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JOB DEMANDS, JOB RESOURCES AND WORK ENGAGEMENT OF ACADEMIC STAFF IN SOUTH AFRICAN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The objective of this study was to investigate the work engagement of academics in selected South African higher education institutions as well as the impact of job demands and job resources on their work engagement. Stratified random samples (N = 471) were drawn from academic staff in three higher education institutions in South Africa. The Utrecht Work Engagement Scale (UWES) and the Job Demands-Resources Scale (JDRS) were administered. The results confirmed a two-factor structure of work engagement, consisting of vigour and dedication. Six reliable factors were extracted on the JDRS, namely organisational support, growth opportunities, social support, overload, advancement and job insecurity. Job resources (including organisational support and growth opportunities) predicted 26% of the variance in vigour and 38% of the variance in dedication. Job demands (overload) impacted on dedication of academics at low and moderate levels of organisational support.

Key words
Work engagement, job demands, job resources, higher education

The higher education system in South Africa has been subjected to enormous changes during the last two decades. These changes have resulted from legislation, pressures at a global level which impact on South Africa as a member of the international community, and social and economic shifts within the country (Boughey, 2004). Various factors contributed towards problems in higher education in South Africa, namely inequities and distortions of the system, under-prepared students from poorly resourced socio-economic and academic contexts, and declining state subsidy (Hay, Fourie & Hay, 2001; Koorts, 2002). The abovementioned factors contributed to an overload of demands and an under-supply of response capabilities in higher education institutions (Clark, 2000), which might affect individuals' psychological experiences of their work and consequently their distress and eustress (Nelson & Simmons, 2003).

Psychology, with its emphasis on human suffering, has been criticised for focusing too much on negative outcomes (e.g. pathology) instead of on positive outcomes in the work environment (see Diener, Suh, Lucas & Smith, 1999; Meyers, 2000). Nelson and Simmons (2003) regard distress as a negative outcome in the work environment, whereas eustress is regarded as a positive outcome. Distress is defined as a negative psychological response to a stressor, as indicated by the presence of negative psychological states. Eustress refers to a positive psychological response to a stressor, as indicated by the presence of positive psychological states. Eustressed workers are engaged, meaning that they are enthusiastically involved in and pleasurably occupied by the demands of the work at hand.

Employee engagement involves the expression of the self through work and other employee-role activities (Kahn, 1990). Engagement is a relevant concept for employee well-being and work behaviour for several reasons. Firstly, work engagement is related to positive organisational outcomes such as job satisfaction, motivation and low turnover intention (Bakker, Demerouti & Schaufeli, 2003; May et al., 2004; Schaufeli & Bakker, 2004). Secondly, work engagement is related to positive organisational behaviour such as personal initiative and learning (Sonnentag, 2003). Thirdly, employees who are engaged in their jobs tend to be committed to their organisations, whereas those who are disengaged tend to show low commitment to their organisations (Blizzard, 2002). Research regarding the psychological foundations of work engagement will enable researchers and practitioners to understand and predict why some academics psychologically identify with their jobs.

No studies regarding work engagement of academics in South African higher education institutions or the factors that impact on it have been reported. Therefore, the objective of this study was to investigate the work engagement of academics in selected South African higher education institutions as well as the impact of job demands and job resources on their work engagement.

Work engagement

Roberts and Davenport (2002) define work engagement as a person's involvement in his or her job. Individuals who are highly engaged in their jobs identify personally with the job and are motivated by the work itself. They tend to work harder and more productively than others and are more likely to produce the results their customers and organisations want. Engaged employees report that their jobs make good use of their skills and abilities, are challenging and stimulating, and provide them with a sense of personal accomplishment.

Kahn (1990, p. 694) defines engagement as "the harnessing of organisation members' selves to their work roles [by which they] employ and express themselves physically, cognitively and emotionally during role performances". According to Kahn (1990), engaged employees become physically involved in their tasks, cognitively alert, and emotionally connected to others when performing their jobs. Engagement occurs on a regular, day-to-day basis, and is actively applied by and through employees work behaviours (see Harter, Schmidt & Hayes, 2002; May et al., 2004). Personal disengagement is described as the uncoupling from the work roles. Engagement is "the simultaneous employment and expression of a person's 'preferred self' in task behaviours that promote connections to work and to others" (Kahn, 1990, p. 700). Disengaged employees become disconnected from their jobs and hide their true identity, thoughts and feelings during role performances.

Schaufeli and Bakker (2004) define work engagement as "a positive, fulfilling work-related state of mind that is characterised by vigour, dedication and absorption" (2004, p. 295). *Vigour* represents a positive affective response to one's ongoing interactions with significant elements in one's job and

work environment that comprises the interconnected feelings of physical strength, emotional energy and cognitive liveliness. *Dedication* is characterised by deriving a sense of significance from one's work, by feeling enthusiastic, proud of one's job, and by feeling inspired and challenged by it. *Absorption* is characterised by being totally and happily immersed in one's work and having difficulty detaching oneself from it. Time passes quickly and one forgets everything else that is around (Schaufeli & Bakker, 2004).

According to May, Gilson and Harter (2004, p. 12), the construct of work engagement is closely associated with constructs such as "job involvement" and "flow". However, based on a review of the literature, they pointed out that job involvement is a cognitive state and that it refers to the centrality of a job to an individual (and his or her identity). Work engagement is regarded as an antecedent to job involvement. Similarly, May et al. (2004, p. 13) regard flow as cognitive involvement with an activity, whereas work engagement includes cognitive, emotional and physical aspects.

Work engagement and organisational commitment are also closely related, often to such an extent that it makes sense to talk about a more general outcome – organisational engagement – that combines key elements of work engagement and organisational commitment (Roberts & Davenport, 2002). Although the two concepts are related, they are not identical: organisational commitment focuses on the organisation, whereas engagement is more concerned with the work itself (Maslach, Schaufeli & Leiter, 2001). People can be engaged in their work, but not be committed to their organisations, or committed to their organisations, but not engaged in their work. Winter, Taylor and Sarros (2000) found that although academics remain attached to their job/work activities, they do not exhibit the same levels of attachment to their institutions.

