

# **WORK WELLNESS AT A HIGHER EDUCATION INSTITUTION IN SOUTH AFRICA**

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## **DEDICATION**

**IN GOD I TRUST**

**“If we persist we will begin to perceive the significant variables  
in elegant simplicity, because that is what usually happens  
when one finally understands a phenomenon.”**

J.M. Bardwick

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"One thing God has spoken, two things have I heard: that you, O God, are strong, and that you will reward each person according to what he has done" (Ps. 62: 12 & 13)

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## SUMMARY

**Topic:** Work wellness at a higher education institution in South Africa.

**Key terms:** Work wellness, burnout, cognitive weariness, work engagement, occupational stress, health, organisational commitment, affectivity, positive psychology.

With the introduction of positive psychology the aim with organisational psychology shifted to finding the 'happy/productive' worker and focusing more on work wellness. Historically, working in a higher education institution has generally been considered relatively stress-free and highly satisfying. However, recently the world of work has started to change drastically, which also holds true for higher education institutions. Since 1994, the democratic post-apartheid government of South Africa has attempted to redress the injustices of the apartheid era. One of the focus areas of redress is the educational system. This has resulted in a restructuring of the broad higher education system, which implies consequences for the governance of all tertiary institutions.

This research focused on the total spectrum of wellness – from unwell-being (e.g. burnout and stress) to well-being (e.g. work engagement). The moderating effects of organisational commitment and affectivity were investigated in order to establish a work wellness profile that will serve as basis for a wellness programme within the work environment. The objectives of this research were to standardise the MBI-GS, UWES and ASSET for employees of higher education institutions as well as to develop and test a causal model of work wellness for this specific group.

The research findings are set out as four separate articles, each consisting of a brief literature overview and an empirical study. A cross-sectional design, whereby a sample is drawn from a population at a particular point in time, was used. The data for this study were collected from 372 academic and administrative employees at a higher education institution in South Africa. The Maslach Burnout Inventory (MBI-GS), Cognitive Weariness Scale (CWS), Utrecht Work Engagement Scale (UWES), An Organisational Stress Screening Tool (ASSET), Job Characteristics Scale (JCS), Affectometer 2 (AFM) and a biographical

questionnaire were administered. Descriptive statistics, correlations, analysis of variance, canonical analysis, multiple regression analysis and structural equation modelling were used.

Structural equation modelling confirmed a four-factor model of burnout consisting of exhaustion, cynicism, professional efficacy, and cognitive weariness. The scales showed acceptable internal consistencies. Analysis of variance revealed differences in burnout for groups with different languages and different years of experience at the institution. A three-factor model of the three UWES dimensions of vigour, dedication and absorption was confirmed. Practically significant differences were found in engagement levels of employees in different language groups, those with different years of experience at the institution and between academic and administrative employees. Acceptable construct validity and internal consistency were found for the ASSET. Compared to normative data, the participants reported significantly high levels of physical ill health, psychological outcomes of stress, and perceived lack of commitment from the organisation. Analysis of variance revealed differences in occupational stress levels for all the biographical variables tested.

Multiple regression analysis was used to determine the factors that predict burnout and work engagement. The results showed that engagement can be considered a positive indicator of employee wellness and that job resources and positive affectivity contribute to engagement. Work engagement was related to low burnout scores, while professional efficacy was associated with work engagement. Burnout and physical and emotional strain are negative indicators of employee wellness, while overload, negative affectivity and low levels of positive affectivity contribute to burnout.

Recommendations for the organisations and future research were made.

## OPSOMMING

**Onderwerp:** Werkwelstand by 'n hoëronderwysinstansie in Suid-Afrika.

**Sleutelwoorde:** Werkwelstand, uitbranding, kognitiewe vermoeidheid, werksbegeestering, beroepstres, gesondheid, organisasieverbondenheid, affektiwiteit, positiewe sielkunde.

Met die bekendstelling van positiewe sielkunde het die doelwit van organisasiesielkunde verskuif na 'n soeke na die 'gelukkige/produktiewe' werker en werknemerwelstand. Geskiedkundig is werk in hoëronderwysinstansies oor die algemeen as relatief spanningsvry en hoogs bevredigend beskou. Onlangs het die wêreld van werk egter drasties begin verander en daarmee saam ook hoëronderwysinstansies. Sedert 1994 het die na-apartheidsregering van Suid Afrika daadwerklik begin om die ongeregtigheid van die apartheidera te herstel. Een van die fokusareas van hierdie herstel is die onderwyssisteem. Dit het gelei tot 'n herstrukturering van die hoëronderwyssisteem in die breë, wat implikasies inhou vir die bestuur van alle tersiêre instellings. Terselfdertyd is die realiteit van globalisering besig om strukturele veranderings en aanpassing op hoëronderwysinstansies af te dwing ten einde 'n nuwe organisatoriese realiteit daar te stel wat tweede-orde nuwe-effekte op werknemers het.

Hierdie navorsing het gefokus op die totale spektrum van welstand – van nie-welstand (bv. uitbranding en stres) tot welstand (bv. werksbegeestering). Die verligtingseffek van organisasieverbondenheid en affektiwiteit is ook ondersoek ten einde 'n werkwelstandsprofiel daar te stel wat sal dien as basis vir 'n omvattende welstandsprogram in die werksomgewing. Die doelstellings van die studie was om die MBI-GS, UWES en ASSET vir werknemers van 'n hoëronderwysinstansie te standaardiseer en om 'n oorsaaklike model vir werknemerwelstand vir die spesifieke groep daar te stel.

Die navorsingsbevindinge word weergegee in vier afsonderlike artikels wat elk bestaan uit 'n kort literatuuroorsig en 'n empiriese studie. 'n Dwarssnecopname-ontwerp is gebruik en die opname van die populasie is op 'n spesifieke tydstip gemaak. Die data vir die studie is versamel onder 372 akademiese en administratiewe werknemers by 'n hoëronderwysinstansie in Suid Afrika. Die Maslach Uitbrandingsvraelys – Algemene Opname (MBI-GS),

Kognitiewe Vermoeidheidskaal, Utrecht-werksbegeesteringskaal (UWES), 'n Organisasiestresgraderingsinstrument (ASSET), die Werkskarakteristiek skaal (JCS), die Affektometer 2 (AFM) en 'n biografiese vraelys is afgeneem. Beskrywende statistiek, korrelasies, variansieanalise, kanoniese analise, meervoudige regressieanalise en strukturele vergelykingsmodellering is gebruik.

Strukturele vergelykingsmodellering het 'n aangepaste vierfaktormodel van uitbranding bestaande uit uitputting, sinisme, professionele doeltreffendheid en kognitiewe vermoeidheid vir werknemers van 'n hoërsonderwysinstansie in Suid-Afrika bevestig. Die skale het aanvaarbare interne konsekwentheid getoon. Variansieanalise het verskille ten opsigte van uitbranding en kognitiewe vermoeidheid by verskillende taalgroepe en groepe met verskillende jare ervaring by die instansie opgelewer. In ooreenstemming met die meeste navorsing is 'n driefaktormodel met aanvaarbare interne konsekwentheid bevestig vir al drie die skale van die UWES, naamlik energie, toewyding en absorpsie. Prakties betekenisvolle verskille is gevind vir werksbegeesteringsvlakke by verskillende taalgroepe, werknemers met verskillende jare ervaring by die instansie, en tussen akademiese en administratiewe werknemers. Die konstrugeldigheid en interne konsekwentheid van die Organisasiestresgraderingsinstrument (ASSET) is bevestig. Die resultate het ook getoon dat, vergeleke met die normatiewe data, deelnemers beduidend hoër vlakke van fisieke ongesondheid en psigologiese uitkomst van stres rapporteer, en ook 'n gebrek aan verbondenheid komende van die werkgewer ervaar. Variansieanalise het verskille in werkstresvlakke uitgewys vir al die biografiese veranderlikes wat getoets is.

Meervoudige regressieanalise het aangetoon dat werks hulpsbronne en positiewe affektiwiteit tot werksbegeestering bydra. Werknemerwelstand was verwant aan lae uitbrandingsvlakke, terwyl professionele doeltreffendheid tot werksbegeestering bygedra het. Uitbranding asook fisieke en emosionele ooreising is negatiewe aanduiders van werknemerwelstand en oorbelading, terwyl negatiewe affektiwiteit en lae vlakke van positiewe affektiwiteit tot uitbranding bydra.

Aanbevelings vir die organisasies en voorstelle vir toekomstige navorsing is aan die hand gedoen.

## **CHAPTER 1**

### **INTRODUCTION**

This thesis is about work wellness of employees at a tertiary education institution in South Africa.

In this chapter the problem statement is discussed, research objectives are set out, the research method is explained and a division of chapters is given.

#### **1.1 PROBLEM STATEMENT**

During the past 20 years there has been a growing trend among companies worldwide to start realising the importance of the so-called 'human factor' (Snyder & Lopez, 2002). Attention has become focused on the total well-being or wellness of employees (Ryff & Singer, 1998; Sheldon & King, 2001). This refers not only to the absence of health problems, but also to the promotion of wellness (Wolfe & Parker, 1994).

The concept of wellness has been developed in several disciplines to describe the "total person" approach for improving the quality of life in proactive and positive ways, and lifestyles are looked at in view of creating high-level wellness (Witmer, Sweeney & Myers, 1998). The wellness model has its philosophical underpinnings in the salutogenic (Antonovsky, 1979, 1984, 1987) as opposed to pathogenic paradigm. The term "salutogenesis", which was coined by Antonovsky (1979), refers to the origins of health. The theory assumes that stress-producing experiences are ubiquitous, but that individuals have access to an array of resistance resources for coping with them without undue harm.

In a further development of the salutogenic model, Strümpfer (1990) argued that to emphasise health as the core endpoint of a whole paradigm is to limit the extent of the paradigm. He proposed expanding the construct to "fortigenesis", encompassing the origins of strength in general in all areas of human well-being. The salutogenic (Antonovsky, 1987) and fortigenic (Strümpfer, 1995) paradigms view well-being as lying along a continuum, with the one extreme being that of health and the other that of "disease". The central point is one of neutrality, representing the absence of symptoms or disease, while the positive end of the

continuum represents optimal well-being (Ardell, 1995). Wissing and Van Eeden (1997) called this paradigm “psychofortology” and proposed that it become a sub-discipline of the field of psychology.

Today the terms *wellness* and *health promotion* are used synonymously and are intended to mean good health, a balanced life and optimal well-being, i.e. a shift towards what Seligman and Csikszentmihalyi (2000) referred to as “positive psychology”. Recently, a special edition of the *American Psychologist* called “Positive Psychology” was published where an international attempt was made to stimulate research into the origins of health or strengths (Seligman & Csikszentmihalyi, 2000). This movement culminated in the publication of the “Handbook of Positive Psychology” (Snyder & Lopez, 2002), whereby the wellness paradigm has irrevocably been established.

Although many people have formulated various definitions for the term wellness the comprehensive definition of wellness by Myers, Sweeney and Witmer (2000, p. 252) will be used as a guideline in this study: “Wellness is a way of life oriented toward optimal health and well-being in which body, mind and spirit are integrated by the individual to live more fully within the human and natural community. Ideally it is the optimum state of health and well-being that each individual is capable of achieving.” Wellness involves a lifestyle with an integrated pattern of living focused on seven dimensions: *emotional, intellectual, career, environmental, physical, spiritual and social* (Ardell & Tager, 1982; MacGuire & Snow, 1994; Robbins, Powers & Burgess, 1999).

### **Wellness and work**

Adler (1954) considered work to be the most important task for maintenance of life. Combined with leisure, work provides an opportunity for psychological, social and economic benefits (Herr & Cramer, 1988) that are intrinsically satisfying and provide a sense of accomplishment (McDaniels & Gysbers, 1992). Work challenges or engages our senses, skills and interests, frequently absorbing us in a state of consciousness called “flow”. This is an optimal state in which an individual loses awareness of self and time while being highly engaged in the task at hand. Excitement and joy are enhanced, while anxiety and boredom are minimised (Csikszentmihalyi, 1990). Persons unwilling to work are usually discouraged individuals who have given up on achieving life satisfaction through this life task. The

inability to fulfil this life task was regarded by Dreikurs (1953) as a serious symptom of illness.

The voluminous body of organisational psychology literature is clear about the negative effects of occupational stress. These effects include impaired performance or a reduction in productivity, diminishing levels of customer service, health problems, absenteeism, turnover, alcohol and drug usage and purposefully destructive behaviours (e.g. spreading of rumours and stealing) (Karasek & Theorell, 1990; Perrewé, 1991; Quick, Quick, Nelson & Hurrell, 1997; Wright & Smye, 1996).

On the other hand work satisfaction has been found to have a significant, beneficial relationship with such factors as hardiness, commitment, challenge (Kobasa, 1979), less stress, less anxiety, fewer physical symptoms, meaning in life (Witmer, Rich, Barcikowski & Mague, 1983; Witmer et al., 1998), longevity and greater productivity (Pelletier, 1994). People who view their career as a calling tend to experience the highest work satisfaction (Wrzesniewski, McCauley, Rozin & Schwartz, 1997). Feelings of competence in work tasks also have a positive effect on satisfaction with life (Lam, Foong & Moo, 1995), whereas work experiences and work outcomes are consistently and positively related to self-reported emotional well-being (Burke & McKeen, 1995).

With the introduction of “positive psychology” (Seligman & Csikszentmihalyi, 2000) the aim with organisational psychology shifted to finding the “happy/productive” worker (Staw, 1986) and focusing more on positive concepts such as job satisfaction, organisational commitment, organisational citizenship behaviour and intrinsic motivation (Schaufeli & Bakker, 2001), i.e. employee or work wellness. For the purposes of this research the focus will be on the total spectrum of wellness – from unwell-being (e.g. burnout, stress) to well-being (e.g. engagement). Such an approach will ensure a more objective and balanced view of wellness and will add value to a comprehensive wellness programme. For many institutions, wellness programmes offer “the greatest opportunity to both control and reduce costs and enhance the quality of life enjoyed by members of the workforce” (Wang, 1997, p. 12). Corporate wellness programmes are observed to be beneficial not only to employee well-being (e.g. a more positive attitude towards their organisations, higher job satisfaction and satisfaction with fringe benefits provided), but also for organisational well-being (e.g. lower stress, lower absenteeism, higher motivation and productivity) (Ho, 1997).

## **Work wellness in higher education**

Historically, working in a higher education institution has generally been considered relatively stress-free and highly satisfying (Willie & Stecklein, 1982). Watts et al. (1991) found that 75% of university workers who reported long working hours, work overload and lack of support were still satisfied with their jobs. Thus, in comparison to other professions, working in academia is 'somewhat unusual' (Kinman, 2001). A possible explanation for this might be differences in work context factors, e.g. higher levels of autonomy, clarity and tenure, a 'collegiate culture' which emphasizes consensual decision-making and shared values (French, Caplan & Van Harrison, 1982), intrinsic motivation by the respective disciplines (Lacy & Sheehan, 1997; McInnis 1999), clear and achievable goals, challenging tasks, supportive supervisors and an organisational structure which permits them to influence decision-making (Winter & Sarros, 2002). Individuals who perceive that they can control their environment are less likely to suffer stress (Makin, Cooper & Cox, 1996).

However, recently the world of work started to change drastically, which also holds true for higher education institutions, if they are to survive (Gilbert, 2000). Psychological stress now appears to be a global feature of occupational life for university staff (Fisher, 1994), occurring not only at increasing levels in the United Kingdom (UK) (Kinman & Jones, 2003), but also in Australia and New Zealand (Boyd & Wylie, 1994; Gillespie, Walsh, Winefield, Dua & Stough, 2001; Winefield et al., in press). In 1996, the results of an international survey of the academic profession carried out using data from 14 countries (i.e., Australia, Brazil, Chile, England, Germany, Hong Kong, Israel, Japan, Korea, Mexico, The Netherlands, Russia, Sweden and the United States) reported that significant changes had taken place in higher education (Altbach, 1996). For example, academics are now faced with demands for greater accountability, value for money, efficiency and quality, and an increase in remote and autocratic management styles. Winefield et al. (in press) in their longitudinal study of occupational stress in 17 Australian universities found that 43% of academic staff compared to 37% of general staff was classified as possible 'cases' of psychological illness. This compared to a 12% case rate in the Australian population overall. Kinman (2001) also reported a 53% 'case' rate among academic staff at a university in the UK.

Combined with a gradual erosion in pay and job security, escalating stressors are now being reflected in lower levels of job satisfaction and commitment (Kinman & Jones, 2003; Lacy &

Sheehan, 1997; Millward-Brown, 1996; Rose, 1999). This is relevant for lecturers and administrators as well as support personnel, including paraprofessionals, secretaries and custodial staff who contribute to daily operations and success of a tertiary institution. Observing this tendency, Gorschkov (1998) emphasised the fact that stable and productive support systems in terms of higher education and training are of vital importance to any country in order to ensure sustainable economic, social and political reconstruction and development.

Higher education in South Africa is also marked by change. Since 1994, the post-apartheid government of South Africa has attempted to redress the ethos and struggles inherited from the apartheid era, towards a democratic society (Dlamini, 1995; Hugo, 1998). One of the focus areas of redress is the educational system (Cross, Mungadi & Rouhani, 2002). This has resulted in a restructuring of the broad higher education system, which implies consequences for the governance of all tertiary institutions (Dlamini, 1995; Hugo, 1998). At the same time, the realities of globalisation are forcing structured changes and adjustments on higher education institutions, in order to create a new organisational reality that has second-order effects in its human impact (Du Toit, 2000; Quick, Nelson & Quick, 2001).

In this study the emphasis will be on burnout and stress as negative indicators of wellness and work engagement as a positive indicator. In evaluating the employees at a higher education institution, the moderating effect of organisational commitment will be investigated in order to establish a work wellness profile that will serve as basis for a comprehensive wellness programme within the work environment.

## **Burnout**

Although burnout has initially been recognised as a serious threat, particularly for employees who work with people (Maslach & Jackson, 1986), more recently its impact has been expanded to all other professions and occupational groups (Schaufeli & Enzman, 1998; Maslach, Schaufeli & Leiter, 2001). Schaufeli and Enzmann (1998:36) define burnout as “a persistent, negative work-related state of mind in ‘normal’ individuals that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation and the development of dysfunctional attitudes and behaviours at work”. The concept of burnout can be seen as a crisis in one’s relationship with

work in general and not necessarily as a crisis in one's relationship with people at work (Maslach, Jackson & Leiter, 1996). According to Levert, Lucas and Ortlepp (2000), burnout is the end result of consistently unmediated or unsuccessful attempts on the part of the individual at mediating stressors in the environment.

Since 1982, Maslach (1982), Maslach and Schaufeli (1993) and later Maslach et al. (1996, 2001) expanded the theory on burnout and described the syndrome as consisting of three dimensions, namely exhaustion, cynicism and professional efficacy:

- *Exhaustion* refers to feelings of depleted physical, emotional and cognitive resources and prompts actions in employees to distance themselves emotionally and cognitively from their work, presumably as a way to cope with work overload. This dimension is also referred to as the individual stress dimension of burnout.
- *Cynicism* represents the interpersonal context dimension and entails negative, callous and cynical attitudes or excessively detached responses towards work.
- *Lack of professional efficacy* represents the self-evaluation dimension of burnout and refers to feelings of insufficiency, incompetence and lack of achievement, as well as feelings of unproductiveness.

Schaufeli and Enzmann (1998) agree partially with the dimensions, focusing on “*exhaustion*” as a core indicator of burnout and a “*sense of reduced effectiveness*” as an accompanying symptom. They continued to mention three accompanying general symptoms, namely *distress* (affective, cognitive, physical and behavioural), *decreased motivation* and *dysfunctional attitudes and behaviours at work*. Recently a fourth symptom namely *cognitive weariness* (Van Horn, Taris, Schaufeli and Scheuers, in press) was highlighted as an integral part of exhaustion. Van Horn et al. (in press) accentuated that burnout is a self-perpetuating process due to inadequate coping strategies and frustrated intentions.

Research has shown that burnout is not only related to personal dysfunction of the individual, including depression, substance abuse, a sense of failure, fatigue, loss of motivation, low morale and job dissatisfaction but also negative outcomes for the organisation, including absenteeism, an increased intention to resign and higher turnover rates (Maslach & Jackson, 1984). According to Levert et al. (2000), burnt-out workers show a lack of commitment and

are less capable of providing adequate services, especially along the dimensions of decision-making and initiating involvement with clients (Fryer, Poland, Bross & Krugman, 1988). Burnt-out workers are also too depleted to give of themselves in a creative, cooperative fashion (Sammut, 1997).

### **Work engagement**

In line with the emergence of “positive psychology” (Seligman & Csikszentmihalyi, 2000), the negative concept of burnout has been expanded and enlarged in recent years to include its positive antithesis, namely work engagement. Work engagement can be defined as a positive fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption (Schaufeli & Bakker, 2001):

- *Vigour* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, not being easily fatigued, and persistence even in the face of difficulties
- *Dedication* is characterised by deriving a sense of significance from one’s work, by feeling enthusiastic and proud about 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 difficulties detaching oneself from it. Time passes quickly and one tends to forget everything else that is going on.

According to Maslach, Schaufeli and Leiter (2001), this shift allowed the study of the full spectrum of workers’ well-being. In 1997 Maslach and Leiter (p. 23) rephrased burnout as “an erosion of engagement with the job”. Work that started out as important, meaningful and challenging becomes unpleasant, unfulfilling and meaningless. Schaufeli, Salanova, González-Romá and Bakker (2002) added their own perspective, considering burnout and engagement to be opposite concepts.

Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour. Demerouti, Bakker, Nachreiner Schaufeli (2001) developed the Job

Demand–Resources (JD-R) model and confirmed that job demands are associated with exhaustion, whereas lacking job resources are associated with disengagement.

Schaufeli and Bakker (2002) extended the JD-R model by including engagement and by adding indicators for health impairment and organisational withdrawal in their proposed Comprehensive Burnout and Engagement (COBE) model. The COBE model assumes two psychological processes, namely an energetic and a motivational process. The energetic process links job demands with health problems via burnout. The motivational process links job resources via engagement with organizational outcomes. Job resources may play either an intrinsic motivational role (by fostering the employee's growth, learning and development), or it may play an extrinsic motivational role (by being instrumental in achieving work goals). In either case, be it through the satisfaction of basic needs or through the achievement of work goals, the outcome is positive and engagement – a fulfilling positive work-related state of mind – is likely to occur. Moreover, it is plausible to assume that engaged workers have a low tendency to leave the organisation because the organisation provides them with job resources that not only enable them to achieve their work goals, but that also provide opportunities for learning, growth, and development (Schaufeli & Bakker, 2002).

Maslach and Leiter (1997, p. 21) stated that: “Contrary to popular opinion, it's not the individual, but the organization that needs to change, especially in the present work environment”. However, one of the most sustained organisational factors contributing to burnout and eroding engagement seems to be occupational stress, which is normally caused by job stressors.

### **Occupational stress**

Sadri (1997, p. 1) defined stress as “a situation where-in factors interact with a person to change (i.e. disrupt or enhance) his/her psychological and/or physiological condition, such that the person is forced to deviate from normal functioning” Cooper, Dewe and O'Driscoll (2001) categorised six sources of stress or occupational stressors: Factors intrinsic to the job, management role, relationships with others, career and achievement, organisational structure and climate, and home/work interference. According to them these stressors can be grouped into three major categories, namely job-specific sources, organisational sources and individual or personal sources.

Cooper et al. (2001) stated that stress should be seen as a transaction. Following a transactional perspective, stress arises when the demands of a particular encounter (as appraised by the individual) is about to exceed the resources available, thereby threatening well-being (Lazarus, 1991) and bringing about change in the person's psychological and/or physiological condition in order to cope with the encounter (Cooper et al., 2001; Sadri, 1997). Siu (2002) reasoned that a stressful transaction occurs when individuals both exert an impact on and respond to their environment. Stress is therefore an ongoing process that involves the individual transacting with his/her environment, while assessing the encounter and trying to cope with the issues that arise. According to Lazarus and Folkman (1984), the term transaction implies "that stress is neither in the person nor in the environment but in the relationship between the two" (Cooper et al., 2001, p. 12). Organisational commitment has been identified as a significant moderator of stress (Siu, 2002) and was linked to work engagement (Lee, Carswell & Allen, 2000). Siu's (2002) results showed that organisational commitment was not only related to most of the physical and psychological outcomes among workers, but also to the moderating affects on the stressor-health relationship. Siu (2002) argues that this indirect or moderating effect of commitment protects individuals from the negative effect of stress, due to the fact that it enables them to see direction in and attach meaning to their work. Organisational commitment can also provide people with stability and a feeling of belonging. An aspect such as organisational commitment (Maslach, et al., 2001) might therefore have a moderating effect on stress and burnout.

Many studies have shown that occupational stressors can result in mental, physical and behavioural stress reactions, such as burnout, depression and psychosomatic diseases (Houkes, Janssen, de Jonge, Nijhuis, 2001). According to the findings of Mills and Huebner (1998), there is significant evidence that occupational stress could considerably influence the experience of burnout. The link between unmanaged stress and its negative impact on health and well-being is well-demonstrated in stress research and is linked to severe physical consequences, some of which can be fatal (Winefield, Gillispie, Stough, Dua & Hapuararchchi, 2002). Lu (1999) estimates that occupational stress causes half of absenteeism, 40% of turnover and 5% of total lost productivity. In a study done by Tytherleigh (2002) on occupational stress in higher education institutions in the United Kingdom, she tested work relations, work-life balance, overload, job security, control, resources and communication, job overall, pay and benefits as potential sources of stress. It

was discovered that work relationships, job security, and resources and communication caused the highest levels of strain.

Mullins (1999, p. 316) argued that “stress is individually defined; one person’s stress can be another’s excitement or energizer”. Although stress may activate some people and result in possible positive behavioural consequences, for others it may be immobilizing. Based on these individual differences it is possible that positive affectivity might moderate the effects of job demands and resources on burnout and engagement.

Kamman and Flett (1983) defined *general well-being/affect/sense of well-being* as the balance of positive and negative feelings (affect) in recent experience. Church (1994) and Spielberger, Gorsuch and Lushene (1970) indicate that high levels of negative affectivity increase susceptibility to the experience of psychological strain and other negative outcomes of stress such as negative emotions and adversarial social relationships. In contrast, positive affectivity is associated with high generalised self-efficacy, subjective well-being and positive social relationships.

Although it is generally accepted that dispositional and situational factors interact in the shaping of work and organisational attitudes, there is still debate about the relative weight attached to dispositional and situational aspects. Those leaning towards the dispositional side have contended that work attitudes are determined by, or are at least directly linked to, individual attributes, whereas those leaning to the situational side have argued that job characteristics, organisational situations and economic conditions affect attitudes more strongly than individual differences (Strümpfer, Danada, Gouws & Viviers, 1998). However, no studies including these factors in a causal model for employee wellness in South Africa were found in the literature. Therefore the first research challenge to confront will be that there is a lack of a causal model for employee wellness in organisations in South Africa.

It is clear from research and the comparison thereof that the wellness of employees might be affected by the variables of burnout, engagement and occupational stress. In terms of burnout and stress, research suggests that the development of burnout could be described as a progression of unsuccessful attempts to cope with a variety of negative stress conditions (Schaufeli & Enzmann, 1998). The process is self-perpetuating, affecting the attainment of professional goals and depleting the resources of the individual to cope. Work engagement,

the antithesis of stress and burnout, will result in a positive and fulfilling work-related state of mind. Schaufeli and Bakker (2002) reported that job resources exclusively predicted work engagement, while both job demands and lack of job resources predicted burnout. Aspects such as organisational commitment and positive affectivity might have a moderating effect on burnout and stress and contribute to engagement and employee wellness in general. The analysis of and interplay among these variables will hopefully, as a second research challenge, provide a clear picture of the perceived wellness of employees at a given stage and therefore provide valuable information for the emphasis and direction of a comprehensive work-based wellness programme for employees at a higher education institution. A third challenge is that some of the instruments that will be used to assess the respective variables have not yet been validated and standardised for employees at tertiary institutions in South Africa. Only two studies, Naudé (2003) and Rothmann and Storm (2003), were found in South Africa focusing on internal consistency, factorial validity, structural equivalence and bias of the Utrecht Work Engagement Scale (UWES) and validation and standardising of the Maslach Burnout Inventory – General Survey (MBI-GS) for South African police officers and emergency workers respectively. No South African studies regarding the internal consistency and validity of the Organisational Stress Screening Tool (ASSET) was to be found.

From the problem statement, the following research questions emerge:

- Is burnout a four-dimensional construct with exhaustion, cynicism, professional efficacy and cognitive weariness as the dimensions?
- Is engagement a three dimensional construct with acceptable internal consistency and construct validity for employees at a higher education institution in South Africa?
- Are age, language, gender, job category and years of experience related to burnout and work engagement of staff members in a higher education institution?
- Is the Organisational Stress Screening Tool (ASSET) an internally consistent and valid measuring instrument of occupational stress for employees of a higher education institution in South Africa?
- Are age, language, gender, job category and years of experience related to occupational stress of staff members in a higher education institution?

- Does organisational commitment moderate the effects of occupational stress on health outcomes?
- Do positive and negative affectivity, job demands and job resources predict the burnout and work engagement of staff members at a higher education institution?
- Does burnout contribute to ill-health of staff members in a higher education institution?
- What conclusions and recommendations can be made regarding a credible, sustainable and comprehensive employee wellness program?

Consequently, answers to the following research problems will make contributions to industrial psychology as a science in the present study:

- Standardised measuring instruments for burnout, work engagement and stress of employees at a higher education institution in South Africa will exist, which will have been proven reliable and valid.
- Information regarding the effects of biographical characteristics on burnout, work engagement and stress of employees at a higher education institution in South Africa will exist.
- South African information will exist regarding the relationship between burnout and cognitive weariness.
- Information will exist on whether organisational commitment moderates the effect of occupational stress on health outcomes.
- Information will exist on whether positive affectivity moderates the effect of job characteristics on burnout and work engagement.
- A causal model for wellness (based on burnout, engagement and occupational stress) will exist, which could be used to predict wellness and serve as a guideline for wellness programmes of employees at higher education institutions in South Africa.

## **1.2 RESEARCH OBJECTIVES**

### **1.2.1 General objective**

The general objective of this research is to do an employee wellness audit at a tertiary institution, which will serve as a guideline for a comprehensive wellness programme.

### **1.2.2 Specific objectives**

- To determine the reliability and validity of the MBI-GS and Cognitive Weariness Scale for employees at a higher education institution in South Africa.
- To investigate the possibility of a four-dimensional construct of burnout consisting of exhaustion, cynicism, professional efficacy and cognitive weariness.
- To determine significant differences in burnout levels of the population based on biographical characteristics like age, language group, gender, job category and years of experience at the institution.
- To determine the reliability and validity of the UWES for employees at a higher education institution.
- To determine significant differences in engagement levels of the population based on biographical characteristics like age, language group, gender, job category and years of experience at the institution.
- To develop a reliable, valid and unbiased measuring instrument of job stress for employees at a higher education institution.
- To determine significant differences in stress levels of the population based on biographical characteristics like age, language group, gender, job category and years of experience at the institution.
- To determine the levels of occupational stress of employees at a higher education institution in South Africa and its impact on work wellness.
- To make recommendations with regards to the possible moderating effects of organisational commitment on stress.
- To make recommendations with regard to the possible moderating effects of positive affectivity on burnout and strain of employees at higher education institutions.

- To determine the effect of engagement, job resources and positive affectivity on employee wellness.
- To develop and test a causal model for employee wellness at a higher education institution in South Africa.
- To make recommendations for a credible, sustainable and comprehensive employee wellness programme.

### **1.3 RESEARCH METHOD**

#### **1.3.1 Research design**

A cross-sectional design, with a survey as technique of data collection, was used (Shaughnessy & Zechmeister, 1997). Cross-sectional designs are used to examine groups of subjects in various stages of development simultaneously, while the survey describes a technique of data collection in which questionnaires are used to gather data about an identified population (Burns & Grové, 1993; Creswell, 1998). This design is well-suited to the descriptive and predictive functions associated with correlational research, whereby relationships between variables are examined (Shaughnessy & Zechmaster, 1997). Schaufeli and Enzmann (1998) criticised the use of cross-sectional designs in burnout research specifically, and recommended that experiments and longitudinal studies should be used when possible. This might be valid for most of the research done in psychology and related fields. However, a cross-sectional design is the most appropriate design to conduct a wellness audit of this format at any organisation/institution.

Furthermore, structural equation modelling (SEM) is used to address the problems associated with this design (Byrne, 2001), where necessary. SEM is used to test causal models of burnout, engagement, stress and wellness. As such, SEM is a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Byrne, 2001). The term “structural equation modelling” or covariance analysis conveys two important aspects of the procedure: The causal processes being studied are represented by a series of structural (i.e. regression) equations, and these

structural relations can be pictorially represented or modelled to enable a clear conceptualisation of the theory being studied.

### **1.3.2 Population and sample**

The study population could be defined as a non-probability (accidental) sample of employees of a tertiary institution in South Africa. The total population of academic and administrative staff was targeted. A total of 820 questionnaires were sent out (academic:  $N = 320$ ; administrative:  $N = 500$ ) and 372 participants responded (academic:  $N = 175$ ; administrative:  $N = 197$ ). The response rate was 45,36 %. Of those who responded 47,04 % were academic staff and 52,96 % administrative staff.

### **1.3.3 Measuring instruments**

Seven questionnaires were used in the empirical study, namely the Maslach Burnout Inventory-General Survey (MBI-GS) (Maslach et al., 1996) adapted to include the Cognitive Weariness Scale (Van Horn et al., in press); the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2002); the ASSET Organisational Stress Screening Tool (Cartwright & Cooper, 2002); the Job Characteristics Scale (JCS) (Barkhuizen, Rothmann & Tytherleigh, in press); the Affectometer 2 (Kamman & Flett, 1983) and a biographical questionnaire.

The *Maslach Burnout Inventory – General Survey (MBI-GS)* The MBI-GS (Maslach et al., 1996) was used to measure burnout. The MBI-GS consists of 16 items and has three subscales: *Exhaustion* (Ex) (five items; e.g. “I feel used up at the end of the workday”), *Cynicism* (Cy) (five items; e.g. “I have become less enthusiastic about my work”) *Professional Efficacy* (PE) (six items; e.g. “In my opinion, I am good at my job”). These three components of the burnout construct are conceptualised in broader terms relating to the job and not just to the personal relationships that may be part of the job (Maslach et al., 2001). Together the sub-scales of the MBI-GS provide a three-dimensional perspective on burnout. High scores on Exhaustion and Cynicism and low scores on Professional Efficacy are indicative of burnout. The items of the MBI-GS are phrased as statements about personal feelings and attitudes, which is self scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*).

Internal consistencies found by Leiter & Schaufeli (1996) and Schaufeli, Van Diederendonck and Van Gorp (1996) range from 0,73 (Cynicism) to 0,91 (Exhaustion). Leiter & Durup, (1994) and Schaufeli et al. (1996) found test-retest reliability ranging from 0,50–0,82. In four South African samples, alpha coefficients ranging from 0,69–0,89 were reported (Rothmann, Jackson & Kruger, 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2003; Storm & Rothmann, 2003). Storm and Rothman (2003) confirmed the 3-factor structure of the MBI-GS in a sample of 2 396 members of the South African Police Service (SAPS), but recommended that Item 13 be dropped from the questionnaire. This study confirmed the structural equivalence of the MBI-GS for different race groups in the SAPS.

The *Cognitive Weariness Scale (CWS)* was developed by Van Horn et al. (in press) to measure cognitive well-being. Initially this scale consisted of 7 items, but they recommended that, due to high internal consistency of items 3 and 7, item 7 be dropped in the general 6 item version. The scale refers to the capacity to take up new information and loss of concentration at work, for instance, “I have trouble concentrating”. It is scored on a 7-point frequency scale with 0 (*a few times a year*) to 6 (*every day*). Van Horn et al. (in press) reported a Cronbach alpha coefficient of 0,92.

The *Utrecht Work Engagement Scale (UWES)* Schaufeli et al. (2002) developed the UWES as a measure of engagement. Initially engagement was viewed as the positive antithesis of burnout, but according to the scale developers, it can be operationalised in its own right. The UWES includes three dimensions: *Vigour* (six items; e.g. “I am bursting with energy in my work”. *Dedication* (five items; e.g. “I find my work full of meaning and purpose”. *Absorption* (six items; e.g. “When I am working, I forget everything else around me”. The questionnaire consists of 17 questions and is scored on a seven-point frequency rating scale, varying from 0 (*never*) to 6 (*every day*). It includes questions like “I am bursting with energy every day in my work”; “Time flies when I am at work” and “My job inspires me”.

The alpha coefficients for the three subscales varied between 0,68 and 0,91 (Schaufeli et al., 2002). The alpha coefficient could be improved ( $\alpha$  varies between 0,78 and 0,89 for the three subscales) by eliminating a few items without substantially decreasing the scale's internal consistency (Rothmann & Storm, 2003). Two recent studies using confirmative factor analysis demonstrated the factorial validity of the UWES (Schaufeli, Bakker, Hoogduin, Schaap & Kladler, 2001; Schaufeli et al., 2002). The three scales are moderately to strongly

related (mean  $r = 0,63$  in Sample 1 and mean  $r = 0,70$  in Sample 2). Also, the fit of hypothesised three-factor model to the data was superior to a one-factor solution (Maslach et al., 2001; Schaufeli et al., 2002).

The ***ASSET Organisational Stress Screening Tool*** (ASSET refers to An Organisational Stress Screening Tool) was developed by Cartwright & Cooper (2002) to measure the level of occupational stress. They designed the ASSET as an initial screening tool, based on a large body of academic and empirical research, to help organisations assess the risk of stress in their workforce. It measures potential exposure to stress in respect of a range of common workplace stressors. It also provides important information on current levels of physical health, psychological well-being and organisational commitment and provides data to which the organisation can be compared.

The ASSET is divided into four questionnaires. The first questionnaire (37 items) measures the individual's perception of his or her job. The second questionnaire (9 items) measures the individual's attitude toward his or her organisation. The third questionnaire (19 items) focuses on the individual's health. The fourth questionnaire (24 items) focuses on supplementary information. These items are customised specifically for higher education institutions. The first three questionnaires of the ASSET are scored on a six-point scale with 1 (*strongly disagree*) to 6 (*strongly agree*). The fourth questionnaire is scored on a four-point scale with 1 (*never*) to 4 (*often*).

The ASSET has an established set of norms from a database of responses from 9188 workers in public and private sector (non-higher education institutions) organisations in the UK. Validity is still to be completed (Cartwright & Cooper, 2002). Reliability is based on Guttman split-half coefficient. All but two factors returned coefficients in excess of 0,70, ranging from 0,60 to 0,91 (Cartwright & Cooper, 2002). Johnson and Cooper (2003) found that the Psychological Well-Being subscale has good convergent validity with an existing measure of psychiatric disorders, the General Health Questionnaire (GHQ – 12; Goldberg & Williams, 1988). Tytherleigh (2003) used the ASSET as an outcome measure of job satisfaction in a nationwide study of occupational stress levels in 14 English higher education institutions. A series of Cronbach's alphas were carried out on each of the questions for the five ASSET subscales to identify the reliability of the ASSET questionnaire with these data. The results ranged from 0,64–0,94, showing good reliability.

The ***Job Characteristics Scale (JCS)***. The *Job Characteristics Scale (JCS)* was developed by Barkhuizen et al. (in press) to measure job demands and job resources for employees. The JCS consists of 48 items. The questions are rated on a 4-point scale ranging from 1 (*never*) to 4 (*always*). The dimensions of the JCS include pace and amount of work, mental load, work variety, opportunities to learn, work independence, relationships with colleagues, relationships with immediate supervisor, ambiguities of work, information, communication, participation, contact possibilities, uncertainty about the future, remuneration and career possibilities. The JCS was found to have adequate internal consistency with Cronbach alphas ranging from 0,74–0,92.

The ***Affectometer 2 (AFM)*** (Kamman & Flett, 1983) is used to measure the general well-being or sense of well-being in recent experience. The AFM (shortened version) is a 20-item scale that gives a bottom-line indication of quality of life as experienced on an affective and emotional level. The overall level of well-being or happiness is conceptualised as the extent to which positive feelings dominate over negative feelings. The AFM subscales measure three dimensions, namely Positive Affect, Negative Affect and Positive-Negative Affect Balance. Respondents evaluate themselves on a 5-point frequency scale, ranging from 1 (*not at all*) to 5 (*all the time*). Kamman and Flett (1983) reported alpha reliabilities of 0,88 to 0,93 as well as indications of validity. Wissing and Van Eeden (1994) reported alpha coefficients for Positive Affect of between 0,81 and 0,86, and between 0,83 and 0,90 for Negative Affect in South African studies. Wissing et al. (1999) indicated the validity of this scale for use in an African group and reported reliability coefficients of 0,68 (Positive Affectivity) and 0,77 (Negative Affectivity).

A questionnaire was developed to gather information about the demographic characteristics of the sample. Information gathered included position, education, gender, marital status and language.

#### **1.3.4 Data analysis**

The data analyses are carried out with the help of the SAS programme (SAS Institute, 2000) and the Amos programme (Arbuckle, 1997). The SAS programme is used to carry out statistical analysis regarding reliability and validity of the measuring instruments, descriptive

statistics, t-tests, analysis of variance, correlation coefficients, canonical analysis and moderated multiple regression analysis. The Amos programme is used to carry out structural modelling.

The data analysis proceeded as follows:

- Structural equation modelling was used to determine the factorial validity of the measuring instruments. Structural equation modelling is a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Byrne, 2001). The term “structural equation modelling” (SEM) conveys two important aspects of the procedure, namely that the causal processes being studied are represented by a series of structural (i.e. regression) equations, and that these structural relations can be modelled pictorially to enable a clear conceptualisation of the theory being studied. Several aspects of SEM set it apart from the older generation of multivariate procedures (Byrne, 2001). First, it takes a confirmatory rather than an exploratory approach to data analysis. Furthermore, by demanding that the pattern of inter-variable relations be specified a priori, SEM lends itself well to the analysis of data for inferential purposes. Second, although traditional multivariate procedures are incapable of either assessing or correcting for measurement error, SEM provides explicit estimates of these error variance parameters. Third, SEM procedures may incorporate both unobserved (latent) and observed variables.
- Principal factor extraction with varimax rotation was performed through SAS FACTOR on the measuring instruments that had no confirmed factor structure. Principal component extraction was used prior to principal factor extraction to estimate the number of factors, presence of outliers and factorability of the correlation matrices. The eigenvalues and scree plot were studied to determine the number of factors underlying a specific measuring instrument. The oblique method with a promax rotation was requested prior to the varimax rotation, to determine whether obtained factors are significantly related ( $r > 0.35$ ). If the obtained factors were significantly related, analyses proceeded with the oblique method and a promax rotation.

- Cronbach alpha coefficients and inter-item correlation coefficients were used to assess the reliability and validity of the measuring instruments (Clark & Watson, 1995).
- Descriptive statistics (e.g. means, standard deviations, range, skewness and kurtosis) and inferential statistics were used to analyse the data. Pearson and Spearman correlation coefficients were computed to determine the relationships between variables. Canonical analyses were conducted to determine the relationships between sets of variables. A cut-off point of  $p = 0,05$  was set for the statistical significance of the results. Effect sizes (Cohen, 1988) 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. T-tests, ANOVA and MANOVA were used to determine the differences between groups. Moderated hierarchical regression analysis was conducted to study the interaction effects between variables.

#### **1.4 CHAPTER DIVISION**

The chapters of this thesis were divided as follows:

In Chapter 2 an adapted model of burnout with cognitive weariness as a fourth factor will be investigated. In Chapter 3, the work engagement of employees at a higher education institution will be focused on with regard to the construct validity, internal consistency and homogeneity of the UWES. In Chapter 4 occupational stress will be investigated more specifically in terms of the construct validity, internal consistency and homogeneity of the ASSET. In Chapter 5 a causal model of wellness will be developed and tested for employees at a tertiary institution in South Africa, inclusive of engagement, perceptions of personal health, affectivity and job characteristics. Finally, in Chapter 6 a conclusion, shortcomings and recommendations will be presented.

## **1.5 CHAPTER SUMMARY**

This chapter discussed the problem statement and research objectives. The measuring instruments and research method that were used in this research were explained, followed by the subsequent chapter outline of the thesis.

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## **CHAPTER 2**

### **RESEARCH ARTICLE 1**

# **AN ADAPTED MODEL OF BURNOUT FOR EMPLOYEES AT A HIGHER EDUCATION INSTITUTION IN SOUTH AFRICA\***

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## **ABSTRACT**

The objectives of this research were to test an adapted four-factor model of burnout consisting of Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness for employees of a higher education institution in South Africa and to determine differences in burnout levels based on the biographical characteristics of the employees at the institution. A cross-sectional survey design ( $N = 372$ ) was used. The Maslach Burnout Inventory – General Survey, the Cognitive Weariness Scale and a biographical questionnaire were administered. Structural equation modelling confirmed the hypothesised four-factor model of burnout. The scales showed acceptable internal consistencies. Analysis of variance revealed differences in burnout and cognitive weariness for groups with different languages and different years of experience at the institution.

## **OPSOMMING**

Die doelstellings van hierdie navorsing was om 'n aangepaste vierfaktormodel van uitbranding bestaande uit Uitputting, Sinisme, Professionele Doeltreffendheid en Kognitiewe Vermoeidheid vir werknemers van 'n hoërsonderwysinstansie in Suid-Afrika te toets en om verskille in uitbrandingsvlakke gebaseer op biografiese verskille by die werknemers van die instansie te bepaal. 'n Dwarssneeopname-ontwerp ( $N = 372$ ) is gebruik. Die Maslach Uitbrandingsvraelys – Algemene Opname, die Kognitiewe Vermoeidheidskaal en 'n biografiese vraelys is afgeneem. 'n Vierfaktormodel van uitbranding is met strukturele vergelykingsmodellering bevestig. Die skale het aanvaarbare interne konsekwentheid getoon. Variansie-analise het verskille ten opsigte van uitbranding en kognitiewe vermoeidheid by verskillende taalgroepe en groepe met verskillende jare ervaring by die instansie opgelewer.

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The environment in which employees in South Africa and elsewhere in the world function, demands more of them than had been the case in any previous period. The employment relationship has changed, altering the type of work that people do, when they work and how much they do (Barling, 1999). Some employees also face diminished choice and control in that they are forced to take on hours and working arrangements that are against their preferences (Turner, Barling & Zacharatos, 2002). Additional unpredictability results as many employers move toward greater flexibility by expanding and shrinking the work force to correspond with shifting production and service demands, resulting in loss of control over working hours and in job insecurity (Martin, 1997). Many organisations have implemented practices that attempt to reduce costs and increase productivity, which often leads to a mentality that favours profitability over the welfare of people (Turner et al., 2002).

These changes in the world of work also impact on higher education institutions that have to adapt unremittingly in order to survive (Gilbert, 2000). A global phenomenon in the changing landscape of higher education institutions is the expansion from elite systems to institutions of mass student numbers (Gilbert, 2000; Kistan, 1999; Kraak, 2000). Other consequences are life-long learning (Shortlidge, 2003; Wallace & Ipson, 1992), adult learning (Kraak, 2000), internet-based education and training (Gilbert, 2000), formation of strategic alliances on international level (Rowley, 2000), new trends in teaching and learning (Kistan, 1999; Kraak, 2000), changes in the market place (Blackmore, 2001; Brown, 1999; Gilbert, 2000; Kistan, 1999; Lomas, 1997; Robertson, 1998; Rowley, 2000), the growth of alternative systems of education, and the new demands and needs of society (Kistan, 1999). These changes will have a direct impact on the experience of work of employees at higher education institutions. Zhao and Guo (2002) cautioned that to become more competitive in the era of globalisation, more educated and better trained work forces are required.

The landscape of higher education in South Africa is also changing. Since 1994, the aim of the post-apartheid government has been the redress of the apartheid legacy in an attempt to move toward a democratic society (Cross, Mungadi & Rouhani, 2002). One of the focus areas of redress is the education system. At an institutional level this boils down to the introduction of policies and mechanisms aimed at redressing on different levels and huge demands in terms of access to education (Kraak, 2000). This has resulted in a restructuring of the higher education system in South Africa, which poses the following challenges to the management as well as the employees of tertiary institutions: New organisational cultures

have to be introduced; values, cultural norms and organisational support systems are subjected to ongoing changes; peer support within the organisation is challenged with issues like equity, diversity and resistance; establishing an organisational climate is continuously and inevitably influenced by ongoing change.

Higher education institutions can make an important contribution to the reconstruction and development of South Africa (Marais, Grobbelaar & Potgieter, 1997). However, of great importance are those responsible for producing the outcomes of higher education institutions. Administrators (Blaise, 1996; Goldstein, 1992), lecturers/teachers (Schnacke, Martray & Heck, 1994; Seldin, 1991) and support staff (Alexy, 1991; Glasgow, Terborg, Hollis, Severson, Boles, 1995) comprise the “human capital” of an education institution and therefore it is important to care for these groups of people (Sackney, Noonan & Miller, 2000).

The current changes and demands in the higher education scenario will inevitably have an impact on the levels of burnout of employees at higher education institutions. Meléndez and De Guzman (1983, p. 1) define burnout as a “state of mind that afflicts people who work with other people and give much more than what they get in return from their colleagues, friends, supervisors and clients”, and include symptoms such as lack of enthusiasm for work, helplessness and frustration. A more recent and elaborated definition on burnout is that of Schaufeli and Enzmann (1998). They define burnout as “a persistent, negative, work related state of mind in ‘normal’ individuals that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation, and the development of dysfunctional attitudes and behaviors at work”. According to Levert, Lucas and Ortlepp (2000), burnout can be seen as the end result of consistently unmediated or unsuccessful attempts of the individual at mediating stressors in the environment.

Burnout affects the individual on a cognitive, affective (motivational), physical and behavioural level as a result of a general breakdown in defences against prolonged job-stressors (Brill, 1984). This breakdown occurs gradually and often remains unnoticed for a long time, perpetuated by ineffective coping strategies and frustrated intentions brought about by the subjective experience of work-reality. The gradual depletion of emotional resources results in a sense of reduced effectiveness, decreased motivation and the development of dysfunctional behaviours and attitudes at work (Schaufeli & Enzmann, 1998).

Originally restricted to the helping professions, burnout is now recognised as a phenomenon found in a variety of occupational groups (Cordes & Dougherty, 1993). Research over the last three decades has shown that the consequences of burnout are not just limited to the individual's subjective experience, but also to various organisational outcomes. Burnout has been associated with reduced organisational efficiency and work-related problems such as employee turnover, low morale, poor quality of care, lowered productivity, absenteeism and interpersonal problems (Levert et al., 2000; Rosse, Boss, Johnson & Crown, 1991). Maslach and Jackson (1986) suggested that burnout could lead to a deterioration in the quality of care or service that is provided by staff. It correlates with various self-reported indices of personal dysfunction, increased use of alcohol and drugs, and marital and family problems (Maslach & Jackson, 1986). The study of burnout, therefore, certainly seems to be beneficial to the general welfare of companies and their workers in various organisational contexts.

Probably the most influential development in terms of scientific exploration of the burnout construct was the development of the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986). Initially two versions of the MBI were developed, namely the MBI-ED (Educators) and MBI-HSS (Human Services Survey). These versions measure Emotional Exhaustion, Depersonalisation and Personal Accomplishment. When slightly adapted versions of the MBI-HSS/ED were used outside the targeted professions, psychometric results were rather disappointing (e.g. Boles, Dean, Ricks, Short & Wang, 2000; Evans & Fisher, 1993). The fact that, obviously, the MBI should be used exclusively in those occupational contexts it has been designed for – human services and education – has led to the development of a version that can be used universally: The MBI – General Survey (MBI-GS). The MBI-GS contains dimensions similar to the original version, except that the items do not explicitly refer to recipients or students (Schaufeli, Leiter, Maslach & Jackson, 1996). Accordingly, the dimensions of the MBI-GS have been renamed slightly as: exhaustion, cynicism and professional efficacy. In the current study, the MBI-GS has been used.

The importance of establishing a reliable and valid instrument to assess burnout in a higher education institution is evident not only for the purpose of empirical research, but also ultimately for individual assessment. When determining factorial validity, confirmatory factor analysis (through structural equation modelling) should be used, because exploratory factor analysis shows some weaknesses (Byrne, 1991). As such, a considerable amount of research seems to support the psychometrical soundness of the MBI in various occupational

settings. Regarding the MBI-GS, satisfactory internal consistencies for all the subscales were found (Leiter & Schaufeli, 1996; Schutte, Toppinen, Kalimo & Schaufeli, 2000). Like with the original version, the three-factor structure of the MBI-GS is generally confirmed (Taris, Schreurs & Schaufeli, 1999; Schutte et al., 2000), although different results in specific samples are found occasionally. For example, Salanova and Schaufeli (2000) observed four factors in Spanish ICT workers.

A systematic negative finding is that one particular cynicism item (item 13 (sic!), '*I just want to do my job and not to be bothered*') seems to be unsound (e.g. Schutte et al., 2000). In their studies Schaufeli, Leiter and Kalimo (1995) and Leiter and Schaufeli (1996) also found that this item had the lowest factor loadings of the three sub-scales. Therefore, this item was deleted in the Dutch version of the MBI-GS (Schaufeli & Van Dierendock, 2000). The three-factor structures of the original version as well as the general version seem to be invariant across countries (MBI-HSS: Enzmann, Schaufeli & Girault, 1995; MBI-GS: Schutte et al., 2000) and occupations (MBI-ED: Byrne, 1991; MBI-GS: Leiter & Schaufeli, 1996; Bakker, Demerouti & Schaufeli, 2002).

In terms of South African studies, a few regarding the validity, reliability and establishment of norms for various occupational settings using the MBI-GS could be found (Rothmann, Jackson & Kruger, 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2003; Storm & Rothmann, 2003). A lack of research in this area within the South African context necessitates the current research. Rothmann (2003) stressed the need for burnout research in South Africa in stating that serious limitations of burnout research in South Africa include poorly designed studies (i.e. small sample size), a lack of sophisticated statistical analysis (i.e. confirmatory factor-analytical analysis by means of structural equation modelling) and poorly controlled studies.

Despite the fact that, from a psychometrical point of view, the MBI is a good tool for assessing burnout, a basic problem remains. Because of the absolute predominance of the MBI, the concept is narrowed to the three dimensions that are included in the MBI, namely exhaustion, cynicism (or depersonalization), and reduced professional efficacy (or personal accomplishment). