Job Demands-Resources Model, Transformational Leadership and

Organizational Performance: A Multilevel Study

Abstract

Purpose – The purpose of this paper is to integrate an extended by personal resources job demands-resources (JD-R) model in the relationship between transformational leadership and organizational performance. It is argued that responsive, supportive and developmental leader's style will reduce employee's levels of burnout and increase their levels of work engagement, and ultimately will increase organizational performance expressed by productivity, growth and creativity.

Design/methodology/approach – The hypotheses were tested among a national sample of 1011 employees in 107 Greek public and private organizations operating within an environment of economic and financial crises. The operational model was tested using a multilevel structural equation modeling.

Findings – It appeared that job demands and work burnout, and job resources and work engagement, serially and fully mediated the relationship between transformational leadership and organizational performance. Further, it is found that personal resources negatively and fully mediate the relationship between job resources and work burnout and positively and partially mediate the relationship between job resources and work engagement.

Research limitations/implications – Data was collected using a cross-sectional design, not allowing therefore dynamic causal inferences.

Practical implications – Considering that the transformational leadership style reduces employee's levels of burnout and increases their levels of work engagement, and accordingly it improves organizational performance, organizations are well advised to encourage this leadership style.

Social implications – Transformational leadership by balancing job demands and job resources could have a positive impact on employee well-being.

Originality/value – The study, using multilevel testing, demonstrates that the extended JD-R model can be integrated into the transformational leadership – organizational performance relationship.

Paper type - Research paper.

Keywords – Transformational leadership, JD-R model, organizational performance.

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1.   Introduction

A great deal of researchers argues that leadership style have an impact on individual and organizational performance (Zhu *et al.,* 2013). Transactional and transformational are two polar opposite leadership styles that dominated research over the last 30 years. Transactional leadership is more concerned in maintaining the normal flow of operations in the organization by exchanging rewards for performance, whilst transformational leadership focuses on motivation and collaboration with employees for accomplishing performance beyond expectations (Judge and Piccolo, 2004; Pillai, 2013).

However, in recent years research on leadership shifted noticeably from transactional to transformational models (Dinh *et al.,* 2014), and researchers were more interested in investigating the mediating mechanisms that intervene in the relationship between transformational leadership and employee outcomes (Zhu *et al.,* 2013). Examples of such mediating mechanisms used in the relationship between transformational leadership and employee outcomes are reflected in concepts such as trust (Jung and Avolio, 2000; Kark *et al.,* 2003; Pillai *et al.,* 1999) and justice (Aryee *et al.,* 2002; Pillai *et al.,* 1999; Schaubroeck *et al.,* 2011). Additionally, other studies examined the mediating mechanisms between transformational leadership and the ultimate dependent variable that is organizational performance (Choudhary *et al.,* 2013; Liao and Chuang, 2007; Piccolo and Colquitt, 2006; Wang *et al.,* 2011).

Recently, studies were started treating the mediating mechanisms between transformational leadership and employee outcomes or organizational performance as

serially mediating models (Katou, 2015). These models were constituted of concepts such as organizational justice (Rhoades and Eisenberger, 2002), organizational trust (Holtz, 2013), and employee attitudes and behaviours (Aryee *et al.,* 2002). A typical serially mediating model between transformational leadership and work outcomes is that proposed by Schaufeli (2015), which treats the concepts included in the job demands-resources (JD-R) model as a serially mediating mechanism between transformational leadership and work outcomes.

The major message of the JD-R model (Bakker and Demerouti, 2007, 2008, 2014; Demerouti *et al.,* 2001; Schaufeli and Bakker, 2004) is that it distinguishes two parallel mediating processes. The first, called the *stress process,* argues that high job demands lead to negative work outcomes through work burnout. The second, called the *motivational process,* argues that job resources lead to positive work outcomes through work engagement. The resources dimension of this basic JD-R model has been extended by including also personal resources in combination with job resources Borst *et al.,* 2019; Baker and Demerouti, 2017; Xanthopoulou *et al.,* 2007).

Considering all the above, the purpose of the current study is to investigate the integration of an extended JD-R model as a serially mediating mechanism in the relationship between transformational leadership and organizational performance. In particular, the contribution of the current study is five fold. First, it integrates personal resources into the basic JD-R model which constitutes the mediating mechanism between transformational leadership and organizational performance. As far as we know, there are no studies that have integrated an extended JD-R model with both job and personal resources, as a mediating mechanism, in the relationship between transformational leadership and organizational performance. Second, taking into consideration there are studies that integrate the basic JD-R model in the relationship

between transformational leadership and employee attitudes and behaviours (e.g., Schaufeli, 2015), to the best of our knowledge there are no studies that have integrated the basic JD-R model, as a mediating mechanism, in the relationship between transformational leadership and organizational performance. Third, further to most studies which in investigating the JD-R model they were using a specific occupational or organizational group, following Schaufeli (2015), this study extends knowledge by using a national representative sample referring to the hierarchical positions of senior managers, middle managers, and lower employees, within the manufacturing, services, and trade sectors in public and private organizations. Fourth, the research framework is tested using a large national sample of Greece, which is facing severe economic and financial crises, offering thus a unique possibility to examine how the extended JD-R model behaves in the relationship between transformational leadership and organizational performance. Fifth, addressing calls of Bakker and Demerouti (2018), considering that employees are nested in organizations, a multilevel estimation framework is used (Muthen and Muthen, 2014) to achieve accurate estimations of the mediating processes involved in the proposed model (Kozlowski and Klein, 2000).

The road map of the paper is structured as follows. The next section based on structured literature review presents the development of the research hypotheses and builds the research framework. This is followed by methods where the constructs of the study are presented, and by results where the operational model of the study is estimated and the research hypotheses are tested. Then, is the discussion section where the theoretical and the managerial contributions of the study are presented, followed by limitations of the analysis and suggestions for future research. Finally, in the conclusion section the major messages of the study are summarised.

