement, whereas the effects of other types of antecedents, i.e. job demands, varied more according to the dependent variables. In particular, among the job resources, learning opportunities and supervisor support seemed to have the most consistent positive association with

the different dimensions of work engagement. This is also in line with the high correlations between vigor and dedication. A practical implication of this finding is that a sufficient level of these variables is needed in order to increase teachers' work engagement.

Stability over time and replicability of discriminant functions

The second aim of our analysis was to determine the stability over time and the replicability of our discriminant functions (hypothesis H3, H4). To this end, we first tested the impact of job demands, job resources and personal resources measured at T1 in differentiating the levels of dependent variables at T3. We then tested the impact of job demands, job resources and personal resources measured at T2 in differentiating the levels of these variables at T3.

The rationale behind this analysis was that work engagement in particular has been found to be a relatively stable phenomenon and not a momentary state of mind (Schaufeli et al., 2002; Schaufeli, Bakker & Salanova, 2006). Our findings partly corroborated this finding.

Indeed, the same pattern of variables was observed when considering the best predictive variables in the discriminating exhaustion groups over time, although different loadings were also observed, which partly corroborated hypotheses H3a and H4a. As regards depersonalization, however, only emotional dissonance and learning opportunities among the best predicting variables were observed in all three discriminant functions, partly supporting hypotheses H3b and H4b.

Regarding vigor and dedication, as noted above, we observed a very similar set of variables in their discriminant functions. Moreover, this pattern was also stable over time, thus corroborating our hypotheses. This is also in line with the relatively high magnitude of the stability coefficients, as well as with previous studies, which have found that the structure of the UWES-9 was relatively unchanged across time (Seppälä, Mauno, Feldt, Hakanen, Kinnunen, Tolvanen & Schaufeli, in press).

Finally, since work engagement is the positive antithesis of burnout (Gonzáles-Romá, Schaufeli, Bakker & Lloret, 2006) it is interesting to observe which job demands and job resources affect both continua: that is, exhaustion/vigor on the one hand, and depersonalization/dedication on the other. In particular, learning

opportunities was the most important job resource for the exhaustion/vigor continuum, whereas supervisor support was the most important variable for the depersonalization/dedication continuum. One explanation for this finding may be that job demands have generally slightly less predictive impact than job resources on work engagement (e.g., Llorens et al., 2006); thus, in the comparison between exhaustion and vigor, as well as between depersonalization and dedication, only job resources show a discriminant impact for both continua. This may also suggest that access to important job resources may foster the development of work engagement, but also protect against the development of burnout. Seen in this way, in order to prevent burnout, school principals should provide a stimulating and supportive environment and promote individual growth. In fact, it is common knowledge that teachers play a key role in students' success: what teachers "know" has a substantial influence on what students learn. Opportunities for teachers to learn and to develop correspond to an increased likelihood that what students learn is meaningful and relevant (Hawley & Valli, 1999).

Study Limitations

The current study also has some limitations that should be mentioned. First, the data analysed derived entirely from self-report questionnaires, which increased the likelihood of common method variance effects. It would be interesting to use other-ratings in future research so as to avoid this problem. On the positive side, however, our research was based on a longitudinal design which reduced the risks of common method bias (Doty & Glick, 1998). Secondly, although we carried out a longitudinal study with three waves, the sample size was small. Hence the results of the study cannot be generalized. Furthermore, using only school-teachers restricts the generalizability of the results across other occupations. We therefore suggest that other organizational contexts should be studied.

Finally, for depersonalization and support from co-workers we found values of reliability lower than .70, which is traditionally used as a rule of thumb (Nunnally & Bernstein, 1994). However, for depersonalization, slightly α values were more often found, and on average they were similar to those obtained by other validation studies (i.e. Aluja, Blanch & Garcia, 2005; Leiter & Maslach, 1988). Moreover, insofar as

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we found relatively low reliability for co-workers support, the Job Content Questionnaire is a highly valid and reliable instrument (Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick, 1998).

Practical implications

One of the advantages of viewing burnout and engagement as processes over time is that this enables investigation of the antecedents of those constructs, particularly those associated with the school. Specification of the antecedents of burnout and work engagement in teachers has both theoretical and applied value. Specifying the variables that contribute to burnout increases theoretical knowledge of the process by which stress and burnout develop. On the other hand, specifying the variables that contribute to engagement shows how positive functioning can be advanced.

On a practical level, it is valuable for school administrations to be able to specify precisely what causes burnout, as well as work engagement. The training of school principals is also important in order to heighten their sensitivity to the emotional needs of their teachers, to provide them with effective support, and to serve as positive role models. This may lead to the development of better and more effective intervention techniques to prevent the harmful consequences of burnout, and to improve teacher engagement.

Moreover, the results of the current study, emphasize the need for intervention programs improving the opportunities to learn and to develop for teachers. Professional development programs should improve teachers' knowledge of the subject matter that they are teaching, and they should enhance their understanding of student thinking in that subject matter (Cohen & Hill, 2001). Our results suggest that this also implies highest levels on work engagement: the more opportunities to learn, the more engaged teachers. This appears very important because the positive consequence of work engagement pertain to individual health, job related attitudes, extra-role behaviors and performance (for a review see Schaufeli & Salanova, 2008).

Taken together, these findings demonstrate the usefulness of the JD-R model in understanding the mechanisms that foster well-being among Italian teachers: the reduction of job demands, and with it the prevention of burnout, and an increase in the job resources which generate higher levels of work engagement and lower ones

of burnout. Moreover, our results suggest that, particularly in the case of work engagement, the pattern of variables that predicts engaged vs non-engaged teachers are quite stable over time. From this perspective, interventions to develop job resources seem likely to give rise to improvements at school. This would be in line with the aims of Positive Psychology (Seligman & Csikszentmihalyi, 2000), whose focus is mainly on the strengths, resilience and virtues of individuals, instead of on disease, disorder, disability, and damage (Diener, 2000; Snyder & Lopez, 2002).

Final note

To conclude, our hypotheses are largely corroborated, and the results support the JD-R model, which predicts that opposite patterns of job demands and job and personal resources are associated with burnout and work engagement.

CHAPTER 4

Daily fluctuations in teachers' well-being:
A diary study using the Job Demands-Resources Model

Summary

The aim of this study was to test the between- and within-person variations with regard to both motivational and health impairment processes of the Job Demands-Resources model. A total of 61 school teachers completed a general questionnaire and a daily survey over a period of five consecutive work days. Multilevel analyses provided support for both these processes. Consistent with hypotheses, our results showed that day-level work engagement mediated the impact of day-level co-workers support on day-level job satisfaction and day-level mental health, after controlling for general levels of work engagement and outcome variables. Moreover, day-level exhaustion mediated the relationship between day-level work-family conflict, day-level social support and day-level work satisfaction, after controlling for general levels exhaustion and work satisfaction. The same happened when mental health was used as the dependent variable, after controlling again for general levels of exhaustion and mental health.

Keywords: Job Demands-Resources model, colleague support, work-family conflict, diary study, teachers.

Introduction

To date, the majority of models on occupational well-being have focused mainly on negative outcomes (e.g. burnout, ill health), neglecting positive indicators of employee well-being (Schaufeli, Bakker & Van Rhenen, in press).

However, the recently developed Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) has extended our knowledge of this phenomenon, postulating a more comprehensive approach that also includes positive aspects of well-being (e.g. work engagement). This is in line with the recent trend of so-called *Positive Psychology*: that is, the scientific study of human strengths and optimal functioning (Seligman and Csikszentmihalyi, 2000). "The aim of positive psychology is to shift the emphasis away from what is wrong with people to what is right with people" (Luthans, 2002, p. 697), focusing mainly on strengths, resilience and virtues instead of on disease, disorder, disability, and damage (Diener, 2000; Snyder & Lopez, 2002). This approach is spreading rapidly, also in organizational research (Quick & Quick, 2004; Roberts, 2006). In fact, two fields of interest have emerged: Positive Organizational Behavior (POB) and Positive Organizational Scholarship (POS). Although these fields partly overlap, the former is primarily concerned with the individual psychological states and human strengths that can influence work performance (Luthans, 2002), whereas the latter is primarily focused on the positive aspects of the organizational context, on the processes and outcomes of organizations and their members (Cameron, Dutton & Quinn, 2003).

Positive Psychology does not deny the existence of negative aspects, but it believes that an individual's normal functioning cannot be explained solely in terms of negative aspects; those, that is, which concern problems alone. In fact, an exhaustive explanation can only arise from analysis of both suffering and happiness, and from study of their interaction (Sheldon and King, 2001).

Seen in this way, the important feature of the JD-R model is that it focuses on both positive and negative antecedents, as well as on the consequences of well-being (Bakker & Demerouti, 2007).

The link between trait antecedents (i.e. general support from colleagues and supervisor, general performance feedback, general autonomy) and general outcomes (i.e. burnout, work engagement, ill health, commitment) has been consistently supported (Schaufeli & Bakker, 2004; Bakker & Demerouti, 2007). However, it is likely that work well-being is affected by at least two processes: on the one hand, by the stable characteristics of work and workers (traits or general tendencies); on the other, by specific and less stable states which may fluctuate over time (Wright, Cropanzano, Meyer, 2004). Obviously, this distinction is important from both the theoretical and practical perspectives; and in fact many researchers have called for more research on the relative contributions of state and trait measures on organizational outcomes (i.e. Wright, 1997; Wright, Cropanzano, & Meyer, 2004; Sonnentag, 2005).

This study on Italian school teachers responds to this call and investigates the relative influence of state and trait job demands and job resources (i.e. work/family conflict and colleagues' support) on some outcome variables, such as mental health and job satisfaction, mediated by burnout and work engagement respectively.

The Job Demands-Resources Model

The Job Demands-Resources Model (Bakker & Demerouti, 2007; Demerouti et al., 2001) is a heuristic and parsimonious model that specifies how health impairment (e.g. burnout) and motivation (e.g. work engagement) may be produced as a consequence of work conditions.

This model assumes that, although every occupation has its own specific work characteristics, these characteristics can be classified in two general categories: job demands and job resources. Job Demands are the physical, psychological, social, or organizational aspects of the job that require physical and/or psychological effort, and are therefore related to physiological and/or psychological costs (Demerouti et al., 2001). Job Resources are the physical, psychological, social, or organizational

aspects of the job that are functional in achieving work goals, reduce job demands and the related physiological and psychological costs, and stimulate personal growth and development (Bakker & Demerouti, 2007).