Given the significance of work engagement for the individual, it is necessary to have a standardised instrument to measure work engagement. Schaufeli, Salanova, González-Romá and Bakker (2002) developed the Utrecht Work Engagement Scale (UWES), a self-report questionnaire that includes the three constituent aspects of work engagement, namely vigour, dedication and absorption (Schaufeli, Salanova et al., 2002). Results of a confirmatory factor analysis of the UWES suggest a three-dimensional structure, although these three dimensions are very closely related. Correlations between the three scales usually exceed 0,65 (Demerouti, Bakker, Janssen & Schaufeli, 2001; Schaufeli & Bakker, 2004; Schaufeli, Salanova et al., 2002). Applied to the South African context, one study confirmed a three-factor structure (i.e. Storm & Rothmann, 2003) for the UWES, whereas one study obtained a two-factor structure (Naudé & Rothmann, 2004). Furthermore, internal consistencies seem promising – at least for the vigour and dedication scales. Rothmann (2005), in a study of work engagement in South African organisations, found that the Absorption scale of the UWES showed problems in most studies with either low internal consistencies or poor loadings (see also Naudé & Rothmann, 2004).

Job demands, job resources and work engagement

Psychological experiences of work impact on individuals' attitudes and behaviour at work (Kahn, 1990, p. 695). Various factors affect these psychological experiences, namely individual, interpersonal, group, intergroup and organisational factors. Two theoretical models have been used to explain work engagement, namely the Job Demands-Resources model (Demerouti et al., 2001) and the Conservation of Resources (COR) theory (Hobfoll, 1989, 1998).

An assumption of the JD-R model is that although every occupation may have its own specific work characteristics associated with well-being, it is possible to model these characteristics in two broad categories, namely job demands and job resources (Demerouti et al., 2001). Job demands refer to those physical, psychological, social or organisational aspects of the job that require sustained physical and/or psychological effort and that are therefore associated with certain physiological and/or psychological costs (e.g. work pressure, role overload, and emotional demands). Job resources are those physical, psychological, social or organisational aspects of the job that may be functional in achieving work goals, reducing job demands, and stimulating personal growth and development. Resources may be located at the level of the organisation (e.g. salary, career opportunities, job security), interpersonal and social relations (e.g. supervisor and co-worker support, team climate), the organisation of work (e.g. role clarity, participation in decision-making), and the level of the task (e.g. performance feedback, skill variety, task significance, task identity, autonomy). Job resources may play either an intrinsic motivational role (by fostering the employee's growth, learning and development), or an extrinsic motivational role (by being instrumental in achieving work goals).

In general, job demands and resources are negatively related, since job demands, such as a high work pressure and emotionally demanding interactions with clients, may preclude the mobilisation of job resources. Also, high job resources, such as social support and feedback, may reduce the effects of job demands (Demerouti et al., 2001). According to Schaufeli and Bakker (2004), work engagement is strongly influenced by job resources. The COR theory (Hobfoll, 1989, 1998) is a relevant theory for understanding the effects of job resources (or the lack thereof) on employees. The COR theory's central tenet is that people strive to obtain, retain and protect what they value. In general, resources are those personal energies and characteristics, objects and conditions that are valued by individuals or that serve as means for the attainment of other objects, personal characteristics, conditions or energies. Examples of job resources include social support, job enhancement opportunities, autonomy, participation in decision-making, and being psychologically well (Hobfoll, 1989; Lee & Ashforth, 1996). Workload, role ambiguity, role conflict, and stressful events in general are examples of job demands (Wright & Hobfoll, 2004). According to the COR theory, personal resources affect each other and exist as a resource pool, and an expansion of one is often associated with the other being augmented (Hobfoll, 1998).

When the external environment lacks resources, individuals cannot reduce the potentially negative influence of high job demands and they cannot achieve their work goals. Neither can they develop themselves further in their job and organisation. The COR theory predicts that in such a situation employees will experience a loss of resources or failure to gain an investment (Hobfoll, 1989). Moreover, in order to reduce this discomfort or job stress, employees will attempt to minimise losses. With the intention of achieving equity without suffering further negative, personal consequences, they will most probably reduce their discretionary inputs.

The results of studies by Kahn (1990) and May et al. (2004) shed light on the reasons why job demands and job resources impact on the work engagement of individuals. These authors explain the relationship between job demands and job resources on the one hand and work engagement on the other hand in terms of three psychological processes, namely psychological meaningfulness, psychological safety and psychological availability. Psychological meaningfulness refers to "a feeling that one is receiving a return on investment of one's self in a currency of physical, cognitive, or emotional energy" (Kahn, 1990, p. 703-704). Psychological meaningfulness occurs when individuals feel useful and valuable, and is influenced by job characteristics (such as variety, learning opportunities and autonomy), work-role fit

and rewarding interpersonal interactions with co-workers. Psychological safety is defined as "feeling able to show and employ oneself without fear of negative consequences to self-image, status, or career" (p. 708). Supporting and trusting supervisory and co-worker relations lead to feelings of psychological safety. Psychological availability refers to "the sense of having the physical, emotional or psychological resources to engage at a particular moment." (p. 714). Psychological availability is influenced by physical energy, emotional energy, insecurity (e.g. lack of self-confidence, heightened self-consciousness and ambivalence about fit with the organisation), and non-work events.

Limited information is available regarding the relationship between job demands and work engagement. However, it seems that individuals could experience work engagement despite high demands. For example, Watts et al. (1991) reported that academics were very satisfied with their jobs – despite long working hours, work overload and a lack of support. Furthermore, Doyle and Hind (1998) found that despite long working hours and high levels of burnout amongst a sample of university lecturers, 40% of the respondents found their work intrinsically motivating, enjoyable and potentially rewarding. Kinman and Jones (2003) also pointed out that academics thrive on the fact that their work is stressful. Job resources might moderate the effects of job demands on work engagement. Hakanen, Bakker and Demerouti (2005, p. 2) found that job resources diminish the effects of job demands on work engagement. They showed that the relationship between job demands and work engagement was weaker for individuals with high (vs. low) job resources.