2.   Literature review and hypotheses development

The operational model proposed in this study is presented in Figure 1. Two are the distinguishing characteristics of this model. First, it assumes that transformational leadership is the initiating factor in an organisation that influences the ultimate factor that is operational performance. Second, it hypothesizes, that an extended JD-R model constitutes the core serially mediating mechanism of this relationship. The individual parts that comprise these characteristics are explained bellow.

INSERT FIGURE 1 ABOUT HERE

[Figure 1. The hypothesized operational model]

2.1   *The basic JD-R model*

JD-R theory explains how working conditions influence employees, and how employees influence their own working conditions (Bakker and Demerouti, 2018). Job demands and job resources are two categories that generally classify the characteristics of working conditions. "*Job demands* refer to those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs." (Demerouti and Bakker, 2011, p. 2). "*Job resources* are those physical, social, or organizational aspects of the job that are either/or (a) functional in achieving work-related goals, (b) reduce job demands and the associated physiological and psychological costs, and (c) stimulate personal growth, learning, and development." (Demerouti and Bakker, 2011, p. 2). We mentioned previously that job demands and job resources are the initiating factors within an organization that activate the stress process and the motivational process respectively.

According to the stress process job demands, usually expressed by work overload (i.e., too much to do in the available time), role conflict (i.e., contradictions between different roles), and role ambiguity (i.e., uncertainty about role responsibilities), have a negative impact on work burnout (LePine *et al.,* 2005). "*Work burnout* is a metaphor that is commonly used to describe a state of mental weariness." (Schaufeli and Bakker, 2004, p. 294), and is usually expressed by exhaustion (i.e., a state of extreme physical or mental tiredness), cynicism (i.e., distrust in job significance), and inefficacy (i.e., not feeling confident in accomplishing the work efficiently).

High job demands reflects a process where the organization is requiring from employees continued efforts to accomplish specific goals. However, this process may exhaust employees and produce health problems (Meijman and Mulder, 1998). This state of mental tiredness, expressed as work burnout, or alternatively the *health impairment* process (Caplan *et al.,* 1975) may produce negative impacts on employee outcomes resulting in lower organizational performance (Bakker and Demerouti, 2017). Many empirical studies have found that job demands cause work burnout in a variety of employee occupational groups (e.g., Bakker *et al.,* 2005; Bakker *et al.,* 2003).

Summarizing this part of the previous presentation, it is hypothesized that work burnout mediates the relationship between job demands and organizational performance in the form that job demands increase work burnout and in turn, work burnout decreases organizational performance.

According to the motivational process job resources, usually distinguished into work related resources, such as content of the job, autonomy, and teamwork with colleagues (Borst *et al.,* 2019), and organizational related resources, such as

developmental opportunities, supervisory support, and performance measurement (Vermeeren and van Geest, 2012), have a positive impact on work engagement (Bakker and Albrecht, 2018). "*Work engagement* is defined as the positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication and absorption." (Schaufeli and Bakker, 2004, p. 295). "Vigor is characterized by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Finally, absorption is characterized by full concentration and being happily engrossed in one's work, whereby time passes quickly and one has difficulties to detach oneself from work" (Schaufeli and Salanova, 2007, p. 180).

The motivational potential of adequate job resources, encourage employees to meet their targets. Therefore, job recourses are highly desirable in both public and private organizations because engaged employees show high creativity and performance (Bakker *et al.,* 2014). Accordingly, this state of employee fulfilment becomes a driver for improving organizational performance (Hackman and Oldham, 1980). Many empirical studies (e.g., Bakker *et al.,* 2003; Hakannen *et al.,* 2006), support that job resources predict work engagement.

Summarizing this part of the previous presentation, it is hypothesized that work engagement mediates the relationship between job resources and organizational performance in the form that job resources increase work engagement and in turn, work engagement increases organizational performance.

2.2   The extended JD-R model

The stress process and the motivational process are not independent. It is argued (e.g., Bakker *et al.,* 2005; Bakker *et al.,* 2010; Xanthopoulou *et al.,* 2007) that "various job resources can buffer the impact of various job demands on negative strain." (Bakker and Demerouti, 2018, p. 2).

Additionally, attempts were made to expand the basic JD-R model by including personal resources as factors that may influence the two processes of the JD-R model (Baker and Demetouti, 2017; Borst *et al.,* 2019; Schaufeli and Taris, 2014; Xanthopoulou *et al.,* 2007). *Personal resources,* reflected usually by proactive personality and professional expertise, "are aspects of the self that are generally linked to resiliency and refer to individuals' sense of their ability to control and impact upon their environment successfully (Hobfoll, *et al.,* 2003)." (Xanthopoulou *et al.,* 2007, p. 124). Proactive personality refers to the initiatives and the persistence of persons (Crant, 1995), and professional expertise is reflected in the qualities and the capabilities of persons for reaching specific goals (Van der Heijden, 2000).

Three types are distinguished with respect to the inclusion of personal resources into the JD-R model. First, personal resources act as a mediating mechanism in both the job resources-work engagement and the job resources-work burnout relationships (Xanthopoulou *et al.,* 2007). Second, similarly to job resources, personal resources act as an independent predictor of work engagement (Borst *et al.,* 2019). Third, personal resources act as a moderator in the job demands - work burnout relationship (Bakker and Demerouti, 2017). In any case, the common property of the inclusion of personal resources in the JD-R model was that it results in lower work burnout and in higher work engagement (Xanthopoulou *et al.,* 2007). Empirical studies (e.g., Albrecht *et al.,* 2015; Dollard and Bakker, 2010; Kahn, 1990; May *et al.,* 2004),

support that personal resources negatively influence work burnout and positively work engagement.

Considering the previous presentation, we hypothesise that personal resources constitute a mediating mechanism that is positively influenced by job resources and as such negatively regulates work burnout and positively accelerates work engagement.