The basic premise of the JD-R model (Demerouti et al.*,* 2001) is that these two categories of work characteristics evoke two relatively independent psychological processes that determine employee well-being: (1) A *health impairment process* in which high job demands exhaust employees' mental and physical resources and may therefore lead to energy depletion (Demerouti et al., 2001). For example, specific job demands (e.g. workload, emotional demands or emotional dissonance) have been repeatedly found to predict *exhaustion* (i.e. the experience of severe fatigue) among various occupational groups (e.g. Bakker, Demerouti, & Schaufeli, 2003; Lewig & Dollard, 2003). The fact that exhaustion has been recognized as a main indicator of negative strain (Karasek, 1979) justifies the present study's exclusive focus on this particular outcome. In this study we too focus on emotional exhaustion. (2) A *motivational process* in which job resources, owing to their motivational potential, induce employees to fulfil their work goals, and in turn, may lead to work engagement (Demerouti et al., 2001; Bakker & Demerouti, 2007).

Work engagement is defined as a persistent, pervasive and positive affective-motivational state of fulfilment in employees (Schaufeli, Salanova, González-Romá, & Bakker, 2002). It consists of three dimensions: vigor (high levels of energy and mental resilience while working, willingness to invest effort in work, and persistence in the face of difficulties), dedication (being involved in one's work, sense of enthusiasm, inspiration, pride, and challenge), and absorption (being happily engrossed in one's work, whereby time passes quickly and one has difficulties detaching oneself from work) (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Although three dimensions of work engagement were originally distinguished, Schaufeli, Bakker & Salanova (2006) recommend, particularly for practical purposes, that the total score on the UWES be used as a single indicator of work engagement.

To date, the main assumptions of the JD-R model have been confirmed by cross-sectional studies, and more recently also by longitudinal studies (for a review see Bakker & Demerouti, 2007)

First, it appears that job demands and job resources can be empirically distinguished, and that they are moderately negatively correlated (e.g. Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003; Demerouti et al., 2001; Schaufeli & Bakker, 2004). Second, in regard to the health impairment process, results convincingly show that job demands are positively related to burnout (Bakker et al., 2003; Hakanen, Schaufeli & Ahola, 2008; Hakanen, Bakker, & Schaufeli, 2006; Llorens, Bakker, Salanova, & Schaufeli, 2006). Third, poor job resources are also related to burnout, although this relationship is generally weaker than the one with job demands (Bakker et al., 2003; Hakanen et al., 2006; Lewig & Dollard, 2003; Llorens et al., 2006). Fourth, there is evidence that burnout performs a mediating role in the relationship between job demands and various negative outcomes, such as organizational indicators of physical or mental ill-health (Bakker et al., 2003; Hakanen et al., 2006; Llorens et al., 2006). Fifth, in regard to the motivational process, it has been consistently found that job resources are positively related to work engagement (Hakanen et al., 2006; Llorens et al., 2006; Schaufeli & Bakker, 2004; Mauno, Kinnunen & Ruokolainen, 2007). Sixth, there is evidence for the mediating role of work engagement in the relationship between job resources and various positive indicators, like job satisfaction, commitment and good health (Hakanen et al., 2006; Llorens et al., 2006; Schaufeli & Bakker, 2004).

More recently, also the dynamic nature of the JD-R model has been tested using a diary approach and a multilevel design (e.g., Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008; Xanthoupolou, Bakker, Demerouti, & Schaufeli, 2009). For example, Xanthopoulou et al. (2008) investigated whether daily social support fostered day-levels of job performance through self-efficacy beliefs and work engagement among forty-four flight attendants. The results of multi-level analyses showed that self-efficacy did not mediate the relationship between support and engagement, but work engagement mediated the relationship between self-efficacy and performance. Furthermore, support had an indirect effect on in-role performance through engagement.

In another more recent study, Xanthopoulou et al. (2009), by introducing also the role of personal resources into the motivational process of the JD-R model, have shown that day-level job resources exert an effect on work engagement through day-level personal resources, after controlling for general levels of personal resources and engagement. Taken together, these findings provide support for the dynamic character of the motivational process of the JD-R model (Xanthopoulou et al., 2009).

However, as far as the JD-R model is concerned, these studies have focused only on the motivational process. Therefore, the present study seeks to extend knowledge about the dynamic nature of the JD-R model by considering between- and within-person variations with regard to both motivational and health impairment processes. Testing between-person fluctuations is obviously important because it describes how employees differ from each another in their general reactions to work, well-being and performance. At the same time, however, it is also important to understand why employees who are generally engaged in their job, have 'off-days', or why employees who are generally exhausted are satisfied and feel good on certain days. Perspectives that take within-person differences into account provide such information because they focus on momentary well-being, as well as on the fluctuations in job demands and job resources, which may thus differ from day to day.

The current study focuses on school teachers. There were several reasons for choosing teachers as the study group. First, teaching has been identified as a particularly stressful occupation (Chaplain, 2008; Montgomery & Rupp, 2005). A large body of research literature shows that teachers are particularly at risk of stress, and that this is an international phenomenon (e.g. Borg & Falzon, 1990; Chan, 2002; Brown, Ralph & Bember, 2002; Van Horn, Schaufeli, Greenglass & Burke, 1997; Farber, 1991; Istituto di ricerca IARD, 2000). Second, many studies have shown that teachers are also satisfied with and enthusiastic about their work (Roth, Assor, Kanat-Maymon, Kaplan, 2007; Rudow, 1999), and that they are engaged in their jobs (Simbula, Guglielmi, Schaufeli & Depolo, 2008b; Hakanen, Bakker & Schaufeli, 2006). This was a good precondition for testing both the health impairment and the motivational processes. As far as the antecedents of burnout and engagement are concerned, we choose work/family conflict as job demand and colleague support as

job resource. Work/family conflict refers to the individual's experience that joint role pressures from the work and family domains are incompatible in some respect, with the result that participation in one role is made more difficult by virtue of another role (Greenhaus & Beutell, 1985). Many studies have shown that experiencing conflict between the work and family domains can have serious negative consequences for well-being, such as burnout and depression (Allen, Herst, Bruck & Sutton, 2000). Many people believe that teaching is a profession that enables teachers to meet their work obligations without major interruptions from the family while maintaining a home that functions smoothly without significant disruptions by job demands. However, some studies that have examined the assumption regarding the ease with which teachers blend family and professional roles have reported unexpected results (Cinamon & Rich, 2005). In fact, managing these multiple responsibilities is demanding and complicated, and research has shown that many teachers are unable to separate their professional and family roles effectively (Spencer, 1986). In addition, teachers must do some of their work at home (e.g. preparing lessons for the next day, grading exams). Hence they have to devote time to their work outside school hours, sometimes sacrificing time which could instead be devoted to housework and their children.

As regards colleague support, many studies have shown that support from co-workers may be particularly important when examining the social support/burnout relationship (Halbesleben, 2006; Lee & Ashforth, 1996), as well as the relationship between support and work engagement (Schaufeli, Bakker & Van Rhenen, in press; Xanthoupolou, Bakker, Demerouti & Scahufeli, 2009). More than ever before, social support seems particularly important for Italian teachers, because it may be an important resource for coping with the changes introduced in recent years by reforms of the school system (e.g. new tasks concerning the local management of schools, appraisal of teaching performance). Seen in this way, social support could be a crucial predictor of teachers' state levels of engagement and job satisfaction or, when lacking, a predictor of teachers' state levels of exhaustion and mental ill health.

Purpose of the Current Study

Based on our theoretical analysis, the main objectives of this study are to take a relatively new approach to researching burnout and work engagement and to testing the validity of the main assumptions of the JD-R model, using a daily diary method.

More specifically, the following hypotheses are formulated:

H1: Day-level work engagement mediates the relationship between day-level co-workers support and day level job satisfaction (H1a) and day-level mental health (H1b), after controlling for general levels of work engagement, work satisfaction and mental health.

H2: Day-level exhaustion mediates the relationship between day-level work/family conflict (H2a), day-level co-workers support (H2b) and day level job satisfaction, after controlling for general levels of exhaustion and work satisfaction.

H3: Day-level exhaustion mediates the relationship between day-level work/family conflict (H3a), day-level co-workers support (H3b) and day-level mental health, after controlling for general levels of exhaustion and mental health.
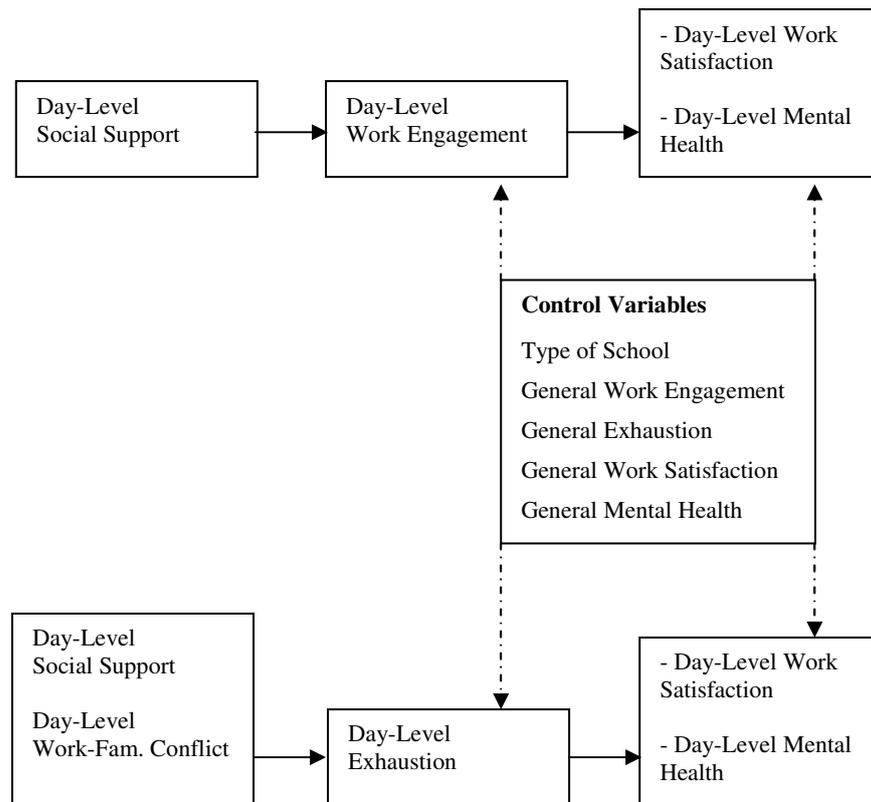
Figure 1. Model of study variables. Solid lines denote hypothesized effects. Dotted lines denote effects of control variables.

Method

Procedure and Participants

The recruitment of participants began with the principals of the schools contacted. After the management had expressed its willingness to participate, 425 teachers received a paper-and-pencil general questionnaire and a return envelope at their school. The questionnaire was accompanied by a letter, signed by the coordinator of the University research unit, which explained the general aim of the study and stressed that the answers would be anonymous. In total, 236 teachers participated (a response rate of 55.5%). The teachers were requested to fill out the questionnaire within ten days from its delivery and to post it in a special box at their school, to guarantee completely privacy. The questionnaires were processed by the research team alone.