Based on the abovementioned discussion we expect that job resources will impact on work engagement in the following ways: Firstly, job characteristics (e.g. variety, learning opportunities and autonomy), impact on the work engagement of academics. May et al. (2004) showed that psychological meaningfulness mediated the relationship between job characteristics and work engagement of employees. Secondly, experiencing rewarding and supportive relationships with co-workers (which promote psychological meaningfulness and safety) lead to work engagement. Thirdly, support from an organisation (e.g. supportive relationships from the supervisor, communication, participation and advancement), which promotes psychological safety, leads to work engagement. Fourthly, physical, emotional and/or cognitive demands (i.e. overload) might overwhelm an individual and lead to disengagement from work (May et al., 2004). However, high job resources might buffer the effects of job demands on work engagement. Fifthly, work role insecurity lead to disengagement. Therefore, the following research hypotheses are formulated:

Hypothesis 1: Job resources (including growth opportunities in the job, support from the organisation, social support, advancement opportunities and job security) lead to work engagement of academics in higher education institutions.

Hypothesis 2: Job demands lead to low work engagement of academics in higher education institutions.

Hypothesis 3: Job resources reduce the effects of high job demands on the work engagement of academics in higher education institutions.

RESEARCH DESIGN

Participants

The participants were academic staff from South African higher education institutions (N = 471). The characteristics of the participants are shown in Table 1.

TABLE 1
CHARACTERISTICS OF THE PARTICIPANTS

Item	Category	Frequency	Percentage
University	North-West University	296	62,8
	Nelson Mandela Metropolitan University	86	18,3
	University of the Free State	88	18,7
Education	Grade 12 + 3-year Degree	42	9,1
	Grade 12 + 4-year Degree or Honours	81	17,5
	Grade 12 + 5- to 7-year Degree (e.g. medicine)	3	0,6
	Grade 12 + Master's Degree	118	25,4
	Grade 12 + Doctorate	151	32,5
Gender	Male	201	43,7
	Female	259	56,3
Marital status	Single/widowed	74	15,8
	Engaged/in a relationship	33	7,0
	Married	313	66,7
	Divorced	38	8,1
\	Separated	7	1,5
	Remarried	4	0,9
Age category	19-29 years	71	15,5
	30-39 years	120	26,2
	40-49 years	131	28,6
	50-59 years	115	25,2
	60-69 year	20	4,4
Language	Afrikaans	346	74,4
	English	69	14,8
	Pedi	4	0,9
	Sotho	6	1,3
	Tswana	31	6,7
	Zulu	1	0,2
	Ndebele	2	0,4
	Xhosa	6	1,3
Years experience	0-5 years	238	52,3
	5,1-10 years	77	17,1
	10,1-40 years	139	21,7

As can be seen from Table 1, most of the participants were from the North-West University (62,8%), with 32,5% in possession of a doctorate. Females constituted 56,3% of the sample, 66,7% of the participants were married, 28,6% were between the ages of 40 and 49, almost three quarters (74,4%) were Afrikaans-speaking, and the majority (52,3%) had 0-5 years experience.

Measuring instrument

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli, Salanova et al., 2002) was used to measure the levels of engagement. Two subscales of the UWES were used in this study, namely Vigour (6 items; e.g. "I am bursting with energy in my work"), and Dedication (5 items; e.g. "I find my work full of meaning and purpose"). The Absorption scale of the UWES was not used in this study because of the problems with the wording of the items (Rothmann, 2005). The UWES is scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). In terms of internal consistency, reliability coefficients for the two subscales have been determined between 0,68 and 0,91. Within the South African context, one study confirmed a three-factor solution (i.e. Storm & Rothmann, 2003) for the UWES, whereas Naudé and Rothmann (2004) obtained a two-factor structure in their study. In a sample of South African police officers, Storm and Rothmann (2003) obtained the following alpha coefficients for the two subscales: Vigour: 0,78 and Dedication: 0,89.

The *Job Demands-Resources Scale* (JDRS) was developed by the authors to measure job demands and job resources for academics. The JDRS consists of 48 items. The questions are rated on a four-point scale ranging from 1 (*never*) to 4 (*always*). Items related to typical demands and resources of academics were generated, namely role overload (pace and amount of work, mental load and emotional load), job characteristics (variety, opportunities to learn and independence), social support (relationship with colleagues and contact possibilities), organisational support (relationship with immediate supervisor, ambiguities about work, information, communication, participation), uncertainty about the future, remuneration and career possibilities.

A *questionnaire* was developed to gather information about the demographic characteristics of the participants. Information that was gathered included the following: city and university, gender, marital status, language, age, educational qualifications, job category, job title, main educational focus, years in current institution and years in current job.

Statistical analysis

Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 2005), were used to test the factorial model for the UWES. Data analyses proceeded as follows: firstly, an overview of model fit was done by observing the overall χ^2 value, together with its degrees of freedom and probability value. Global assessments of model fit were based on several goodness-of-fit statistics (GFI, AGFI, NFI, TLI, CFI and RMSEA); secondly, given findings of an ill-fitting model initially hypothesised, analyses proceeded in an exploratory mode. Possible misspecifications as suggested by the so-called modification indices were looked for, and eventually a revised, re-specified model was fitted to the data.

The remaining statistical analyses were carried out with the SPSS program (SPSS, 2005). Exploratory factor analysis was performed to investigate the factor structure of the JDRS, because it is a newly developed questionnaire. Firstly, a simple principal components analysis was conducted. The eigenvalues and scree plot were studied to determine the number of factors. Secondly, a principal component analysis with a varimax rotation was used to extract the factors (Tabachnick & Fidell, 2001).