2.3   *Transformational leadership and the JD-R model*

Transformational leadership develops an environment within the organization in which employees are motivated and energized (De Jong and Bruch, 2013), shifts them away from immediate self-interest (Bass, 1999), and helps them to reach goals with high standards (Antonakis *et al.,* 2003). Transformational leadership is usually expressed with three dimensions: responsive, supportive and developmental leadership. Responsive leadership refers to cases where the leader informs his subordinates about changes and generally deals with their problems in response to their suggestions (Purcell and Hutchinson, 2007). Supportive leadership refers to cases where the leader takes into account the personal needs and feelings of his subordinates and generally tries to safeguard their interests when making decisions (Rafferty and Griffin, 2006). Developmental leadership refers to cases where the leader encourages his subordinates to attend work-related training, education and development programs (Rafferty and Griffin, 2006).

It is argued that both job demands and job resources are influenced by the creation of the transformational leadership positive organizational climate (Bakker and Demerouti, 2017). Consequently, organizational performance may get better due to the steady improvement of attitudes and behaviours of the healthy and motivated employees working in a supportive climate (Albrecht *et al.,* 2015). In other words,

"leaders are supposed to balance job demands and job resources of their followers in such a way that they remain healthy, motivated, and productive." (Schaufeli, 2015, p. 447). As a result, the ability of the transformational leaders to adjust job demands and job resources, or otherwise, to keep work burnout low and work engagement high, may influence the degree of the improvement of organizational performance. However, Schaufeli (2015) argues that there are no studies that investigate the impact of transformational leadership on work burnout and work engagement through job demands and job resources. Thus, we argue that it is worth investigating the integration of the JD-R model as a mediating mechanism in the relationship between transformational leadership and organizational performance, especially for economies, such as of Greece, which face severe economic and financial crises. In particular, during the 2008-2018 economic and financial crises, the GDP of Greece was decreased by 25 percent and the debt to GDP ratio reached the level of 179 percent. These results were connected with the bailout programs which were imposed by the European Commission, the International Monetary Fund and the European Central Bank, in the form of a rescue Memorandum of Economic and Financial Practices. In this turbulent period firms were trying to stay alive and employees were under pressure to stay in employment.

2.4   Hypotheses

On the basis of the previous theoretical presentation, we collect and arrange accordingly the hypotheses of the study within Figure 1, and for testing purposes we state them as follows:

Hypotheses 1: Job demands mediate the relationship between transformational leadership [H1a(-)] and work burnout [H1b(+)], and work burnout mediates the relationship between job demands and organizational performance [H1c(-)].

Hypotheses 2: Job resources mediate the relationship between transformational leadership [H2a(+)] and work engagement [H2b(+)], and work engagement mediates the relationship between job resources and organizational performance [H2c(+)].

Hypotheses 3: Personal resources mediate the relationship between job resources [H3a(+)] and work burnout [H3b(-)], and work burnout mediate the relationship between personal resources and organizational performance [H1c(-)].

Hypotheses 4: Personal resources mediate the relationship between job resources [H3a(+)] and work engagement [H4a(+)], and work engagement mediate the relationship between personal resources and organizational performance [H2c(+)].

3.   Method

3.1   Sample and procedure

Most JD-R model studies are limited to a specific occupational or organizational group. In this study we follow Schaufeli (2015), by offering an opportunity to utilize a national sample that includes many sectors, ownerships and occupations. In particular, data for this research was collected in October-December 2018 by help of a questionnaire survey, which was distributed to the employees of public and private organizations in the manufacturing, services and trade sectors covering the whole of Greece. The questionnaires were administered by individuals pursuing management

degrees at a Greek business school. The survey instrument was distributed to organizations with more than 10 employees and it was administered with in-person visits for deliveries and collections. For increasing the reliability of measures the samplers were asked to distribute the questionnaires to multiple respondents (at senior, middle and lower employee levels) per firm (Gerhart *et al.,* 2000). To overcome self-biased response error, we assured respondents of anonymity, designed a well structured and interesting questionnaire, carefully ordered the questions in the survey, avoided ambiguous phrases, and avoided justifications in the questions used (Podsakoff *et al.,* 2003). A total of 1011 complete questionnaires were returned from the employees in 107 organizations.

Of the sample of 107 organizations, 72.0 percent had 10 to 50 employees, 15.0 percent had 51 to 150 employees, and 13.0 percent had more than 150 employees; 16.8 percent were from the manufacturing sector, 49.5 percent were from the services sector, and 33.6 percent were from the trade sector; 15.0 percent were public and 85.0 percent were private. Of the sample of 1011 respondents, 50.3 percent were male, and 49.7 percent were female; 4.0 percent had elementary education, 28.0 percent had high school / lyceum education, and 68.0 percent had college / university degree. The average age of respondents was 39.35 (± 11.45) years old, and the average seniority was 11.15 (± 9.63) years. With respect to employment tenure, 91.1 percent of the respondents had full-time contract and 8.9 percent had part-time contract. Finally, 15.7 percent of the respondents were senior managers, 24.0 percent were middle managers, and 60.3 belonged to the lower employee category.

3.2   Measures

The scales used were either ordinal five-level (ranging from 1 = very bad to 5 =

very good, or from 1 = very little to 5 = very much), or Likert five-level (ranging from 1 = strongly disagree to 5 = strongly agree). Multilevel confirmatory factor analysis (MCFA) was used for developing second order constructs.

Transformational leadership: It is based on the works of Purcell and Hutchison (2007), and Rafferty and Griffin (2006). It was measured along the three dimensions of *responsive leadership* (Cronbach Alpha, α = 0.899), comprised of 5-items, *supportive leadership* (α = 0.915), comprised of 3-items, and *developmental leadership* (α = 0.884), comprised of 3-items. Example items: "Our leader is responding to suggestions from employees", "Our leader is taking into account my personal needs", and "Our leader is encouraging staff to improve their work- related skills". The MCFA fit indices (chi-square = 357.684, df = 82, p = 0.000, normed chi-square = 4.362, RMSEA = 0.058, CFI = 0.952, TLI = 0.935, SRMR-within = 0.038, SRMR-between = 0.053) indicated good data fit.