These 236 teachers were then asked to take part in a diary survey. Eighty-nine teachers agreed to participate (response rate 37.7%). They therefore received a package including a diary booklet, instructions on how to complete the diary, and a return envelope. The teachers were instructed to fill in the diary for five consecutive workdays, at the end of the day.

The teachers were asked to fill in a personal code on the questionnaire and the diary booklet. The participants' anonymity was thus assured and the university researchers were able to match the questionnaires and the diaries for each participant. A total of 61 diaries were returned (response rate 68.5%). The total sample comprised 54 (88.5%) women and 7 (11.5%) men. 56% were married. 23% of the teachers were aged under 36, 39% were aged between 36 and 50, and 38% were aged over 50. Most respondents had considerable length of service: in fact, 47% of them had over 20 years of teaching experience. On average, participants worked 30.2 h per week (S.D.=8.8). The teachers worked in three types of school: 33% in elementary schools; 27% in lower-secondary and 40% in upper-secondary schools.

Data analysis

Each study participant provided data at two levels: at the person level (e.g. general work engagement, demographic and biographical variables) and at the day level (e.g. day-level work engagement, day-level co-workers support), with the day-level data being nested within the person-level data. Multilevel analysis with the MlwiN program (Rashbash, Browne, Healy, Cameron & Charlton, 2000) was used to analyze the data. In these analyses, predictor variables at the person level (general or trait) were level-2 data, and predictor variables at the day-level were level-1 data. First-level predictor variables were centered on the respective person mean, whereas second-level variables were centered on the grand mean.

When investigating the effects of predictors on specific outcomes, it should be borne in mind that additional factors may impact on these variables. Demographic

factors, in particular, may have an effect on exhaustion and mental health, as well as on work engagement and job satisfaction.

However, none of the demographic characteristics were significant predictors of dependent variables. They were therefore excluded from further analyses. However, the type of school (i.e. two dummy variables) in which the teachers were employed was significantly related to day-level work engagement (dummy 1: $t=2.25$, $p<.05$; dummy 2: $t=2.37$, $p<.05$), to day-level work satisfaction (dummy 1: $t=3.48$, $p<.001$; dummy 2: $t=2.12$, $p<.05$), and to day-level mental health (dummy 1: $t=-3.19$, $p<.01$; dummy 2: $t=.98$, $p=ns$). We therefore controlled for this variable.

Moreover, an individual's work engagement or exhaustion on a specific day may not be solely the result of that individual's state of predictors (e.g. co-workers support or work-family conflict) on that specific day. Also the individual's general tendency to exhibit work engagement or exhaustion may affect work engagement or exhaustion on that specific day. The same applies to job satisfaction and mental health (e.g. being satisfied on a specific day may be substantially influenced by the individual's general tendency to be satisfied). In order to test the effect of support and work/family conflict above and beyond the effects of the trait aspects of work engagement and satisfaction, we controlled for these trait aspects in the analyses.

Measures

Questionnaire data

General Work Engagement was assessed with the nine-version of the UWES (Schaufeli, Bakker & Salanova, 2006; Simbula, Guglielmi, Depolo & Schaufeli, 2008). The UWES items were grouped into three subscales reflecting the three underlying dimensions of work engagement: Vigor was measured with three items (e.g. "At my work, I feel strong and vigorous"), Dedication with three items (e.g. "I'm enthusiastic about my job") and Absorption was again measured with three items (e.g. "When I am working, I forget everything else around me"). We followed Schaufeli et al.'s (2006) recommendation and computed an overall engagement

factor score of the UWES (α=.91) which we used in the analyses. All items were scored on a 7-point frequency rating scale ranging from 0 ("never") to 6 ("always").

General Emotional Exhaustion was measured with a subscale of the MBI-Educator Survey (Maslach, Jackson & Schwab, 1996). The exhaustion scale included 9 items referring to severe fatigue (α=.91). A sample item is: "I feel emotionally drained from my work". Items were scored on a 7-point frequency scale ranging from "0" (never) to "6" (always).

General Co-workers Support was measured with the four-item Social Support Scale of the Job Content Instrument (Karasek, 1985). Sample item "People I work with take a personal interest in me" (α=.73). Responses were given on a 4-point Likert scale ranging from 1 ("strongly disagree") to 4 ("strongly agree").

General Work/Family Conflict was measured with three self-constructed items assessed on a 5-point frequency scale ranging from 1 ("never") to 5 ("very often"). An example item is: "Anxieties about work interfere with my ability to satisfy the needs of my family" (α=.82).

General Job satisfaction was assessed with a single item (Wanous, Reichers & Hudy, 1997). The statement was "Overall, how satisfied are you with your job?", which was scored on a 5-point scale ranged from 1 ("totally unsatisfied") to 5 ("totally satisfied").

General Mental health was assessed with the General Health Questionnaire-12 (Goldberg, 1992). This scale asks whether the respondent has recently experienced a particular symptom or behavior. An example item is: "Have you recently felt constantly under strain?". Each item is rated on a 4-point scale ranging from 0 to 3, where higher scores indicate worse perceived health (α=.82).

The daily survey assessed day-level measures of work engagement, emotional exhaustion, colleague support, work/family conflict, job satisfaction and mental health on a specific day. All day-level measures were rated on a 7-point scale ranging from 1 ("I totally disagree") to 7 ("I totally agree"). Since diary studies need to limit the number of items from the original scale, the selection of items was based on their face validity.

Day-level work engagement was measured with five adapted items of the UWES (Schaufeli et al., 2006; Simbula et al., 2008). We included two items for vigor (e.g. "Today, I was bursting with energy while working"), one item for dedication (e.g. "Today, my job inspired me") and two items for absorption (e.g. "Today I was completely immersed in my work"). We computed an overall work engagement factor score for each of the five days. Cronbach's alphas across the five days ranged from .68 and .80 (M=.73).

Day-level Emotional Exhaustion was assessed with three adapted items (e.g. "Today, I felt emotionally drained from my work ") of the Emotional exhaustion subscale of the MBI-Educator Survey (Maslach, Jackson & Schwab, 1996). Cronbach's alphas ranged from .69 and .79 (M=.75).

Day-level Colleague Support was measured with the item "Today, people I work with were collaborated in getting the job done", which was adapted from the colleague support scale developed by Karasek (1985).

Day-level Work/Family Conflict was assessed with two items (e.g. "Today, anxieties about work have interfered with my ability to satisfy the needs of my family") adapted from the general scale described above. Cronbach's alphas across the five days ranged from .82 and .93 (M=.88).

Day-level Job Satisfaction was again assessed with a single item (Wanous, Reichers & Hudy, 1997). The statement was "Overall, how satisfied were you today with your job?"

Day-level Mental Health was assessed with four adapted items (e.g. "Today, I felt I couldn't overcome my difficulties") of the General Health Questionnaire-12 (Goldberg, 1992). Cronbach's alphas across occasions ranged from .72 and .82 (M=.77).

Results

Descriptives

The means, standard deviations and correlations for all study variables are presented in Table 1. All significant relationships between the variables were in the expected direction.

Table 1
Descriptive Statistics, Internal Consistencies and Correlations among Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. General Exhaustion	1.89	1.26	-											
2. General Engagement	4.36	.93	-.53**	-										
3. General Mental Health	.89	.37	.40**	-.42**	-									
4. General Satisfaction	3.78	.84	-.68**	.56**	-.32*	-								
5. General W-F Conflict	2.28	.95	.61**	-.17	.34**	-.37**	-							
6. General Coll. Support	3.16	.46	-.45**	.27*	-.13	.33*	-.27*	-						
7. Day-Lev. Exhaustion	3.12	1.26	.66**	-.24	.17	-.33*	.47**	-.41**	-					
8. Day-Lev. Engagement	4.93	.87	-.36*	.65**	-.23	.36*	-.10	.21	-.28	-				
9. Day-Lev. Mental Health	2.49	.87	.46**	-.38**	.28	-.57**	.27	-.27	.65**	-.49**	-			
10. Day-Lev. Satisfaction	5.29	.98	-.41**	.44**	-.29*	.56**	-.15	.21	-.37**	.67**	-.65**	-		
11. Day-Lev. W-F Conflict	3.20	1.62	.43**	-.09	.14	-.23	.46**	-.21	.74**	.01	.54**	-.23	-	
12. Day-Lev. Coll. Support	5.31	1.35	-.19	.07	.07	.22	-.03	.49**	-.34*	.20	-.53**	.35**	-.32*	-

Notes: **p<.01; *p<.05; First-level data was average across five days

Fluctuation over time

Before testing the hypotheses, we examined the proportion of variance attributed to the two levels of analysis. To this end, we calculated the intra-class correlation coefficient (ρ) for each day-level variable. Results showed that 69% of variance in work/family conflict and 58% in co-workers support was attributable to between-person variations. Furthermore, 62% of the variance in work engagement and 61% in exhaustion was attributable to between-person variations. Finally, 46% of the variance in day-level mental health and 49% in day-level work satisfaction was attributable to between-person variations. This means that significant amounts of variance were left to be explained by within-person variation, which highlights the importance of using a multi-level approach.

Tests of the hypotheses

Work Engagement as a Mediator

Hypothesis H1 stated that day-level co-workers support has a positive effect on day-level satisfaction (H1a) and a negative effect on day-level mental health (H1b) through the mediation of day-level work engagement.

This hypothesis was tested using Baron and Kenny's (1986) procedure, which specifies that three conditions need to be fulfilled to establish mediation: first, the predictor should be related to the mediator; second, the mediator should be related to the outcome; and third, the previously significant relationship between the predictor and the outcome should become non-significant (full mediation) or significantly weaker (partial mediation) after inclusion of the mediator. Moreover, in order to examine the significance of the mediating effects, the Sobel test was used.

Multilevel analyses supported all prerequisite conditions for testing mediation. In fact, colleague support was significantly related to both work engagement (t=5.29, p<.001) and work satisfaction (t=3.93, p<.001) as well as to mental health (t= 5.04, p<.001). The second condition was also fulfilled, because day-level work engagement was significantly related with day-level work satisfaction (t=7.03, p<.001) and day-level mental health (t=-9.96, p<.001).

To test hypothesis H1a, we examined the four nested models presented in Table 2. In the Null Model the intercept was the only predictor. In Model 1, we entered the type of school (Level 2) and the trait component of work satisfaction and work engagement (Level 2) as predictors. In Model 2, we entered day-level co-workers support. Finally, in Model 3, we entered day-level work engagement. To test the improvement of each model with respect to the previous one, we computed the difference between the respective likelihood ratios. This difference follows a chi-square distribution, with df=number of new parameters added to the model (Hox, 2002).