Descriptive statistics (e.g. means and standard deviations) were used to analyse the data. Pearson product-moment correlation coefficients were used to assess the relationships between the variables. In terms of significance, it was decided to set the value at a 95% confidence interval level ($p < 0,05$). Effect sizes (Steyn, 1999) were used to decide on the practical significance of the findings. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

Two types of regression analyses were used in this study. Firstly, standard multiple regression analyses were used to investigate the main effects of job resources and job demands on work engagement. Secondly, a two-step hierarchical multiple regression analysis was conducted with the variables in their continuous form. In the first step, the predictor (i.e. Job Demands) and moderator (i.e. a specific Job Resource) were entered into the regression equation, followed by their interaction in the second step. The interaction term is represented by the product of the two main effects (i.e. Job Demands × Organisational Support) (Aiken & West, 1991). Also, in line with the procedure suggested by these authors, the independent variable and the moderator were centred before testing for the significance of the interaction term. To centre a variable, scores are put into deviation score form by subtracting the sample mean from all individuals' scores on the variable, thus producing a revised sample mean of zero.

RESULTS

Construct validity of the measuring instruments

Two models of work engagement were tested, namely a one-factor model and a two-factor model (see Table 2). In the one-factor model, it was hypothesised that items measuring vigour and dedication load on a single factor. In the two-factor model, it was hypothesised that vigour and dedication are separate, but related, dimensions of work engagement.

TABLE 2
GOODNESS-OF-FIT STATISTICS FOR THE HYPOTHESISED UWES MODELS

Model	χ^2	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Model 1 (one-factor)	176,34	5,04	0,93	0,88	0,92	0,91	0,93	0,09
Model 2 (two-factor)	134,70	3,96	0,95	0,91	0,94	0,94	0,95	0,08

The results in Table 2 show that a two-factor model of work engagement fitted the data marginally better than a one-factor model. The goodness-of-fit indices showed that the fit of the two-factor model was acceptable. The χ^2/df is lower than 5, whereas the GFI and CFI are in line with the recommended value of 0,95. The RMSEA value is 0,08, which is in line with the recommended value (Byrne, 2001), indicating moderate fit.

The results of the factor analysis on the JDRS are shown in Table 3. Loading of variables on factors are shown.

TABLE 3
PRINCIPAL COMPONENT EXTRACTION AND VARIMAX ROTATION ON THE JDRS

Item	1	2	3	4	5	6
Do you have too much work to do?	-0,05	0,13	**0,66**	-0,24	-0,05	0,03
Do you work under time pressure?	0,03	0,04	**0,70**	-0,20	-0,07	0,02
Do you have to be attentive to many things at the same time?	-0,01	0,05	**0,71**	-0,00	-0,04	-0,08
Do you have to pay continuous attention to your work?	0,10	0,05	**0,62**	0,02	-0,06	0,02
Do you have to remember many things in your work?	0,14	0,08	**0,66**	0,04	-0,10	0,04
Are you confronted in your work with things that affect you personally?	-0,22	-0,07	**0,60**	-0,07	0,14	0,10
Do you have contact with difficult people in your work?	-0,19	0,05	**0,39**	0,10	0,05	-0,00
Does your work put you in emotionally upsetting situations?	-0,26	-0,08	**0,54**	-0,01	-0,02	-0,08
Does your work make sufficient demands on all your skills and capacities?	0,09	**0,60**	0,30	-0,01	0,10	0,01
Do you have enough variety in your work?	0,18	**0,65**	0,20	0,04	0,11	0,01
Does your job offer you opportunities for personal growth and development?	0,14	**0,77**	0,04	0,10	0,14	-0,06
Does your work give you the feeling that you can achieve something?	0,12	**0,82**	0,06	0,06	0,10	-0,08
Does your job offer you the possibility of independent thought and action?	0,13	**0,79**	0,03	0,11	-0,06	-0,10
Do you have freedom in carrying out your work activities?	0,23	**0,61**	-0,11	0,16	-0,03	-0,06
Do you have influence in the planning of your work activities?	0,26	**0,54**	-0,01	0,10	-0,05	-0,01

Can you participate in the decision about when a piece of work must be completed?	0,21	**0,50**	-0,03	0,08	0,14	0,02
Can you count on your colleagues when you come across difficulties in your work?	0,28	0,10	-0,01	**0,72**	-0,03	-0,00
If necessary, can you ask your colleagues for help?	0,28	0,03	-0,09	**0,68**	0,04	-0,01
Do you get on well with your colleagues?	0,35	0,02	-0,06	**0,51**	-0,09	0,06
Can you count on your supervisor when you come across difficulties in your work?	**0,58**	0,07	-0,02	0,41	0,02	0,05
Do you get on well with your supervisor?	**0,68**	0,09	-0,05	0,31	0,02	0,02
In your work, do you feel appreciated by your supervisor?	**0,75**	0,10	-0,03	0,14	0,15	-0,02
Do you know exactly what other people expect of you in your work?	**0,64**	0,05	-0,06	0,09	-0,02	-0,07
Do you know exactly for what you are responsible?	**0,51**	0,20	-0,17	0,03	-0,04	0,03
Do you know exactly what your direct supervisor thinks of your performance?	**0,79**	0,10	-0,01	0,01	0,14	-0,07
Do you receive sufficient information on the purpose of your work?	**0,72**	0,21	-0,02	0,09	0,06	-0,10
Do you receive sufficient information on the results of your work?	**0,72**	0,17	-0,01	0,03	0,15	-0,01
Does your direct supervisor inform you about how well you are doing your work?	**0,77**	0,04	-0,01	-0,04	0,16	-0,01
Are you kept adequately up-to-date about important issues within your university?	**0,57**	0,21	-0,03	0,09	0,18	-0,03
Is the decision-making process of your university clear to you?	**0,61**	0,19	-0,03	-0,04	0,19	-0,10
Is it clear to you whom you should address within the university for specific problems?	**0,61**	0,15	-0,04	0,16	-0,03	-0,01
Can you discuss work problems with your direct supervisor?	**0,68**	0,13	-0,04	0,27	0,01	-0,03
Can you participate in decisions about the nature of your work?	**0,63**	0,35	-0,03	0,17	0,02	-0,11
Do you have a direct influence on your university's decisions?	**0,41**	0,38	0,14	0,08	0,08	-0,13
Do you have contact with colleagues as part of your work?	0,26	0,16	0,04	**0,53**	0,06	0,00
Can you have a chat with colleagues during working hours?	-0,10	0,11	-0,07	**0,70**	0,14	-0,04
Do you find that you have enough contact with colleagues during working hours?	0,01	0,12	-0,07	**0,64**	0,19	-0,06
Do you need to be more secure that you will still be working in one year's time?	-0,08	-0,06	0,02	-0,02	0,01	**0,90**
Do you need to be more secure that you will keep your current job in the next year?	-0,10	-0,10	0,01	0,01	0,03	**0,94**
Do you need to be more secure that next year you will keep the same function level as currently?	-0,09	-0,10	-0,01	-0,02	-0,02	**0,88**
Do you think that your university pays good salaries?	0,23	0,04	-0,03	0,06	**0,76**	0,09
Can you live comfortably on your pay?	0,04	0,09	0,02	0,13	**0,80**	0,02
Do you think you are paid enough for the work that you do?	0,13	0,08	-0,13	0,12	**0,79**	-0,02
Does your job offer you the possibility to progress financially?	0,15	0,26	0,02	-0,01	**0,70**	-0,05
Does your university give you opportunities to follow training courses?	0,24	0,24	-0,16	0,14	**0,45**	-0,15
Does your job give you the opportunity to be promoted?	0,06	0,51	-0,09	-0,03	**0,34**	-0,06

The six extracted factors accounted for 52,02 per cent of the total variance in the data. The first factor is labelled Organisational Support. It includes 15 items which measure the relationship with the supervisor, communication, role clarity, information needed to do the job, and participation in decision-making. The second factor is labelled Growth Opportunities. It includes 8 items which measure variety in the job, learning opportunities inherent in the job, and autonomy. The third factor is labelled Overload. It includes 8 items which measure pace and amount of work, quantitative load (e.g. having to remember many things) and emotional load. The fourth factor, namely Social Support, includes 6 items which measure contact opportunities with others and social support from colleagues. The fifth factor, namely Advancement, includes 6 items which refer to pay, financial progress in the job, and promotion opportunities. The last factor, namely Job Insecurity, includes 3 items which measure the respondents' indication that they need to be more secure in keeping their current job, and the current level of functioning.

Next, a second-order factor analysis was carried out on the six factors as measured by the JDRS to determine whether these factors represent the two higher order factors of job demands and job resources. A principal component analysis showed that two factors, which explained 54.60% of the total variance, could be extracted. A principal component analysis with a varimax rotation was subsequently carried out. The two factors that were extracted were labelled Job Demands and Job Resources. Job Demands included Overload (loading = 0,90), whereas Job Resources included Organisational Support (0,79), Growth Opportunities (0,77), Job Insecurity (-0,34) and Social Support (0,61), and Advancement (0,67).

Descriptive statistics

The descriptive statistics, alpha coefficients, and correlations of the measuring instruments, namely the UWES and JDRS are reported in Table 4.

Table 4 shows that acceptable Cronbach alpha coefficients varying from 0,76 to 0,92 were obtained for the scales (Nunnally & Bernstein, 1994). Compared to a national norm, 25,6% of educators in universities had low levels of vigour and 25,4% had low dedication. Twenty-six per cent showed high levels of vigour and 22,8% showed high levels of dedication.

Inspection of Table 4 indicates that vigour is statistically and practically significantly positively related to growth opportunities ($r = 0,74$, $p < 0,01$, large effect), and organisational support ($r = 0,40$, $p < 0,01$, medium effect). Vigour is also statistically significantly positively related to social support ($r = 0,14$, $p < 0,01$) and advancement ($r = 0,28$, $p < 0,01$) and negatively related to job insecurity ($r = -0,13$, $p < 0,01$). Dedication is statistically and practically significantly positively related to Organisational support ($r = 0,41$, $p < 0,01$, medium effect), growth opportunities ($r = 0,74$, $p < 0,01$, large effect), and advancement ($r = 0,32$, $p < 0,01$, medium effect). Dedication is also statistically significantly related to social support ($r = 0,18$, $p < 0,01$).

Multiple regression analyses

Next, multiple regression analyses were carried out with job demands and job resources (as measured by the JDRS) as independent variables and vigour and dedication (as measured by the UWES) as dependent variables (see Tables 5 and 6). The independent variables were entered in blocks. This was done, because previous studies (e.g. Jackson, Rothmann & Van de Vijver, 2006) showed that job resources (compared to job demands) are better predictors of work engagement. Therefore, job resources were entered into the analysis in the first step, followed by job demands in the second step.

The results of a multiple regression analysis with job resources and job demands (as measured by the JDRS) as independent variables and vigour (as measured by the UWES) as dependent variable are reported in Table 5.

The results in Table 5 show that 26% of the variance in vigour (as measured by the UWES) is predicted by job resources. However, the regression coefficients of only two job resources (namely organisational support and growth opportunities) were statistically significant. No statistically significant increase in the R^2 was obtained when job demands (i.e. overload) was entered into the regression analysis. Furthermore, Table 5 shows that the standardised regression coefficients for growth opportunities (0,32) and organisational support (0,26) were moderate and about equally strong.

The results of a multiple regression analysis with job resources and job demands (as measured by the JDRS) as independent variables and dedication (as measured by the UWES) as dependent variable are reported in Table 6.