Job demands: It is based on the works of Karasek (1985) and Rizzo *et al.* (1970) and measured along the dimensions of *work overload* (α = 0.748), comprised of 6-items, *role conflict* (α = 0.861), comprised of 8-items, and *role ambiguity* (α = 0.738), comprised of 6-items. Example items: "The volume of my work is too big to be able to do everything good", "I receive incompatible requests from two or more people at the same time", and "The explanation of what needs to be done is not clear". The MCFA fit indices (chi-square = 1556.934, df = 334, p = 0.000, normed chi-square = 4.661, RMSEA = 0.060, CFI = 0.835, TLI = 0.812, SRMR-within = 0.088, SRMR-between = 0.120) indicated good data fit.

Job resources: It is based on the work of Borst *et al.* (2019) and measured along the dimensions of *job-related resources* (α = 0.793), comprised of 3-items, and *organizational-related resources* (α = 0.929), comprised of 6-items. Example items:

"I am satisfied with the content of my job" and "I am satisfied with my career opportunities". The MCFA fit indices (chi-square = 227.109, df = 50, p = 0.000, normed chi-square = 4.542, RMSEA = 0.059, CFI = 0.956, TLI = 0.936, SRMR-within = 0.035, SRMR-between = 0.030) indicated good data fit.

Personal resources: It is based on the work of Borst *et al.* (2019) and measured along the dimensions of *proactive personality* (α = 0.856), comprised of 5-items, and *professional expertise* (α = 0.750), comprised of 3-items. Example items: "I actively follow the developments in my field of work" and "I am confident that I can effectively perform a variety of tasks". The MCFA fit indices (chi-square = 287.448, df = 36, p = 0.000, normed chi-square = 7.985, RMSEA = 0.083, CFI = 0.892, TLI = 0.833, SRMR-within = 0.070, SRMR-between = 0.139) indicated good data fit.

Work burnout: It is based on the work of Schaufeli and Salanova (2007) and measured along the dimensions of *exhaustion* (α = 0.886), comprised of 4-items, *cynicism* (α = 0.907), comprised of 4-items, and *inefficacy* (α = 0.851), comprised of 4-items. Example items: "I find it hard to relax after a day's work", "I doubt the significance of my work", and "I don't feel confident about accomplishing my work efficiently". The MCFA fit indices (chi-square = 641.089, df = 102, p = 0.000, normed chi-square = 6.285, RMSEA = 0.072, CFI = 0.909, TLI = 0.882, SRMR-within = 0.063, SRMR-between = 0.109) indicated good data fit.

Work engagement: This construct is based on the work of Schaufeli *et al.,* (2002) and measured along the dimensions of *vigor* (α = 0.863), comprised of 6-items, *dedication* (α = 0.908), comprised of 5-items, and *absorption* (α = 0.891), comprised of 6-items. Example items: "When I get in the morning, I feel like going to work", "My job inspires me", and "When I am working, I forget everything else around me". The MCFA fit indices (chi-square = 1003.180, df = 232, p = 0.000,

normed chi-square = 4.324, RMSEA = 0.057, CFI = 0.906, TLI = 0.890, SRMR-within = 0.052, SRMR-between = 0.066) indicated good data fit.

Organizational performance: It is based on the work of Katou (2017) and was measured along the dimensions of *productivity* (α = 0.784), comprised of 2-items, *growth* (α = 0.782), comprised of 2-items, and *creativity* (α = 0.776), comprised of 2-items. Example items: "My organization uses the fewest possible resources for meeting objectives", "My organization develops in its capacity to meet future opportunities and challenges", and "My organization is innovative with respect to products and processes". The MCFA fit indices (chi-square = 34.847, df = 232, p = 0.001, normed chi-square = 2.904, RMSEA = 0.043, CFI = 0.987, TLI = 0.968, SRMR-within = 0.017, SRMR-between = 0.027) indicated good data fit.

Controls: We controlled for *individual variables*: gender (1 = male, 2 = female), age (1 = up to 30, 2 = 31-50, 3 = more than 50 years old), education (1 = basic, 2 = high school, 3 = university), seniority (1 = up to 5, 2 = 6-12, 3 = more than 12 years in firm), tenure (1 = full-time, 2 = part-time), and hierarchy (1 = other employees 2 = middle management, 3 = senior manager,); and *organizational variables*: sector (1 = manufacturing, 2 = services, 3 = trade), ownership (1 = public, 2 = private) and size (1 = up to 50, 2 = 51–150, more than 150 employees).

3.3 Data analysis

In the previous sub-section the coefficients α, reported along the dimensions of each construct are higher than 0.70, indicating construct internal consistency (Nunnaly and Bernstein, 1994). In Table 1, the means (and standard deviations), the consistency and reliability indices, and the correlation coefficients of all constructs used in estimation are presented. The values of all average variances extracted (AVE), using

confirmatory factor analyses, are higher than 0.50, indicating acceptable survey instrument construct validity (Hair *et al.,* 2008). The values of all composite reliability scores are greater than or very close to 0.90, indicating adequate construct composite reliability (Pavlou and Gefen, 2005). The values of all the correlation coefficients are smaller than the square root of each factor's AVE, providing evidence for separate constructs (Hair *et al.,* 2008).

Taking into consideration the hierarchical nature of our data, with employees nested within organizations, we adopted MSEM in testing our multilevel model (MLM). The software used in estimation is Mplus (Muthen and Muthen, 2014) and the estimation protocol followed is based on Katou *et al.* (2020). Finally, for assessing results we followed Bollen's (1989) recommendation to examine multiple indices, since it is possible for a model to be adequate on one fit index but inadequate on many others.

INSERT TABLE 1 ABOUT HERE

[**Table 1**. Means, standard deviations, consistency and reliability indices, and correlation coefficients of constructs]

4.   Results

4.1   *The measurement model*

The validity of the hypothesized model, referring to the seven constructs presented in Figure 1, is tested though MCFA. The MCFA fit indices (chi-square = 1234.060, df = 262, p = 0.000, normed chi-square = 4.710, RMSEA = 0.061, CFI = 0.888, TLI = 0.854, SRMR-within = 0.066, SRMR-between = 0.089) indicated good data fit. Further, a less restricted model with all items loading on a single factor is tested. The MCFA fit indices (chi-square = 3467.521, df = 304, p = 0.000, normed chi-square = 11.406, RMSEA = 0.101, CFI = 0.636, TLI = 0.591, SRMR-within = 0.103, SRMR-between = 0.147) indicated worse fit than the hypothesized model. In

particular, using the chi-squared change test between the two models we found the Δratio = Δchi-square/Δdf = (3467.521 - 1234.060) / (304 - 262) = 53.18. Because the value of Δratio = 53.18 is much larger that the critical value of 3.84 per degree of freedom, we conclude that the constructs used in estimation are distinct and common method bias is limited (Brown, 2015).

4.2   *The structural model*

Before estimating the structural model we examined whether the necessary conditions justify multilevel analysis (Katou *et al.,* 2020). The intra-correlation coefficients ICC1 found to range between 0.145 (for inefficacy) and 0.360 (for supportive leadership). Considering that the lowest value (0.145) of ICC1 is larger than 0.10, we accept that there is sufficient between-unit variation to justify multilevel analysis. The intra-correlation coefficients ICC2 found to range between 0.591 (for inefficacy) and 0.832 (for supportive leadership). Considering that the lowest value (0.591) of ICC2 is larger than 0.50, we accept that there is sufficient between-unit variation to justify multilevel analysis. Finally, the $r_{wg}(j)$s found to range between 0.751 (for proactive personality) and 0.949 (for creativity). Considering that the lowest value (0.751) of $r_{wg}(j)$ is larger than 0.70, we accept that there is sufficient within-unit agreement to justify aggregation (Kozlowski and Klein, 2000).

The hypothesized operational model presented in Figure 1 is in general a serially and fully mediating model (FMM). However, before we test this model we thought that it would be interesting to test its counterpart serially and partial mediating model (PMM), by linking the relevant constructs. The multilevel fit indices of the FMM (chi-square = 1615.947, df = 359, p = 0.000, normed chi-square = 4.501, RMSEA = 0.059, CFI = 0.861, TLI = 0.838, SRMR-within = 0.082, SRMR-between

= 0.115) indicated good data fit, with almost all standardised coefficients being

significant. The multilevel fit indices of the PMM (chi-square = 1508.672, df = 351, p

= 0.000, normed chi-square = 4.298, RMSEA = 0.057, CFI = 0.872, TLI = 0.847,

SRMR-within = 0.073, SRMR-between = 0.117) indicated similar data fit with the

FMM, but with all standardised coefficients of the extra links being not significant.

Therefore, in the analyses bellow we concentrate on the FMM. Figures 2 and 3

present the multilevel FMM estimation results for the within and the between

dimensions of the operational model presented in Figure 1. Following Xanthopoulou

et al. (2007) and Shaufely (2015), in Figures 2 and 3, the constructs of job demands

and job resources, and the constructs of work burnout and work engagement were

allowed to correlate (indicated with curved two-way arrows), because it is generally

assumed that there is no clear-cut between these constructs. Additionally, in these two

figures all presented standardised coefficients are significant al level p = 0.001, except

of course those that are indicated with n.s. (not significant).

INSERT FIGURES 2 and 3 ABOUT HERE
[**Figure 2.** Within employees estimation results of the operational model]
[**Figure 3.** Between organizations estimation results of the operational model]

4.3 Hypotheses testing

Results presented in Figure 2 (within) and in Figure 3 (between) indicate that

transformational leadership predicts negatively job demands and positively job

resources, supporting hypotheses H1a and H2a respectively. These results verify

findings of Schaufeli (2015). In both within and between results, job demands

positively predict work burnout and job resources positively predict work

engagement, supporting hypotheses H1b and H2b respectively. These results verify

findings of Borst *et al.* (2017), Xanthopoulou *et al.* (2007), and Schaufeli (2015).

Whilst in the within results work burnout does not predict organizational

performance, not supporting hypothesis H1c, in the between results work burnout negatively predicts organizational performance, supporting hypothesis H1c. This result verifies findings of Halkos and Bousinakis (2010). In both within and between results, work engagement positively predicts organizational performance, supporting hypothesis H2c. This result also verifies findings of Halkos and Bousinakis (2010). Comparing the absolute values of the standardised coefficients between the direct links H1a and H2a we see that transformational leadership has a stronger influence on job resources (within β = 0.782; between β = 0.942) compared to its influence on job demands (within β = -0.583; between β = -0.865). This result indicates that leadership seems to favour job resources in their balance with job demands, verifying similar finding of Schaufeli (2015).

Based on Baron and Kenny (1986) and the Sobel (1982, 1986) test and using the online calculator of Preacher and Leonardelli (2001), it is found that job demands fully mediate the relationship between transformational leadership and work burnout (Sobel within = -6.774, p = 0.000; between = -4.842, p = 0.000) and job resources fully mediate the relationship transformational leadership and work engagement (Sobel within = 14.349, p = 0.000; between = 7.642, p = 0.000). In the within results work burnout does not mediate the relationship between job demands and organizational performance, whilst in the between results work burnout fully mediates the relationship between job demands and organizational performance (Sobel between = -2.360, p = 0.018). In both the within and the between results work engagement fully mediates the relationship between job resources and organizational performance (Sobel within = 13.025, p = 0.000; between = 5.573, p = 0.000). These results are in general consistent with the stress and the motivational process of the JD-R model respectively (Schaufeli, 2015), partially supporting hypothesis H1 (between results

only) and fully supporting hypothesis H2 (both within and between results).

Personal resources fully mediate the relationship between job resources (H3a) and work burnout (H3b) for the within results only (Sobel within = -2.954, p = 0.003), verifying the findings of Xanthpoulou *et al.* (2007), and work burnout does not mediate the relationship personal resources and organizational performance, for both within and between results. Therefore, these findings partially support only the first part of hypothesis H3.

Further, personal resources partially mediate the relationship between job resources (H3a) and work engagement (H4a) for both within and between results (Sobel within = 14.162, p = 0.000; between = 5.371, p = 0.000), verifying the findings of Xanthpoulou *et al.* (2007), and work engagement fully mediates the relationship between personal resources and organizational performance for both within and between results (Sobel within = 5.596, p = 0.000; between = 2.831, p = 0.005), supporting hypothesis H4. Considering that personal resources reflect inherent personal attributes, this result may support findings of Lappalainen *et al.* (2020) with respect to work engagement. Comparing the direct links H3b and H4a for the within results in absolute terms reported in Figure 2, it is seen that personal resources have a much stronger impact on work engagement (β = 0.280) compared to their impact on work burnout (β = -0.118).

Taking into consideration the results reported in Figure 3 (between organizations), the total impact of transformational leadership on organizational performance may be distinguished into three paths of the serially mediating relationships. The first, following the stress process reports that this impact is equal to β = 0.181. The second, following the motivational process reports that this impact is equal to β = 0.395. The third, following the personal resources process reports that

this impact is equal to $\beta = 0.184$. These results support the motivational process in comparison to the stress process and the personal resources processes.

With respect to controls, only the controls included in Figure 2 (within results) produced significant results. These results support that older employees tend to be engaged more with their work than younger employees, and highly educated employees tend to hold higher personal resources than less educated employees. However, even though we were expecting controls, such as gender, to have a differential impact on work burnout and work engagement, it seems that this study supports findings of Dartey-Baah *et al.* (2020), who showed that gender is not a strong differentiating predictor of such constructs.

5.   Discussion

5.1   *Theoretical implications*

The current research extends knowledge based on the calls of many researchers such as Bakker and Demerouti (2017, 2018), Bakker (2015) and Schaufeli (2015). In particular, Bakker and Demerouti (2018, p. 8) state that "we suggest in JD-R theory that well-being and performance are the outcomes of factors at the individual (job function) level but also at the team or even the organizational level. Several studies have provided evidence for such a claim. However, the empirical evidence is still scarce and scattered". This study proposes and produces empirical evidence with respect to the JD-R model, by incorporating organizational constructs such as transformational leadership (Schaufeli, 2015), reflected into action leadership styles (e.g., responsive, supportive and developmental) and not into leadership traits (e.g., inspiring, strengthening and connecting), and organizational performance, reflected

into the dimensions of organizational productivity, growth and creativity (Katou, 2017).

In line with Bakker (2015), the proposed model integrates employee personality and examines how this construct interacts dynamically with the other multilevel constructs of the model. Our findings suggest that employee personality (i.e., personal resources) has a direct impact on individual level constructs (e.g., work burnout and work engagement), it is influenced indirectly (e.g., through job resources) by organizational level constructs (e.g., transformational leadership), and it influences only indirectly (e.g., through work engagement) organizational constructs (e.g., organizational performance). We agree with Bakker and Demerouti (2018) and Bakker (2015) that the integration of organizational and individual constructs in a model result in a better understanding of the phenomena unfolding within organizations. But, there are very few works that tested the assumptions of such models (Bakker and Demerouti, 2017).

However, in examining the integration of organizational and individual constructs in a model, accurate estimation methodologies should be used (Kozlowski and Klein, 2000). In this study we used the multilevel estimation software of Mplus. Taking into consideration that the "direct links between job demands and resources constitute an unsolved issue" (Bakker and Demerouti, 2017, p. 277), in this study we followed Schaufeli (2015) allowing the constructs of job demands and job resources, and the constructs of work burnout and work engagement to be correlated. The estimated correlation coefficients of these two pairs of employee constructs were negative, indicating possibly that there exists an inverse balance between job resources and job demands and between work engagement and work burnout.

Another unsolved issue suggested by Bakker and Demerouti (2017, p. 277), is that of the dual process, which states that "JD-R theory proposes that the health impairment process (starting with job demands) is largely independent from the motivational process (starting with job resources). However, some studies have shown direct links between variables involved in both processes, which questions their independence". In our study by trying to estimate a partially mediating model (see above), linking directly many constructs, we found that the health impairment process and the motivational process are independent. The only possible connection between the two processes is through the mediating mechanism of personal resources. And this could be accepted considering that employees who hold personal resources (i.e., proactive personality and personal expertise) are more confident about their capabilities (Xanthopoulou *et al.,* 2007), and by being more optimistic perceive work burnouts at lower levels and work engagement at higher (Xanthopoulou *et al.,* 2007; Hobfoll, 2002).

5.2   Managerial implications

The findings of our study highlight an organizational asymmetry, in the sense that the positive impact of work engagement on organizational performance offsets by far the negative impact of work burnout. This asymmetry is driven by the responsive, supportive and developmental dimensions of the transformational leader's style, which reduces employee's levels of burnout and increases their levels of work engagement. Additionally, personal resources, reflected by proactive personality and personal expertise, reduce employee's levels of burnout and increase their levels of work engagement.

These findings sent four important messages to organizations. The first message indicates that organizations should encourage the transformational leadership style for improving organizational performance, by employee decreasing employee work burnout and increasing employee work engagement. "This can be done by leadership development programs (Shuck and Herd, 2012), leadership coaching (Ely *et al.,* 2010), or by leadership workshops, which rely often on the principles of goal setting (Segers *et al.,* 2010)" (Schaufeli, 2015, p. 457). The second message indicates that leaders should empower employees with personal resources, because increased personal resources would indirectly increase organizational performance by reducing employee's levels of burnout and by increasing their levels of work engagement. The third message indicates that transformational leadership by balancing job demands and job resources could have a positive impact on employee well-being. This message supports similar views of Breevaart and Baker (2018). The final message indicates that transformational leaders should create a healthy work environment for the organization, by balancing job resources and job demands in favour of job resources, to be able to survive in turbulent times. This message supports similar views of Breevaart *et al.* (2014), who argue that transformational leadership by contributing to the development of a healthy work environment initiates employee motivational processes that will improve organizational performance.