Table 2 shows that the inclusion of day-level work engagement in Model 3 significantly decreased the magnitude of the relationship between co-workers support and work satisfaction. Moreover, application of the Sobel test indicated that this partial mediating effect was significant ($z = 4.02$, $p<.001$). Furthermore, compared to previous models, Model 3 showed the best fit, since its value of deviance was significantly lower ($\Delta - 2*log=40.72$, $p<.001$). This means that work engagement partially mediated the relationship between colleague support and work satisfaction.

The same procedure was followed for day-level mental health as the dependent variable. Model 3 in Table 3 displays the results. After day-level work engagement was entered, day-level co-workers support showed a significantly lower impact on mental health ($z = 4.52$, $p<.001$). Again, Model 3 showed a significant improvement over the previous model ($\Delta - 2*log=68.20$, $p<.001$). Thus, work engagement also partially mediated the relationship between colleague support and mental health.

Taken together, the above results provide some support for hypotheses H1a and H1b.

Table 2

Multilevel Estimates for Models Predicting Day-Level Work Satisfaction: Day-Level Work Engagement as Mediator

Model	Null			1			2			3		
Variables	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	5.311	0.128	41.492	4.989	0.176	28.347	4.989	0.176	28.347	4.986	0.177	28.169
Type school (dummy 1)				0.618	0.259	2.386*	0.618	0.259	2.386*	0.635	0.261	2.433*
Type school (dummy 2)				0.482	0.286	1.685	0.483	0.286	1.689	0.485	0.287	1.690
General Satisfaction				0.383	0.159	2.409*	0.384	0.159	2.415*	0.383	0.160	2.394*
General Work Engagement				0.163	0.139	1.173	0.162	0.139	1.165	0.165	0.140	1.179
State Colleague Support							0.228	0.059	3.864***	0.130	0.057	2.281*
State Work Engagement										0.576	0.093	6.194***
-2 * log		899.706			750.938			736.559			695.840	
Δ - 2* log					148.77***			14.38***			40.72***	
df					4			1			1	
Level 1 (whitin-person) variance	0.858	0.079		0.780	0.076		0.728	0.071		0.611	0.060	
Level 2 (between-person) variance	0.821	0.182		0.458	0.120		0.468	0.121		0.501	0.122	

Notes: *p<.05; p***<.001

Table 3

Multilevel Estimates for Models Predicting Day-Level Mental Health: Day-Level Work Engagement as Mediator

Model	Null			1			2			3		
Variables	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	2.499	0.114	21.921	2.811	0.174	16.155	2.810	0.173	16.243	2.801	0.173	16.191
Type school (dummy 1)				-0.711	0.255	-2.788**	-0.709	0.255	-2.780**	-0.700	0.255	-2.745**
Type school (dummy 2)				-0.099	0.269	-0.368	-0.098	0.268	-0.366	-0.092	0.268	-0,343
General Mental Health				0.054	0.315	0.171	0.054	0.315	0,171	0.069	0.314	0.220
General Work Engagement				-0.281	0.132	2.129*	-0.281	0.132	2.129*	-0.278	0.132	-2,106*
State Colleague Support							-0.281	0.057	4.930***	-0.128	0.052	-2.462*
State Work Engagement										-0.679	0.078	-8.705***
-2 * log		831.748			741.431			718.566			650.371	
Δ - 2 * log					90.32***			22.87***			68.20***	
df					4			1			1	
Level 1 (whitin-person) variance	0.734	0.069		0.794	0.079		0.711	0.070		0.521	0.052	
Level 2 (between-person) variance	0.628	0.143		0.430	0.116		0.446	0.116		0.485	0.115	

Notes: *p<.05; **p<.01; ***p<.001

Hypothesis H2 stated that the effect of work/family conflict (H2a) and colleague support (H2b) on work satisfaction is mediated by emotional exhaustion. Again, we first tested the impact of the predictors (work/family conflict and colleague support) on the mediator (exhaustion) and on the outcome (work satisfaction). As expected, work/family conflict was positively related to exhaustion (t=7.94, p<.001) and negatively related to satisfaction (t=-3.81, p<.001), whereas co-workers support was negatively related to exhaustion (t=-3.28, p<.01) and positively related to satisfaction (t=3.21, p<.01). Second, also the impact of exhaustion on satisfaction was significant (t=-8.35, p<.001).

To test the third condition, day-level emotional exhaustion was added to all control variables and to day-level predictors (work/family conflict and colleague support) in the multilevel model. Table 4 shows that, after day-level exhaustion was entered as additional predictor variable (Model 3), the model fit improved (Δ-2*log=40.75, p<.001). Furthermore, the relationship between work/family conflict and satisfaction turned into non-significance (z=4.86, p<.001), supporting hypothesis H2a, whereas the magnitude estimate of the co-workers support significantly decreased (z=2.89, p<.01), partially corroborating hypothesis H2b.

Finally, the same procedure as described above was adopted for day-level mental health as the dependent variable (H3). As the test of Hypothesis 2 showed, the first condition was met. Additional analyses showed that the second condition was also fulfilled, since exhaustion was a significant predictor of mental health (t=10.28, p<.001).

Table 5 shows that the inclusion of day-level exhaustion in Model 3 significantly decreased the magnitude of the relationship between co-workers support and mental health (z=3.00, p<.01) and turned the previous significant relationship between work/family conflict and mental health into non-significance (z=5.41, p<.001). Again, Model 3 was the model which best fitted the data, since its value was significantly lower (Δ – 2*log=53.09, p<.001) compared to the previous models.

Thus, exhaustion partly mediated the colleague support/mental health relationship and fully mediated the work/family conflict/mental health relationship, providing support for hypotheses H3a and H3b.

Table 4

Multilevel Estimates for Models Predicting Day-Level Work Satisfaction: Day-Level Emotional Exhaustion as Mediator

Model	Null			1			2			3		
Variables	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	5.311	0.128	41.492	5.013	0.179	28.006	5.010	0.180	27.833	5.022	0.182	27.593
Type school (dummy 1)				0.647	0.270	2.396*	0.651	0.272	2.393*	0.642	0.274	2.343*
Type school (dummy 2)				0.407	0.282	1.443	0.413	0.285	1.449	0.401	0.287	1.397
General Work Satisfaction				0.393	0.197	1.995*	0.384	0.198	1.939	0.376	0.200	1.88
General Exhaustion				-.0.070	0.123	-0.569	-0.075	0.124	-0.605	-0.075	0.126	-0.595
State Work-Family Conflict							-0.211	0.054	-3.907**	-0.049	0.057	-0.860
State Colleague Support							0.190	0.059	3.220**	0.118	0.056	2.107*
State Exhaustion										-0.412	0.067	-6.15***
-2 * log		899.706			737.781			702.305			661.558	
Δ - 2 * log					161.93***			35.48***			40.75***	
df					4			2			1	
Level 1 (whitin-person) variance	0.858	0.079		0.784	0.078		0.682	0.068		0.575	0.058	
Level 2 (between-person) variance	0.821	0.182		0.494	0.130		0.523	0.130		0.555	0.133	

Notes: *p<.05; **p<.01; ***p<.001

Table 5

Multilevel Estimates for Models Predicting Day-Level Mental Health: Day-Level Emotional Exhaustion as Mediator

Model	Null			1			2			3		
Variables	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	2.499	0.114	21.921	2.775	0.169	16.420	2.768	0.170	16.282	2.749	0.168	16.363
Type school (dummy 1)				-0.673	0.260	2.588**	-0.669	0.261	-2.563*	-0.647	0.258	-2.508*
Type school (dummy 2)				-0.134	0.259	0.517	-0.135	0.261	0.517	-0.116	0.258	-0.450
General Mental Health				-0.024	0.316	0.076	-0.036	0.318	-0.113	-0.033	0.315	-0.105
General Exhaustion				0.259	0.091	2.846**	0.258	0.091	2.835**	0.255	0.090	2.833**
State Work-Family Conflict							0.275	0.052	5.288***	0.087	0.052	1.673
State Colleague Support							-0.226	0.055	-4.11***	-0.124	0.051	-2.431*
State Exhaustion										0.450	0.061	7.377***
-2 * log		831.748			728.247			676.242			623.154	
Δ - 2 * log					103.501***			52.005***			53.088***	
df					4			2			1	
Level 1 (whitin-person) variance	0.734	0.069		0.813	0.081		0.641	0.065		0.481	0.115	
Level 2 (between-person) variance	0.628	0.143		0.418	0.116		0.462	0.117		0.498	0.050	

Notes: *p<.05; **p<.01; ***p<.001

Discussion

The aim of this study has been to test between- and within-person variations with regard to both motivational and health impairment processes of the JD-R model. Indeed, several authors have stressed the importance of learning more about how individuals deal with their health and health status deviations in everyday situations (Sonnentag, 2005). To date, previous empirical studies on stress have focused mainly on between-person relationships, sometimes neglecting within-person processes (Conway & Briner, 2002). The same applies to the JD-R, with the exception of two studies (Xanthoupolou et al., 2008, 2009), which, however, have focused only on the so-called motivational process.

Our findings confirm the dynamic character of both motivational and energetic processes. Indeed, as expected (H1a), day-level co-workers support enhanced day-level work satisfaction through the mediation - albeit partial - of day-level work engagement, after controlling for general levels of work satisfaction and work engagement. Furthermore day-level work engagement also partially mediated the relationship between day-level co-workers support and mental health, after controlling for general levels of mental health and work engagement, thus supporting hypothesis H1b. This means that, in line with the findings of Xanthoupolou and colleagues (2008), social support acts as important job resource for school teachers as well, because, in spite of its fluctuation from day to day, is related to work engagement, as well as to work satisfaction and to mental health. Furthermore, we have controlled for general levels of our outcome variables. This is important because many longitudinal studies have verified cross-lagged effects without considering the baseline levels of those variables. In a longitudinal study among teachers, Lorente, Salanova, Martinez & Schaufeli (2008) showed that future levels of burnout and work engagement were predicted by the burnout and engagement presented at the beginning of the academic year.

Our results allow us to conclude that, regardless of general levels of work engagement and the other outcome variables (i.e. job satisfaction and mental health) and regardless of the fact that levels of support may vary from day to day, the support of colleagues has an impact on these variables. Thus, teachers who receive

adequate support from colleagues are more likely to be engaged in their work, and in turn they are also more satisfied and enjoy better health (Halbesleben, 2006).

It is evident that in a period like the present one marked by frequent episodes of violence and bullying in schools, and in which numerous changes have been introduced by education reforms, teachers have been placed under severe strain. Thus, sharing problem-solving efforts with colleagues may help teachers feel more engaged, more motivated, and better able to cope with difficulties.