The results in Table 6 show that 38% of the variance in dedication (as measured by the UWES) is predicted by job resources. However, the regression coefficients of only three job resources (namely organisational support, growth opportunities and advancement) were statistically significant. No statistically significant increase in the R^2 was obtained when job demands (i.e. overload) was entered into the regression analysis. Furthermore, Table 6 shows that the standardised regression coefficient for growth opportunities (0,49) was strong compared to the coefficients for organisational support (0,19) and advancement (0,08). Therefore, Hypothesis 1 is partially accepted, whereas Hypothesis 2 is rejected.

Next, the possible interactions between job demands and job resources in terms of vigour and dedication were analysed. The predictor and moderator main effects were entered into the regression equation first, followed by the interaction of the predictor and the moderator. The results of a series of hierarchical multiple regression analyses with vigour and dedication as dependent variables are reported in Table 7.

It is clear from Table 7 that the R^2 increased statistically significantly when the interaction term between overload and organisational support was entered into the regression analysis when dedication was used as dependent variable. To further

Table 4
Descriptive statistics, alpha coefficients and correlations of the scales

	Scale	Mean	SD	a	1	2	3	4	5	6	7
1	UWES - Vigour	20,49	5,66	0,76	-	-	-	-	-	-	-
2	UWES - Dedication	22,96	5,82	0,86	0,74*++	-	-	-	-	-	-
3	JDRS - Organisational Support	43,52	9,16	0,92	0,40*+	0,41*+	-	-	-	-	-
4	JDRS - Growth Opportunities	45,80	9,12	0,85	0,74*++	0,74*++	0,37*+	-	-	-	-
5	JDRS - Overload	23,32	3,83	0,77	0,04	0,05	-0,13*	0,17*	-	-	-
6	JDRS - Social Support	19,00	3,23	0,77	0,14*	0,18*	0,44*+	0,13*	-0,16*	-	-
7	JDRS - Advancement	11,82	3,45	0,76	0,28*	0,32*+	0,37*+	0,40*+	-0,13*	0,26*	-
8	JDRS - Insecurity	6,95	3,11	0,91	-0,13*	-0,05	-0,17*	-0,12*	0,03	-0,06	-0,09

* p < 0,05 – statistically significant
+ r > 0,30 – practically significant (medium effect)
++ r > 0,50 – practically significant (large effect)

Table 5
Regression analysis with vigour as dependent variable

Model	Unstandardised Coefficients		Standardised Coefficients	t	p	F	R	R^2	ΔR^2
	B	SE	Beta						
1						32,97*	0,51	0,26*	0,26*
(Constant)	6,56	1,73		3,79	0,00				
Organisational Support	0,16	0,03	0,26	5,25	0,00*				
Growth Opportunities	0,37	0,05	0,33	6,92	0,00*				
Social Support	-0,15	0,08	-0,09	-1,92	0,06				
Advancement	0,12	0,07	0,07	1,60	0,11				
Insecurity	-0,05	0,07	-0,03	-0,68	0,49				
2						27,58*	0,51	0,26*	0,00
(Constant)	5.21	2,35		2,22	0,03				
Organisational Support	0,16	0,03	0,26	5,31	0,00*				
Growth Opportunities	0,36	0,06	0,32	6,56	0,00*				
Social Support	-0,14	0,08	-0,08	-1,79	0,08				
Advancement	0,13	0,07	0,08	1,69	0,09				
Insecurity	-0,05	0,07	-0,03	-0,71	0,48				
Overload	0,05	0,06	0,04	0,85	0,39				

* p < 0,05

examine the direction of the interaction effect, a graphical representation of the moderation effect was produced using the procedure of simple slope analysis (Aiken & West, 1991). Predicted scores of dedication were computed for three groups, namely for those who scored on the mean, as well as one standard deviation below and above the mean on the moderator variable, that is organisational support. After that, a figure, representing the moderation effect was drawn (see Figure 1).

Figure 1 shows that dedication did not increase when job demands (i.e. physical, cognitive and emotional load) increased under conditions of high organisational support. Job demands (overload) impacted stronger on dedication under conditions of low and moderate organisational support. It was expected that the negative relationship between overload and dedication would be weaker for academic staff with much (vs. little) organisational support. In other words, individuals who experience high organisational support (compared to those who experience low organisational support) were expected to show less dedication when job demands were also high. Therefore, the interaction effect was not in the expected direction. On the contrary, it seems that job demands (i.e. overload) contribute to dedication under conditions of low and moderate organisational support. Hypothesis 3 is therefore rejected.

Table 6
Regression analysis with dedication as dependent variable

Model		Unstandardised Coefficients		Standardised Coefficients	t	p	F	R	R^2	ΔR^2
		B	SE	Beta						
1							56,68*	0,62	0,38*	0,38*
	(Constant)	3,39	1,63		2,08	0,04				
	Organisational Support	0,12	0,03	0,19	4,22	0,00*				
	Growth Opportunities	0,58	0,05	0,49	11,45	0,00*				
	Social Support	-0,10	0,07	-0,05	-1,32	0,19				
	Advancement	0,13	0,07	0,08	1,89	0,06				
	Insecurity	0,12	0,07	0,07	1,79	0,07				
2							47,24*	0,62	0,38*	0,00
	(Constant)	2,44	2,21		1,10	0,27				
	Organisational Support	0,12	0,03	0,19	4,26	0,00*				
	Growth Opportunities	0,58	0,05	0,49	11,01	0,00*				
	Social Support	-0,09	0,08	-0,05	-1,22	0,22				
	Advancement	0,14	0,07	0,08	1,95	0,05*				
	Insecurity	0,12	0,07	0,07	1,77	0,08				
	Overload	0,04	0,06	0,03	0,64	0,52				