5.3   *Limitations and future research*

This study has some limitations that need to be acknowledged. First, the data was collected using a cross-sectional design, not allowing therefore dynamic causal inferences. Accordingly, the field would be benefited to a great extent from longitudinal studies in the future, where the impact of transformational leadership on

the JD-R mediating mechanism model could dynamically be examined. Second, considering that all variables used in the study were self-reported, this may produce concerns about common method bias. Tests in the study indicated that common method bias is not of a problem. However, this may not mean that this source of bias has been completely eliminated. "However, it can be argued that such constructs as personal resources and work engagement are nearly impossible to measure in any other way than by self-reports (Makikangas *et al.,* 2004)." (Xanthopoulou *et al.,* 2007, p. 138). Third, measurement concerns about recall bias (Lippman and Mackenzie, 1985) may be raised due to the fact that all variables were reported in retrospect. Fourth, the findings from the Greek sample used in the study may not generalize across borders. For that reason, future research should consider as well other countries that are experiencing similar economic and financial crises.

6. Conclusions

In understanding the cause and effect relationship between transformational leadership and organizational performance, this study integrates in a single model the basic job demands-resources model (Schaufeli and Bakker, 2004; Schaufeli and Taris,2014; Schaufeli, 2017), extended by personal resources (Xanthopoulou *et al.,* 2007; Bakker and Demerouti, 2017), as a mediating mechanism in this relationship. It is argued that transformational leadership reduces employee's levels of burnout and increases their levels of both personal resources and work engagement, which ultimately increase organizational performance.

In examining this relationship, using data from the Greek economy, which was under severe economic and financial crises, the current study adds evidence that transformational leadership constitutes an important antecedent of the extended job

demands-resources model, which aiming at improving organizational performance

balances job demands and job resources (Schaufeli, 2015).

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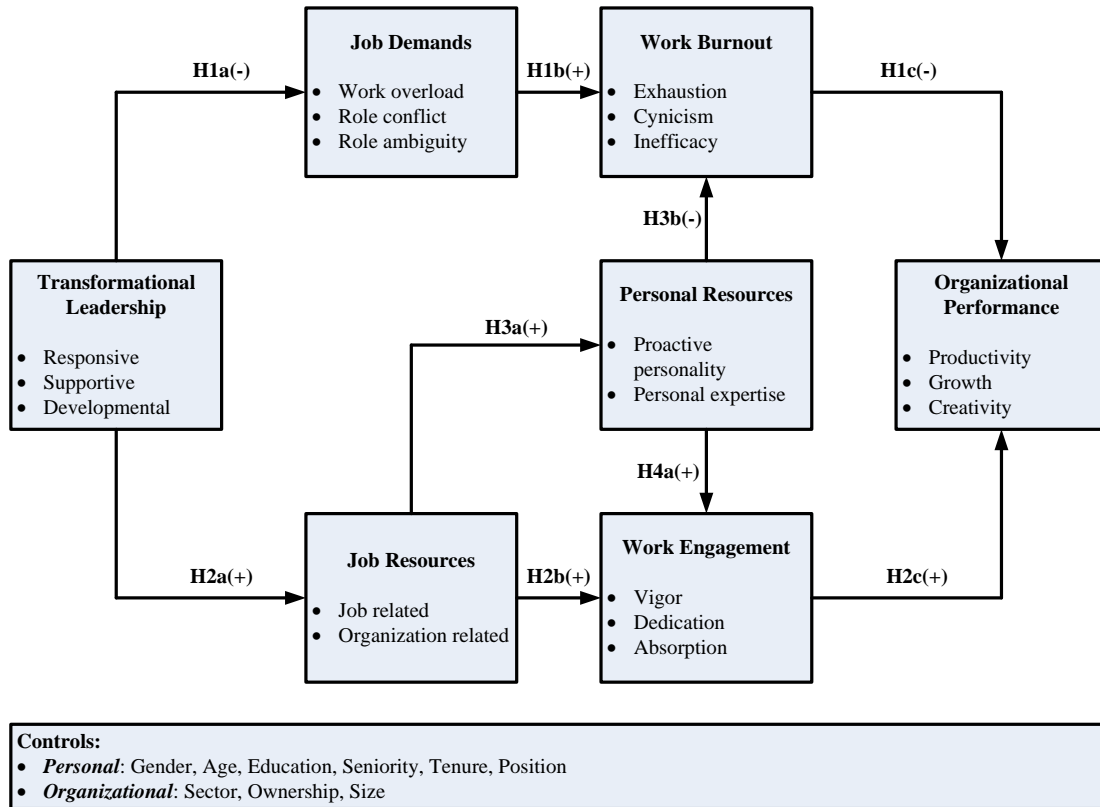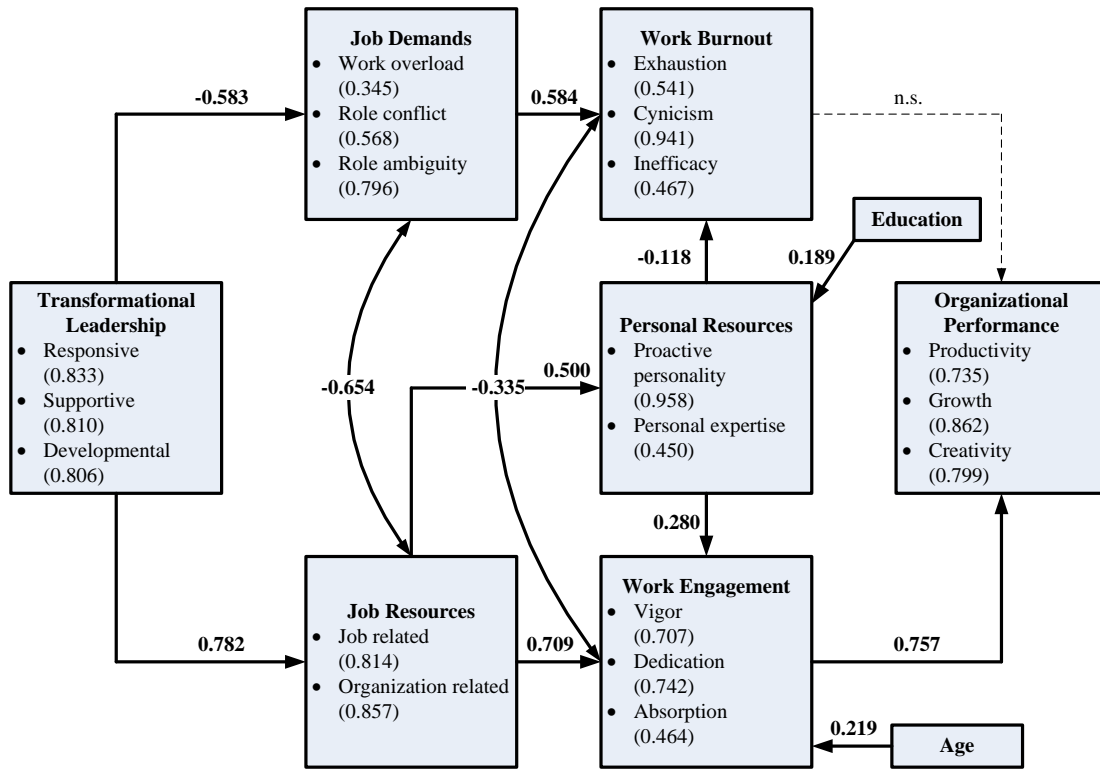
Figure 1. The hypothesized operational model

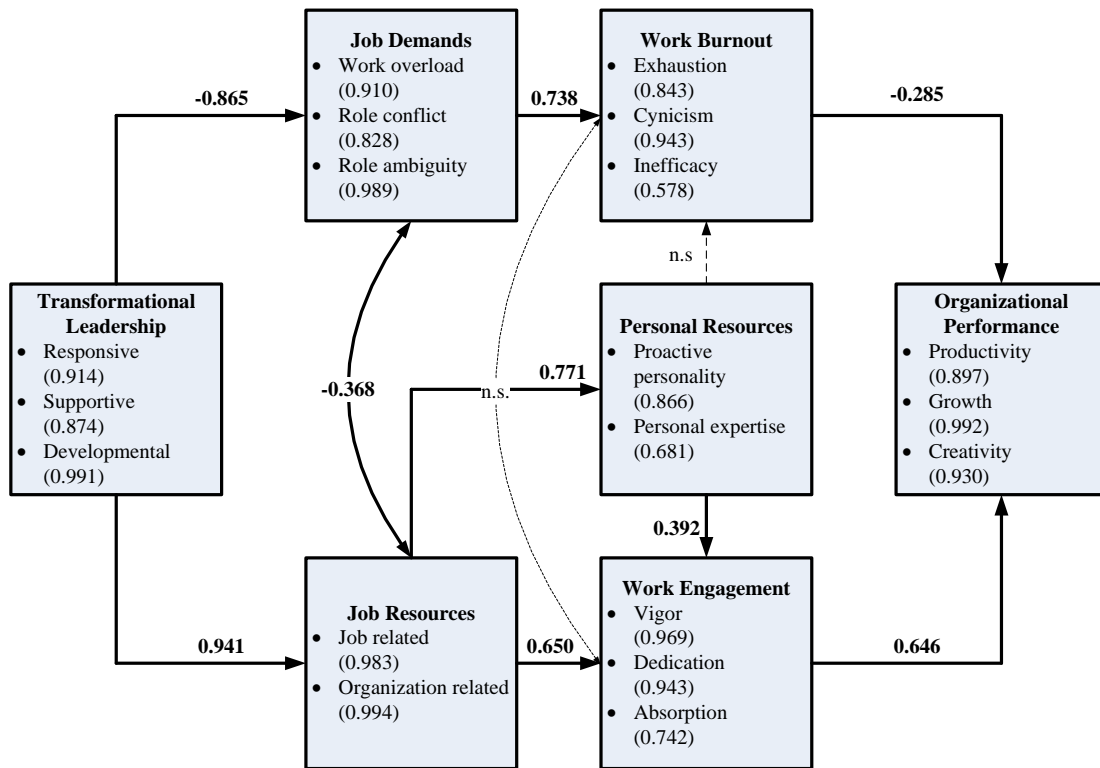**Figure 2.** Within employees estimation results of the operational model

Figure 3. Between organizations estimation results of the operational model

Table 1. Means, standard deviations, consistency and reliability indices, and correlation coefficients of constructs

	Constructs	Mean (standard deviation)	Consistency and Reliability		Correlation coefficients						
			Cronbach's α	Composite Reliability	1	2	3	4	5	6	7
1	Transformation Leadership	3.704 (0.921)	0.889	0.932	[0.819]*						
2	Job Demands	2.363 (0.621)	0.705	0.835	-0.534	[0.629]					
3	Job Resources	3.778 (0.838)	0.844	0.931	0.743	-0.639	[0.870]				
4	Personal Resources	4.147 (0.654)	0.736	0.887	0.344	-0.320	0.487	[0.798]			
5	Work Burnout	2.145 (0.761)	0.701	0.835	-0.345	0.521	-0.453	-0.297	[0.630]		
6	Work Engagement	3.633 (0.738)	0.828	0.900	0.503	-0.407	0.632	0.560	-0.370	[0.750]	
7	Organizational Performance	3.933 (0.762)	0.873	0.922	0.572	-0.486	0.635	0.370	-0.336	0.513	[0.798]

Notes: * Average Variance Explained (AVE)