Moreover, in an age when the school and the family seem to be strongly detached from each other, in which each gives the other responsibility for the education of children and students, it may be of interest for future research to investigate also the support provided by pupils' parents, so that a synergy is created between school and family which, besides fulfilling the educational mission, also enables the better integration of different realities (e.g., immigration, disability).

In regard to the health impairment process, our results again confirm hypotheses (H2, H3). Firstly, day-level exhaustion is positively predicted by day-level work/family conflict and negatively by day-level colleagues support. As in previous studies, the relationship between poor job resources and exhaustion is weaker than the one with job demands (Bakker et al., 2003; Hakanen et al., 2006; Lewig & Dollard, 2003; Llorens et al., 2006; Schaufeli & Bakker, 2004).

Furthermore, day-level exhaustion mediates the relationship between day-level work-family conflict, day-level social support and day-level work satisfaction, after controlling for general levels of work satisfaction and exhaustion. More specifically, after the inclusion of exhaustion in the multilevel model, the relationship between work/family conflict and satisfaction turned into non-significance, supporting hypothesis H2a, whereas the magnitude estimate of the co-workers support significantly decreased, partially corroborating hypothesis H2b. The same happened when mental health was used as the dependent variable, thus supporting hypotheses H3a and H3b.

Therefore, teachers who were unable to separate their professional and family roles effectively were more likely to be exhausted, and in its turn this negatively affected their work satisfaction as well as their mental health. This is in line with earlier findings of Sonnentag (2001) who, in a multilevel study among Dutch

teachers, showed that work-related activities pursued at home had a negative impact on individual's situational well-being. We agree with Sonnentag (2001) that this is particularly important in the contemporary age, in which the widespread use of technologies (e.g. mobile telephones, electronic mail) enables individuals to keep in touch with work while at home and renders the boundaries between work and non-work time increasingly permeable.

Social support also played a crucial role in the health impairment process: that is, lack of support from colleagues enhanced exhaustion which in turn had a negative impact on both work satisfaction and mental health.

The analyses revealed significant relationships even after controlling for third variables (e.g. type of school, general levels of outcomes variables), indicating the robustness of our findings. By controlling for the trait aspects, this study has also controlled for a potential social desirability bias (Sonnentag, 2001).

Our results therefore showed that teachers were more engaged on days characterized by high job resources (i.e. colleagues support), whereas they were more exhausted on days characterized by high job demands (i.e. work/family conflict) and low job resources (i.e. colleagues support).

Limitations

This study has some limitations. First, it only focuses on school-teachers, which restricts the generalizability of the results across other occupations. We therefore suggest that other organizational contexts should be studied in future research.

Second, the data analysed derived entirely from self-report questionnaires, which increased the likelihood of common method variance effects. It would be interesting to use other-ratings in future research so as to avoid this problem.
Third, we focused on only one indicator of job demand (i.e. work/family conflict) and on one indicator of job resource (i.e. colleague support). However, this was also made necessary by exigencies to do with the diaries. Indeed, in order to avoid repeated queries and responses, which make substantial demands on participants, investigators usually design diary instruments that are short and take several minutes to complete (Bolger, Davis & Rafaeli, 2003).

Finally, we measured colleague support with only one item. This may be problematic to the extent that single-item measures are usually more susceptible to errors than multi-item measures. Thus, we recommend that future research should use multi-item scales in order to increase the internal consistency of the tests.

Final note and directions for future research

The current study has extended previous research on JD-R model and confirmed findings from earlier cross-sectional, longitudinal and also diaries studies which supported the model's main assumptions (Bakker & Demerouti, 2007).

Our results suggest that our predictor variables have short-term effects on some outcomes (i.e. burnout, work engagement, satisfaction, mental health), but it would be also interesting to investigate whether specific job demands, job and also personal resources, can have also positive long-term consequences on these and/or on other outcome variables. From this perspective, longitudinal studies that cover longer time periods are needed. Hence we suggest that future research should integrate different theoretical and methodological approaches in order to gain better understanding of the dynamic and multifaceted nature of well-being at work.

GENERAL DISCUSSION

Burnout has been a major topic in occupational health psychology for the past three decades (Maslach, Leiter & Schaufeli, 2008), and work engagement, presumed to be burnout's opposite, recently gained increasing attention (Schaufeli & Salanova, 2008; Bakker & Demerouti, 2008). This is in line with the so-called Positive Psychology (Seligman & Csikszentmihalyi, 2000) that focuses on human strengths and optimal functioning, rather than on disease, disorder, disability, and damage (Diener, 2000; Snyder & Lopez, 2002).

As illustrated in the present dissertation, the most commonly used theoretical model in research on burnout and work engagement is the Job Demands-Resources Model (JD-R, Demerouti et al., 2001; Bakker & Demerouti, 2007).

The Job JD-R Model is a heuristic and parsimonious model that specifies how health impairment (e.g. burnout) and motivation (e.g. work engagement) may be produced as a consequence of work conditions, namely *job demands* and *job resources*. The basic premise of the JD-R model (Demerouti et al.*,* 2001) is that these two categories of work characteristics evoke two relatively independent psychological processes that determine employee well-being. First, a health impairment process that is primarily energetic: through long term exposure to job demands, one may get burned-out. Second, a motivational process in which it is assumed that the presence of job resources enhances the willingness to invest effort in one's job, which may lead to work engagement.

Although there is substantial empirical support for the JD-R model's main assumptions, there are still certain points that need to be addressed (Bakker & Demerouti, 2007).

In light of these considerations, the central aims of this dissertation were to give a significant contribution to the theoretical development of the JD-R model, by (a) exploring the function of personal resources in the model, (b) testing the JD-R model in a longitudinal way, and by (c) examining both the health impairment and motivational processes under changing conditions, using a diary study. Before addressing these concerns, it was important to examine some important open issues regarding the psychometric properties of the instruments used to measure burnout

and work engagement: these are, the Maslach Burnout Inventory (MBI) and the Utrecht Work Engagement Scale (UWES), respectively.

Chapter 1 intended therefore to examine the two components of the MBI considered most *challenging*. Specifically, on the one hand, it aimed to investigate the role of efficacy beliefs using negatively worded inefficacy items instead of positive ones; on the other, it intended to verify the existence of both kinds of mental distance – depersonalization and cynism – among teachers, by adding also the cynism scale to the three traditional burnout dimensions. Our results showed that compared with efficacy beliefs inefficacy beliefs related more strongly to the other burnout dimensions. Moreover, using partial disaggregation method, we found a better fit for the four-factor model with separate depersonalization and cynism dimensions, than for the three-factor model in which depersonalization and cynism were collapsed into one factor.

Chapter 2 aimed (1) to investigate the factor structure and the stability of the original 17-item and a recently developed short 9-item versions of the Utrecht Work Engagement Scale (UWES) in a sample of Italian school teachers; and (2) to classify teachers on the basis of their work engagement levels and to determine whether engaged teachers differ from their less engaged colleagues in terms of job- and personal resources (i.e. possibilities for personal development, work-life balance, and self-efficacy), positive organizational attitudes and behaviours (i.e., job satisfaction and organizational citizenship behaviour) and perceived health. Our findings produced new knowledge about the psychometric properties of the Italian version of the UWES, as well as the characterization of engagement profiles.

Indeed, and in line with previous studies on work engagement (see Schaufeli & Bakker, 2003; Schaufeli et al. 2006), confirmatory factor analyses supported the superiority of the proposed three-factor structure of both versions of the UWES (vigor, dedication, and absorption), as opposed to alternative one factor. Moreover, our findings provided empirical support for the internal consistency and stability of the UWES. Finally, our findings suggested a strong relationship between work engagement and job resources. In particular, teachers who were more engaged found

it more easy to take advantage of opportunities provided by the work situation. As expected, teachers who felt more engaged also showed more self-efficacy beliefs, which is in line with the hypothesised "upward spiral" (Llorens et al., 2007; Salanova et al., 2005). Moreover, considering a particular organizational citizenship behaviour such as altruism, our results were in line with previous findings concerning the link between engagement and positive organizational behavior, that suggest that engaged workers seem to be willing to "go the extra mile" (Salanova & Schaufeli, 2008). Finally, teachers who felt more engaged seemed to be more satisfied with their jobs and seemed to enjoy better mental health.

Chapter 3 aimed to test the Job Demands-Resources model in a longitudinal way by testing the impact of a variety of job demands, job and personal resources that discriminate teachers who experience burnout from those who do not, as well as teachers who experience work engagement from those who do not. Our findings demonstrated the usefulness of the JD-R model in understanding the mechanisms that foster well-being among Italian teachers: the reduction of job demands (i.e. emotional dissonance, work-family conflict, inequity) and with it the prevention of burnout, and an increase in the job and personal resources (learning opportunities, supervisor support, self-efficacy) which generate higher levels of work engagement and lower ones of burnout. Moreover, our results suggest that, particularly in the case of work engagement, the pattern of variables that predicts engaged vs non-engaged teachers are quite stable over time. This means that a particular constellation of job demands and job and personal resources measured at the beginning of the academic year predict high/low levels of burnout and engagement over time, that is, four and eight months later.

Finally, Chapter 4 intended to investigate the dynamic character of the JD-R model, by testing between- and within-person variations with regard to both motivational and health impairment processes of the JD-R model, using a diary study and a multilevel design. Our findings supported both these processes. Indeed, as expected, day-level co-workers support enhanced day-level work satisfaction through the mediation - albeit partial - of day-level work engagement, after controlling for general levels of work satisfaction and work engagement. Furthermore day-level

work engagement also partially mediated the relationship between day-level co-workers support and mental health, after controlling for general levels of mental health and work engagement. With regard to the health impairment model, as expected, day-level exhaustion mediates the relationship between day-level work-family conflict, day-level social support and day-level work satisfaction, after controlling for general levels of work satisfaction and exhaustion. The same happened when mental health was used as the dependent variable. Our results therefore showed that teachers were more engaged on days characterized by high job resources (i.e. colleagues support), whereas they were more exhausted on days characterized by high job demands (i.e. work/family conflict) and low job resources (i.e. colleagues support).

Limitations

Some limitations of the present dissertation should also be mentioned. Firstly, all studies only used self-reported data, which raises questions of a common method bias. This is a recurrent issue in research on work and organizational psychology (Spector, 1992; Coyne, 1994). On the positive side, however, one study was based on a longitudinal design and another on a multilevel one, which reduced the risks of common method bias (Doty & Glick, 1998).

A second limitation is the relatively small sample size employed to generalize the results obtained in the longitudinal study. Indeed, although we carried out a longitudinal study with three waves, the sample size was small, being of 108 subjects.

Thirdly, our data consisted only of school-teachers, which restrict the possibility to generalize the results across other occupations. Finally, all teachers who participated in the studies came from Italy, that is no heterogeneity in the samples was included, and this fact limits the generalization of the results. Therefore, for future research more samples of different occupations and proceeding from different cross-cultural scenarios would be needed in order to generalize the power of the findings.

Conclusion and avenues for future research

In conclusion, what do these findings indicate? In line with the first aim of this dissertation, our results suggest that the MBI-ES is a suitable tool with which to examine burnout among teachers. However, the use of the inefficacy dimension rather than the efficacy one, and the addition of the cynism dimension, improves the measurement. Indeed, our findings have both theoretical and applied value, because they suggest that cynism and depersonalization each contribute in a distinct way to the burnout syndrome. This corroborates the idea that teachers have different types of mental distancing (Abraham, 2000): for example, distancing from pupils, from work, from colleagues, and distancing from the organization. We have been able to identify at least two types of distancing in our study, but future research should pay closer attention to this particular aspect in order to yield a broader view of teacher burnout.

With regard to the second aim, our results show that the UWES can be used in Italy among teachers for assessing and monitoring levels of engagement. In particular, we suggest using the shortened nine-item version, considering also that short questionnaires decrease the likelihood of respondent attrition. Consistent with previous studies (see Schaufeli & Salanova, 2008), our results indicate that engagement is positively related to job- and personal resources, organizational attitudes and behaviours, and perceived health. As a consequence, it is evident that work engagement is not only important for individual employees, but also for organizations. Thus, schools could increase the most important job resources for teachers (e.g., learning and development opportunities), so that engagement and eventually positive organizational attitudes and behaviours are fostered.

As far as the third aim is concerned, it appeared that personal resources (i.e. self-efficacy) play a role in both motivational and health impairment processes, also when they are considered in a longitudinal way. However, in this dissertation we took into account only self-efficacy as a personal resource. We believe that future studies should contemplate not only self-efficacy but also other personal resources (e.g., optimism, ability to recover and emotional competence). Moreover, it would be interesting to consider also the other side of the coin, that is to introduce personal risk factors as predictors of burnout and work engagement. For example, personality

characteristics like workaholism, perfectionism and emotional instability could be relevant personal risk factors to be studied in future research.

With regard to the fourth aim, our results support the validity of the JD-R model over time, which predicts that opposite patterns of job demands and job and personal resources are associated with burnout and work engagement. Particularly, our findings have an important practical implication: in fact, in this dissertation we have often noted that teaching has consistently been ranked as a high stress job (Borg, Riding, & Falzon, 1991; Travers & Cooper, 1996). Many studies in several countries have focused on the determinants and consequences of teacher stress and burnout (Byrne, 1999; Kyriacou, 2001). In line with the JD-R model, rather than focusing on individual factors to increase teachers' health and well-being, prevention programmes should target workplaces factors. On the one hand, they should be aimed at decreasing job demands in order to prevent burnout and ill health. Indeed, our results showed that, apart from the importance of job resources, job demands are crucial initiators of negative outcomes (e.g. exhaustion, ill health). Thus, from a preventive point of view the initial concern of school management should be the reduction of job demands.   However, reducing job demands is not always possible. Thus, on the other hand, they should be aimed at increasing job resources in order to offset the effect of job demands on burnout (Bakker, Hakanen, Demerouti & Xanthopoulou, 2007) but also to promote engagement and positive organizational and individual outcomes, in line with the aims of Positive Psychology. From this perspective it would be interesting and important to test the hypothesis that fostering engagement goes beyond preventing burnout (Bakker & Demerouti, 2008).

Finally, our results support also the dynamic nature of both the health impairment and the motivational processes of the JD-R model. This means that, as far as these processes are concerned, not only are important the between-person variations, but so are the within-person variations. Thus, school management should promote strategies and intervention programs that aim to constantly (i.e. daily perspective) reduce job demands and enhance job resources, rather than merely relying on general interventions.

As our findings show that our predictor variables (job demands and job resources) have short-term effects on some outcomes (e.g. burnout, work

engagement, satisfaction, and mental health), it would also be interesting to investigate whether specific job demands, job and personal resources, can also have positive long-term consequences on these and/or other outcome variables. From this perspective, in this dissertation we have carried out in a profitable way either a longitudinal and a diary study, but we suggest that future research should integrate in a single study different theoretical and methodological approaches in order to gain a better understanding of the dynamic and multifaceted nature of well-being at work.

REFERENCES

Abraham, R. (1998*).* Emotional dissonance in organizations: Antecedents, consequences and moderators. *Genetic, Social, and General Psychology Monographs*, *124*, 229-246.

Abraham, R. (2000). Organizational cynism: Bases and consequences. *Genetic, Social and General Psychology Monographs*, *126*, 269-292.

Acker, S. (1992). Creating careers: Women teachers at work. *Curriculum Inquiry*, 22, 141–163.

Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology*, *2*, 267-299.

Agervold, M. (2007). Emotional dissonance and burnout. Unpublished paper. University of Aarhus.

Agervold, M., & Mikkelsen, E. G. (2004). Relationships between bullying, psychosocial work, environment and individual stress reactions. *Work & Stress*, *18*, 336-351.

Allen, T. D., Herst, D. E. L., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for further research. *Journal of Occupational Health Psychology, 5*, 278-308.

Aluja, A., Blanch, A., & Garcia, L. F. (2005). Dimensionality of the Maslach Burnout Inventory in school teachers: A study of several proposal. *European Journal of Psychological Assessment*, *21*, 67-76.

Arbuckle, J. L. (2003). *Amos users' guide* (Version 5.0). Chicago: Smallwaters.

Bagozzi, R. P., & Heatherton, T. F. (1994). A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling*, *1*, 35-67.

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, *22*, 309-328.

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, *3*, 209-223.

Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual process at work in a call centre: an application of the job demands-resources model. *European Journal of Work and Organizational Psychology, 12*, 393–417.

Bakker, A. B., Demerouti, E., Taris, T., Schaufeli, W. B., & Schreurs, P. (2003). A multi-group analysis of the job demands–resources model in four home care organizations. *International Journal of Stress Management*, *10*, 16–38.

Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands–resources model to predict burnout and performance. *Human Resource Management*, *43*, 83–104.

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, *99,* 274-284.

Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. *Journal of Organizational Behavior*, *29*, 147-158.

Balducci, C., Fraccaroli, F., & Schaufeli, W. B. (2008). Psychometric properties of the Italian version of the Utrecht Work Engagement Scale (UWES-9): A cross-cultural analysis. Manuscript submitted for publication.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44,* 1175-1184.

Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: WH Freeman.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26.

Barbaranelli, C. (2003). *Analisi dei dati. Tecniche multivariate per la ricerca psicologica e sociale*. Milano: LED.

Barbaranelli, C. (2006). *Analisi dei dati con SPSS. Le analisi multivariate*. Milano: LED.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *64*, 708-722.

Bentler, P. M. (1989). *EQS structural equations program manual*. BMDP Statistical Software, Los Angeles.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238 - 246.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588-606.

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing Life as it is lived. *Annu. Rev. Psychol*, *54*, 579–616.

Bono, J. E., & Vey, M. A. (2005). Toward understanding emotional management at work: A quantitative review of emotional labor research. In C. E. J. Hartel, W. J. Zerbe, & N. M. Ashkanasy (Eds.), *Emotions in organizational behavior* (pp. 213–234). Mahwah, NJ: Erlbaum.

Borg, M. G., & Falzon, J. M. (1990). Coping actions by Maltese primary school teachers. *Educational Research*, *32*, 50-58.

Borg, M. G., Riding, R. J., & Falzon, J. M. (1991). Stress in teaching: A study of occupational stress and its determinants, job satisfaction and career commitment among primary school teachers. *Educational Psychology*, *11*, 59–75.

Bouman, A., Te Brake, H., & Hoogstraten, J. (2002). Significant effects due to rephrasing the MBI's PA items. *Psychological Reports*, *91*, 825-826.

Bresó, E., Salanova, M., & Schaufeli, W. B. (2007). In search of the "third dimension" of burnout: Efficacy or Inefficacy? *Applied Psychology: An International review*, *56*, 460-478.

Brotheridge, C. M., & Lee, R. T. (1998, August). *On the dimensionality of emotional labour: Development and validation of an emotional labour scale.* Paper presented at the first conference on Emotions in Organizational Life, San Diego, CA.

Brown, M., Ralph, S., & Brember, I. (2002). Change-linkedwork-related stress in British teachers. *Research in Education*, *67*, 1–13.

Byrne, B. M. (1999). The nomological network of teacher burnout: A literature review and empirically validated model. In R.Vandenberghe & M. Huberman

(Eds.) *Understanding and preventing teacher burnout*. Cambridge: Cambridge University Press.

Cameron, K. S., Dutton, J. E., & Quinn, R. E. (2003). Foundations of Positive Organizational Scholarship. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Postive Organizational Scholarship* (pp. 3-14). San Francisco, CA: Berrett-Koehler.

Chan, D. (2002). Stress, self-efficacy, social support and psychological distress among prospective teachers in Hong Kong. *Educational Psychology*, *22*, 557-570.

Chaplain, R. P. (2008). Stress and psychological distress among trainee secondary teachers in England. *Educational Psychology*, *28*, 195-209.

Chmiel, N. (1998). *Tecnologia e lavoro*. Bologna: Il Mulino.

Cinamon, R. G., & Rich, Y. (2005). Work-family conflict among female teachers. *Teaching and Teacher Education*, *21*, 365-378.

Cinamon, R. G., Rich, Y., & Westman, M. (2007). Teachers' Occupation-Specific Work-Family Conflict. *The career Development Quarterly*, *55*, 249-261.

Clark, L. A., & Watson, D. (1991). General affective dispositions in physical and psychological health. In C. B. Snyder & D. R. Forsyth (Eds.). *Handbook of social and clinical psychology: The health perspective* (pp. 221-245). New York: Pergamon.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, D. K., & Hill, H. C. (2001). *Learning Policy: When State Education Reform Works*. New Haven, CT: Yale University Press.

Compton, W. C. (2005). *An Introduction to Positive Psychology*. Belmont: Thomson Wadsworth.

Conway, N., & Briner, R. B. (2002). A daily diary study of affective responses to psychological contract breach and exceeded promises. *Journal of Organizational Behavior*, *23*, 287-302.

Cox, T., Griffiths, A., & Rial-Gonzáles, E. (2000). *Work-related Stress*. Luxembourg: Office for Official Publications of the European Communities.

Cox T., & Rial-González, E. (2005). *Work-related stress: the European picture. Work-related stress is a strong negative emotional reaction to work*. In: Working on stress Magazines 5 [serial on the internet]. Available from: http://osha.europa.eu/publications/magazine/5.