* p < 0,05

Table 7
Regression of vigour and dedication on overload and job resources

		Vigour					Dedication			
Step	Model	β	R^2	F	Step	Model	β	R^2	F
1	Overload	0,13*			1	Overload	0,15*		
	Organisational Support	0,25*	0,168*	47,36		Organisational Support	0,27*	0,179*	50,92
2	Overload × Organisational Support	-0,01	0,006	32,79	2	Overload × Organisational Support	-0,02*	0,012*	36,83
1	Overload	-0,14*			1	Overload	-0,12*		
	Growth Opportunities	0,47*	0,548*	283,53		Growth Opportunities	0,48*	0,551*	286,66
2	Overload × Growth Opportunities	-0,00	0,00	188,76	2	Overload × Growth Opportunities	0,00	0,000	190,71
1	Overload	0,09			1	Overload	0,12		
	Social Support	0,26*	0,023*	5,43		Social Support	0,36*	0,040	9,76
2	Overload × Social Support	-0,01	0,00	3,65	2	Overload × Social Support	-0,04	0,005	7,47
1	Overload	0,06			1	Overload			
	Job Insecurity	-0,23	0,017*	4,10		Job Insecurity	0,07	0,005*	1,14
2	Overload × Job Insecurity	0,00	0,00	2,73	2	Overload × Job Insecurity	-0,10	0,00	0,84
1	Overload	0,11			1	Overload	0,13		
	Advancement	0,46*	0,08*	20,74		Advancement	0,57*	0,11*	29,78
2	Overload × Advancement	-0,01	0,00	13,93	2	Overload × Advancement	-0,00	0,00	19,81

* p < 0,05

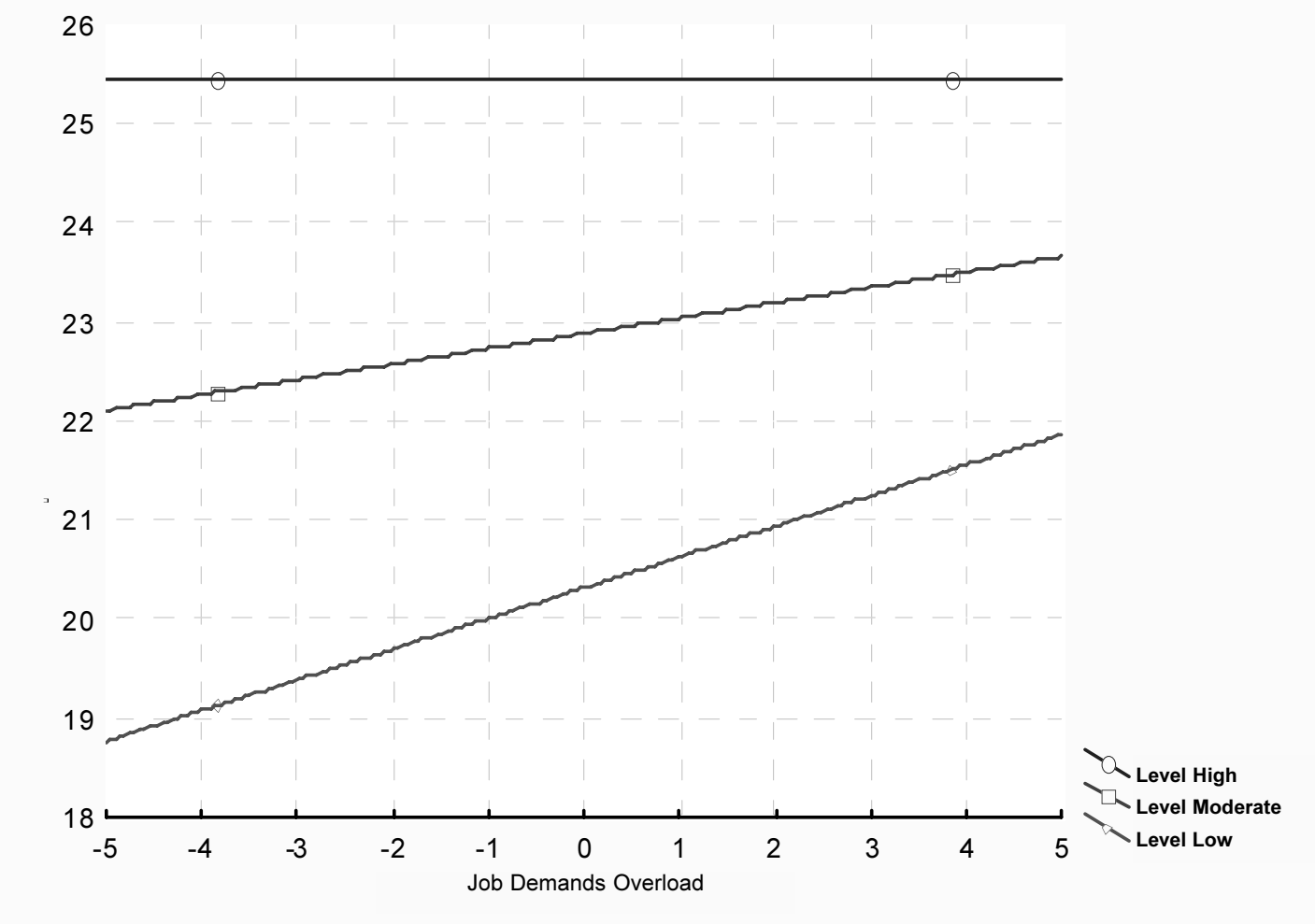

Figure 1. Regression analysis of job demands on dedication at three levels of organisational support

DISCUSSION

The objective of this study was to investigate the work engagement of academics in selected South African higher education institutions as well as the impact of job demands and job resources on their work engagement. The results confirmed that job resources (such as growth opportunities, organisational support and advancement) predicted work engagement (vigour and dedication), whereas job demands (overload) impacted positively on dedication (a component of work engagement) when organisational support was low to moderate. Job insecurity was negatively related to dedication.

The results showed that a two-factor model of work engagement fitted the data better than a one-factor model. Therefore, work engagement consists of two dimensions: vigour and dedication. Vigour refers to a positive affective response to one's ongoing interactions with significant elements in one's job and work environment, and includes physical strength, emotional energy and cognitive liveliness. Dedication refers to experiences of significance from one's work, feeling enthusiastic, and being proud of one's job. It is concerning that the work engagement (i.e. vigour and dedication) of academics seems to be lower than the national norm.

Six internally consistent factors were extracted on the JDRS, namely organisational support, growth opportunities, social support, overload, advancement and job insecurity. A second-order factor showed that these factors represent two higher order factors, namely job demands and job resources. These results support the Job Demands-Resources model (see Demerouti et al., 2001).

Vigour of academics was strongly related to growth opportunities (i.e. variety, learning opportunities and autonomy) in the job, and moderately related to organisational support (i.e. the relationship with the manager, participation, communication, role clarity and information). Growth opportunities and organisational support predicted 26% of the variance in vigour of academics. Dedication of academics was strongly related to growth opportunities, and moderately related to organisational support and advancement opportunities. Growth opportunities in the job, organisational support and advancement predicted 38% of the variance of dedication of academics.

As hypothesised in the COBE model (Schaufeli & Bakker, 2004), job resources may play either an intrinsic motivational role by fostering the employee's growth, learning and development, or an extrinsic motivational role by being instrumental in achieving work goals. It seems that factors which play and intrinsic motivational role (i.e. growth opportunities in the job, such as variety, learning opportunities, and autonomy) as well as factors that play and extrinsic motivational role (i.e. advancement and organisational support, such as the relationship with the supervisor, information, communication, participation, and role clarity) impacted on the work engagement of academics in this study.

Furthermore, the results of this study showed that there was a weak relationship between job demands and work engagement (both vigour and dedication). However, moderated regression analysis showed that job demands (pace and amount of work, quantitative load and emotional load) contribute to dedication (a component of work engagement) under conditions of low organisational support. Under conditions of high organisational support (compared to conditions of low organisational support), academics are more dedicated, irrespective whether they experience low, moderate or high job demands.

The finding that job resources impacted strongly on the work engagement of academics at higher education institutions provides support for the COR theory (Hobfoll, 1998). When higher education institutions do not provide sufficient job resources (e.g. organisational support, growth opportunities, advancement opportunities, and social support), the long-term consequences include withdrawal from work and reduced motivation and commitment (Hobfoll, 1998). Academics at higher education institutions are likely to be able and willing to invest in their jobs if two conditions are met: firstly, they must have the necessary resources available; and secondly, the organisation must be perceived as providing the necessary work environment for employees to utilise their abilities and satisfy their needs. When resources are lacking, individuals cannot reduce the potentially negative influence of high job demands and they cannot achieve their work goals. Neither can they develop themselves further in their job and organisation. In such a situation employees will experience a loss of resources or failure to gain an investment (Hobfoll, 1989). Therefore, they will defend themselves against resource lost, by disengaging from their jobs.

Based on the results of this study, it can be concluded that job resources play a significant role in the work engagement of academics at higher education institutions. Three types of job resources were moderate to strong predictors of work engagement of academics, namely growth opportunities in the job (i.e. variety, learning opportunities and autonomy), organisational support (i.e. supportive supervisory relationships, communication, information, role clarity and participation) and advancement opportunities (i.e. remuneration, training and advancement opportunities). It seems that academics are more inclined to invest themselves in their work roles when these resources are perceived to be present in their work.

The results of this study provide support for the hypothesis that psychological experiences of work (and specifically job resources) impact on academics' work engagement (see Kahn, 1990). Although all the job resources (i.e. growth opportunities in the job, organisational support, advancement, social support and job security) were related to work engagement of academics, the effects were the strongest for growth opportunities, followed by organisational support and advancement. Growth opportunities affect the psychological meaningfulness attributed to jobs, and it is clear that work engagement decreases if academics experience less variety, learning opportunities, and autonomy (see also the findings of May et al., 2004). Furthermore, a supportive organisational environment is associated with work engagement, presumably because it promotes the psychological safety of academics (Kahn, 1990; May et al., 2004). The expected relationship between job demands (role overload) did not realise in this study. However, it seems that job demands contribute to dedication of academics when organisational support is low.

This study had several limitations. Firstly, a cross-sectional survey design was used, which makes it impossible to prove the causality of the obtained relationships. It is necessary to study the relationships between job demands, job resources and work engagement in a longitudinal design. Secondly, this study did not consider the role of distress (e.g. burnout). Burnout, which is not the direct opposite of work engagement, might have provided a better explanation of disengagement of academics. Thirdly, only three types of demands, namely pace and amount of work, quantitative load and emotional load were studied. Other demands, such as work-home interference and home-work interference were not studied and should be included in future studies. Fourthly, this study did not include the mechanisms through which job demands and job resources affect work engagement, namely psychological meaningfulness, psychological safety, and psychological availability (see May et al., 2004). Future studies should include these mechanisms.

Recommendations

This study suggested that at least three aspects should be addressed to increase the work engagement of academics in higher education institutions, namely growth opportunities in the job, organisational support, and advancement opportunities. Firstly, interventions should be made to ensure that academics have variety, learning opportunities and autonomy in their jobs. Such job characteristics contribute to the psychological meaningfulness of work (May et al., 2004), which is an important consideration in the current management culture in higher education institutions. Secondly, interventions should be implemented to ensure organisational support, including role clarity, good relationships with supervisors, communication, information and participation in decision-making. Such interventions contribute to feelings of psychological safety of staff members (Kahn, 1990). Academic leaders could play a significant role in ensuring organisational support by being fair to staff members, by coaching them, and by interviewing them on a regular basis about their personal functioning, professional development, and career development. Thirdly, advancement opportunities (remune-ration, promotion and training) of academics in South African higher education institutions should be addressed. To promote work engagement, it is necessary to acknowledge and reward good performance instead of exclusively correcting substandard performance (Schabracq, 2003).

Until recently, little research has been done regarding positive aspects of human behaviour in the work context. Too much attention has been paid to unhealthy and dysfunctional aspects. The focus should change towards the strengths of human beings in the work context. Longitudinal research should be conducted regarding the causal relationships between job demands, job resources and work engagement. Furthermore, the moderating effects of personality dispositions on work engagement should be investigated.

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