Coyne, J. C. (1994). Self-reported distress: Analog or ersatz depression. *Psychological Bulletin*, *11*, 29-45.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.

Dabholkar, P. A., Thorpe, D. I., & Rentz, J. O. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of Academy of Marketing Science*, *24*, 3-16.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The Job Demands-Resources Model of burnout. *Journal of Applied Psychology*, *86*, 499-512.

Di Fabio, A., & Taralla, B. (2006). L'autoefficacia in ambito organizzativo: proprietà psicometriche dell'occupational self-efficacy scale (short form) in un campione di insegnanti di scuole superiori. *Risorsa Uomo*, *12*, 51-66.

Diener, E. (2000). Subjective well-being: the science of happiness and a proposal for a national index. *American Psychologist*, *55*, 34-43.

Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology*, *47*, 1105-1117.

Doty, D., & Glick, W. (1998). Common methods bias: Does common methods variance really bias results? *Organizational Research Methods*, *1*, 374-406.

Dunckel, H. (2002). Job analysis and work roles. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 7973–7977). London: Elsevier.

Durán, A., Extremera, N, & Rey, L. (2004). Engagement and burnout: Analyzing their association patterns. *Psychological Reports*, *94*, 1050-1084.

Farber, B. A. (1991). *Crisis in education: Stress and burnout in the American teacher.* San Francisco: Jossey-Bass.

Fisher, L., & Ransom, D. C. (1995). An empirically derived typology of families: Relationships with adult health. *Family Process*, *34*, 161-182.

Friedman, I. A. (1991). High- and low-burnout schools: School culture aspects of teacher burnout. *Journal of Educational Research*, *84*, 325-333.

Garden, A. M. (1987). Depersonalization: A valid dimension of burnout? *Human Relations*, *140*, 545-560.

Goldberg, D. (1992). *General Health Questionnaire (GHQ-12)*. Windsor, UK: NFER-Nelson.

Gonzáles-Romá, V., Schaufeli, W. B., Bakker, A. B., & Lloret, S. (2006). Burnout and work engagement: Independent factors or opposite poles? *Journal of Vocational Behavior*, *68*, 165-174.

Gordon, A. D. (1999). *Classification*. Boca Raton, FL: Chapman & Hall.

Green, D. E., Walkey, F. H., & Taylor, A. J. W. (1991). The three factor structure of the Maslach Burnout Inventory. *Journal of Social Behavior and Personality*, *6*, 453-472.

Greenglass, E. R., Burke, R. J., & Ondrack, M. (1990). A gender-role perspective of coping and burnout. *Applied Psychology. An International Review*, *39*, 5-27.

Greenhaus, J. H., & Beutell, N. (1985). Sources of conflict between work and family roles, *Academy of Management Review, 10*, 76-88.

Hackam, J. R. (2009). The perils of positivity. *Journal of Organizational Behaviour*, *30*, 309-319.

Hakanen, J. J., Bakker, B. B., Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, *43*, 495-513.

Hakanen, J., Schaufeli, W. B., & Ahola, K. (2008). The Job Demands-Resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress, 22*, 224-241.

Halbesleben, J. R. B. (2006). Sources of social support and burnout: A meta-analytic test of the conservation of resources model. *Journal of Applied Psychology, 91*, 1134-1145.

Halbesleben, J. R. B., & Buckley, R. M. (2004). Burnout in organizational life. *Journal of management*, *30*, 859-879.

Hallberg, U., Johansson, G., & Schaufeli, W. B. (2007). Type A behaviour and work situation: Associations with burnout and work engagement. *Scandinavian Journal of Psychology*, *48*, 135-142.

Hallberg, U., & Schaufeli, W. B. (2006). "Same same" but different?: Can work engagement be discriminated from job involvement and organizational commitment? *European Journal of Psychologist*, *11*, 119-127.

Hawley, W. D., & Valli, L. (1999). The essentials of effective professional development: A new consensus. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 127-150). San Francisco, CA: Jossey-Bass Publishers.

Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2005). Cluster analysis in family psychology research. *Journal of Family Psychology*, *19*, 121-131.

Henson, R. K. (2001). Understanding internal consistency reliability estimates: A conceptual primer on coefficient alpha. *Measurement and Evaluation in Counseling and Development*, *34*, 177-189.

Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology, 84,* 632-643.

Hox, J. (2002). *Multilevel Analysis: Techniques and Applications*. Lawrence Erlbaum Associates, Publishers: London.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Huberty, C. J (1984). Issues in the use and interpretation of discriminant analysis. *Psychological Bulletin*, *95*, 156-171.

Istituto di Ricerca IARD (2000). *Gli insegnanti nella scuola che cambia. Seconda Indagine IARD sulle condizioni di vita e di lavoro nella scuola italiana.* A. Cavalli (Ed). Bologna: Il Mulino.

Iwanicki, E. F., & Schwab, R. L. (1981). A cross validation study of the Maslach Burnout Inventory. *Educational and Psychological Measurement*, *41*, 1167-1174.

Jöreskog, K. G., & Sörbom, D. (1986). *LISREL user guide version VI* (4th ed.). Mooresville, Ill: Scientific Software International.

Kalimo, R., & Hakanen, J. (2000). Työuupumus [Work and Health in Finland: Burnout]. In S. Virtanen (Ed.), Työja terveys Suomessa v. 2000 (pp. 119-126). Helsinki: Työ terveyslaitos.

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, *24*, 285–308.

Karasek R. (1985). *Job Content Questionnaire*. Los Angeles: Department of Industrial and Systems Engineering, University of Southern California.

Karasek, R., Brisson, C., Kawakami, N., Houtman, I., Bongers, P., & Amick, B. (1998). The job content questionnaire (JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of Occupational Health Psychology*, *3*, 322–355.

Karasek, R., & Theorell, T. (1990). *Healthy work: stress, productivity, and the reconstruction of working life*. New York: Basic Books.

Kompier M (2005). Assessing the psychosocial work environment "subjective" versus "objective" measurement [editorial]. *Scandinavian Journal of Work Environmental Health*, *31*, 405–408.

Kyriacou, C. (2001). Teacher stress: directions for future research. *Educational Review*, *53*, 27-35.

Langelaan, S., Bakker, A. B., Van Doornen, L. J. P., & Schaufeli, W. B. (2006). Burnout and work engagement: Do individual differences make a difference? *Personality and Individual Differences*, *40*, 521-532.

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examinationof correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, *81*, 123-133.

Leiter, M. P., & Maslach, C. (1988). The impact of interpersonalenvironment on burnout and organizational commitment. *Journal of Organizational Behavior*, *9*, 287-308.

Lewig, K., & Dollard, M. (2003). Emotional dissonance, emotional exhaustion and job satisfaction in call center workers. *European Journal of Work and Organizational Psychology,12,* 366–392.

Llorens, S., Bakker, A. B., Schaufeli, W. B., & Salanova, M. (2006). Testing the robustness of the job demands-resources model. *International Journal of Stress Management, 13,* 378-391.

Llorens, S., Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2007). Does a positive gain spiral of resources, efficacy beliefs and engagement exists? *Computers in Human Behavior, 23,* 825-841.

Lorente, L., Salanova, M., Martinez, I., & Schaufeli, W. B. (2008). Extension of the Job Demands Resources model in the prediction of burnout and engagement among teachers over time. *Psycothema*, *20*, 354-360.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, *23*, 696-706.

Maslach, C., & Jackson, S. E. (1981). *Maslach Burnout Inventory Manual* (research edition). Palo Alto, CA: Consulting Psychology Press.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996a) *Maslach Burnout Inventory Manual* (3rd ed.). Palo Alto, CA: Consulting Psychologist Press.

Maslach, C., Jackson, S. E., & Schwab, R. L. (1996b). Maslach Burnout Inventory-Educators Survey (MBI-ES). In C. Maslach, S. E. Jackson, & M. P. Leiter, *MBI Manual* (3d ed.). Palo Alto, CA: Consulting Psychologist Press.

Maslach, C., Leiter, M. P., & Schaufeli, W. B. (2008). Measuring burnout. In C. L. Cooper & S. Cartwright (Eds.). *The Oxford handbook of organizational well-being* (pp. 86-108). Oxford: Oxford University Press.

Maslach, C. Schaufeli, W. B., Leiter M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422.

Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of Vocational Behavior*, *70*, 149-171.

Montgomery, A., Peeters, M. C. W., Schaufeli, W. B., & Den Ouden, M. (2003). Work-home interference among newspaper managers: Its relationship with Burnout and Engagement. *Anxiety, Stress & Coping, 16*, 195-211.

Montgomery, C., & Rupp, A. A. (2005). Meta-analysis for Exploring the Diverse Causes and Effects of Stress in Teachers. *Canadian Journal of Education, 28,* 458-486.

Naudé, J. L. P., & Rothmann, S. (2004). The validation of the Utrecht Work Engagement Scale for Emergency Medical Technicians in Gauteng. *South African Journal of Economic and Management Sciences, 7*, 459-468.

Nir, A. E., Bogler, R. (2008). The antecedents of teacher satisfaction with professional development programs. *Teaching and Teacher Education*, *24*, 377-386.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.) New York: McGraw-Hill.

Perrone, V., & Chiacchierini, C. (1999). Fiducia e comportamenti di cittadinanza organizzativa. Un'indagine empirica nella prospettiva della rete degli scambi sociali. *Economia & Management, 4*, 87-100.

Pisanti, R., Paplomatas, A., & Bertini, M. (2008). Misurare le dimensioni positive nel lavoro in sanità: un contributo all'adattamento italiano dell'UWES – Utrecht Work Engagement Scale. *Giornale Italiano di Medicina del Lavoro ed Ergonomia*, *30*, A111-A119.

Politi, P. L., Piccinelli, M., & Wilkinson, G. (1994). Reliability, validity, and factor structure of the 12-item General Health Questionnaire among young males in Italy. *Acta Psychiatr. Scand.*, *90*, 432-437.

Quick, J. C., & Quick, J. D. (2004). Healthy, happy, productive work: A leadership challenge. *Organizational Dynamics*, *33*, 329–337.

Rashbash, J., Browne, W., Healy, M., Cameron, B., & Charlton, C. (2000). MLwiN (Version 1.10.006): *Interactive software for multilevel analysis.* London: Multilevel Models Project, Institute of Education, University of London.

Roberts, L. M. (2006). Shifting the lens of organizational life: The added value of positive scholarship. *Academy of Management Review*, *31*, 292–305.

Roth, G., Assor, A., Kanat-Maymon, Y., & Kaplan, H. (2007). Autonomous motivation for teaching: How self-determined teaching may lead to self-determined learning. *Journal of Educational Psychology*, *99*, 761-774.

Rudow, B. (1999). Stress and burnout in the teaching profession: European studies, issues, and research perspectives. In R. Vandenberghe & M. Huberman (Eds.) *Understanding and preventing teacher burnout*. Cambridge: Cambridge University Press.

Salanova, M., Agut, S., & Peiró, J. M. (2005a). Linking organizational resources and work engagement to employee performance and customer loyalty: the mediation of service climate. *Journal of Applied Psychology, 90*, 1217-1227.

Salanova, M. Bresó, E., & Schaufeli, W. B. (2005b). Hacia un modelo espiral de las creencias de efficacia en el estudio del burnout y del engagement [Toward a spiral model of efficacy beliefs in the study of burnout and engagement]. *Estress y Ansiedad*, *11*, 215-231.

Salanova, M., Grau, R., Llorens, S., & Schaufeli, W. B. (2001). Exposicion a las tecnologias de la informacion, burnout y engagement: El rol modulador de la autoeficacia profesional [Exposure to information and communication technology, burnout and engagement: The moderating role of professional self-efficacy]. *Revista de Psicologia Social Aplicada*, *11*, 69-89.

Salanova, M., Llorens, S., Garcia-Renedo, M., Burriel, R., Bresó, E., & Schaufeli, W. B. (2005c). Toward a four-dimensional model of burnout: A multigroup factor-analytic study including depersonalization and cynism. *Educational and Psychological Measurement*, *65*, 901-913.

Salanova, M., & Schaufeli, W. B. (2000). Exposure to information technologies and its relation to burnout. *Behaviour and Information Technology*, *19*, 385-392.

Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour: *The International Journal of Human Resource Management, 19*, 116-131.

Salanova, M., Schaufeli, W. B., Llorens, S., Peiró, J. M., & Grau, R. (2000). Desde el burnout al engagement: una nueva perspecctiva [From burnout to engagement: a new perspective]. *Revista de Psicologia del Trabajo y de las Organizaciones*, *16*, 117-134.

Schabracq, M. J., Jacques A. M., Winnubst, J. A. M., Cooper, C. L. (Eds.) (2003). *The handbook of work and health psychology* (2nd Ed.). Chichester: Wiley.

Schaufeli, W. B. (2006). The Balance of Give and Take: Toward a Social Exchange Model of Burnout. *The International Review of Social Psychology, 19*, 87-131.

Schaufeli W. B., & Bakker, A. B. (2003). *Test manual for the Utrecht Work Engagement Scale*. Unpublished manuscript, Utrecht University, the Netherlands. Retrieved on July 31st, 2008 from http://www.schaufeli.com.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*, 293-315.

Schaufeli, W. B., & Bakker, A. B. (in press). *The conceptualization and Measurement of Work Engagement: A Review*. In A. B. Bakker & M. P. Leiter (Eds.). Work engagement: Recent developments in theory and research. London: Psychology Press.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, *66*, 701-716.

Schaufeli, W. B., Bakker, A. B. & Van Rhenen, W. (in press). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior.*

Schaufeli, W. B., & Buunk, B. P. (2003). Burnout: An overview of 25 years of research and theorizing. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.). *Handbook of work and health psychology* (pp. 383-425). Chichester: Wiley.

Schaufeli, W. B., Daamen, J., & Van Mierlo, H. (1994). Burnout among Dutch teachers: An MBI-validity study. *Educational and Psychological Measurement*, *54*, 803-812.

Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.

Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). Maslach Burnout Inventory-General Survey (MBI-GS). In C. Maslach, S. E. Jackson, & M. P. Leiter, *MBI Manual* (3rd ed.). Palo Alto, CA: Consulting Psychologist Press.

Schaufeli, W. B., Martínez, I. M., Marques-Pinto, A., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-Cultural Psychology*, *33*, 464-481.

Schaufeli, W. B., & Salanova, M. L. (2002). Cómo evaluar los riesgos psicosociales en el trabajo. *Prevention, trabajo y salud*, *20*, 4-9.

Schaufeli, W. B., & Salanova, M. (2007). Efficacy or inefficacy, that's the question: Burnout and work engagement, and their relationships with efficacy beliefs. *Anxiety, Stress, and Coping*, *20*, 177-196.

Schaufeli, W. B., & Salanova, M. (2008). *Enhancing work engagement though the management of human resources*. In K. Näswall, m. Sverke & J. Hellgren (Eds.), The individual in the changing working life (pp. 380-404). Cambridge: Cambridge University Press.

Schaufeli, W. B., Salanova, M., Gonzáles-Romá, & V., Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, *3*, 71-92.

Schaufeli, W. B. & Taris, T. W. (2005). The conceptualization and measurement of burnout: Common ground and worlds apart. *Work & Stress, 19,* 356-262.

Schutte, N., Toppinnen, S., Kalimo, R., & Schaufeli, W. B. (2000). The factorial validity of the Maslach Burnout Inventory-General Survey accross occupational groups and nations. *Journal of Occupational and Organizational Psychology*, *73*, 53-66.

Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive Psychology: An Introduction. *American Psychologist*, *55*, 5-14.

Seppälä, P., Mauno, S., Feldt, T., Hakanen, J., Kinnunen, U., Tolvanen, A., & Schaufeli, W. B. (in press). The construct validity of the Utrecht Work

Engagement Scale: Multisample and longitudinal evidence. *Journal of Happiness Studies.*

Sheldon, K. M, & King, L. (2001). Why positive psychology is necessary. *American Psychology*, *56*, 216-217.

Siegrist, J. (1996). Adverse health effects of high effort/low-reward conditions. *Journal of Occupational Health Psychology*, *1*, 27-41.

Simbula, S., Guglielmi, D. (2008a). Depersonalization or Cynism, Efficacy or Inefficacy: What are the Dimensions of Teacher Burnout? (Submitted for publication).

Simbula, S., Guglielmi, D., Schaufeli, W. B., Depolo, M. (2008b). An Italian validation of the Utrecht Work Engagement Scale: characterization of profiles in a sample of school teachers. (Submitted for publication).

Sirigatti, S. & Stefanile, C. (1993). *The Maslach Burnout Inventory: adattamento e taratura per l'Italia*. Firenze: O.S.

Snyder, C. R., & Lopez, S. J. (Eds.) (2002). *The handbook of positive psychology*. New York: Oxford University Press.

Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology*, *3*, 196-210.

Sonnentag, S. (2003). Recovery, work engagement and proactive behaviour: A new look at the interface between nonwork and work. *Journal of Applied Psychology*, *88*, 518-528.

Sonnentag, S. (2005). Burnout research: Adding an off-work and day-level perspective. *Work and Stress*, *19*, 271-275.

Spector, P. E. (1992). A consideration of the validity and meaning of selfreport measure of job conditions. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 123-151). Chichester: Wiley.

Spencer, D. A. (1986). *Contemporary women teachers: Balancing school and home*. New York: Longman.

Steiger, J. H. (1989). *EzPATH: A supplementary module for SYSTAT and SYGRAPH*. SYSTAT, Evanston.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioural Research, 25*, 173-180.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th Edition). Boston, MA: Allyn & Bacon.

Theorell, T., & Hasselhorn, H. M. (2005). On cross-sectional questionnaire studies of relationship between psychosocial condition at work and helath-are they reliable. *International Archives of Occupational and Environmental Health*, 78, 517-522.

Travers, C. J., & Cooper, C. L. (1996). *Teachers under pressure: Stress in the teaching profession*. London: Routledge.

Tucker, L. R., & Lewis, C. (1973). A Reliability Coefficient for Maximum Likelihood Factor Analysis. *Psychometrika, 38*, 1-10.

Van Dierendonck, D., Schaufeli, W. B., & Buunk, B. P. (2001). Burnout and inequity among human service professionals: a longitudinal study. *Journal of Occupational Health Psychology*, *6*, 43-52.

Van Horn, J. E., Schaufeli, W. B., & Enzmann, D. (1999). Teacher burnout and lack of reciprocity. *Journal of Applied Social Psychology*, *29*, 91-108.

Van Horn, J. E., Schaufeli, W. B., Greenglass, E. R., & Burke, R. J. (1997). Canadian-Dutch comparison of teachers bumout. *Psychological Reports*, *81*, 371-382.

Van Yperen, N. W., Hagedoorn, M., & Geurts, S. (1996). Intent to leave and absenteeism as reactions to perceived inequity: The role of psychological and social constraints. *Journal of Occupational and Organizational Psychology*, *69*, 367-372.

Walster, E., Walster G.W. & Bershcheid, E. (1978). *Equity: Theory and Research.* Allyn and Bacon, Inc.

Wanous, J. P., Reichers, A. E., & Hudy, M. J. (1997). Overall Job Satisfaction: How good are single-item measures? *Journal of Applied Psychology*, *82*, 247-252.

Ward, J. H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*, *58*, 236-244.

Westman, M., & Etzion, D. (2001). The impact of vacation and job stress on burnout and absenteeism. *Psychology and Health*, *16*, 595-606.

Worley, J. A., Vassar, M., Wheeler, D. L., & Barnes, L. L. B. (2008). Factor structure of scores from the Maslach Burnout Inventory: A review and meta-analysis of 45 exploratory and confirmatory factor-analytic studies. *Educational and Psychological Measurement*, *68*, 797-823.

Wright, T. A. (1997). Time revisited in organizational behavior. *Journal of Organizational Behavior*, *18*, 201–204.

Wright, T. A., Cropanzano, R., & Meyer, D. G. (2004). State and trait correlates of job performance: A tale of two perspectives. *Journal of Business and Psychology*, *18*, 365-383.

Xanthopoulou, D. (2007) A Work Psychological Model that Works: Expanding the Job Demands-Resources Model. PhD Dissertation.

Xanthopoulou, D., Bakker, A. B., Demerouti, E. & Schaufeli, W. B. (in press). Reciprocal relationships between job resources, personal resources and work engagement. *Journal of Vocational Behavior*.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the Job-Demands-Resources model. *International Journal of Stress Management, 14,* 121-141.

Xanthoupolou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Organizational and Occupational Psychology*, *82*, 183-200.

Xanthopoulou, D., Bakker, A. B., Heuven, E., Demerouti, E., & Schaufeli, W. B. (2008). Working in the sky: A diary study among flight attendants. *Journal of Occupational Health Psychology*, *13*, 345-356.

Xanthopoulou, D., Bakker, A. B., Kantas, A., & Demerouti, E. (in press). The measurement of burnout and work engagement: A comparison of Greece and The Netherlands. *New Review of Social Psychology*.

Zapf, D. (2002). Emotion work and psychological well-being: A review of the literature and some conceptual considerations. *Human Resource Management Review*, *12*, 237-268.

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology, 1,* 145-169.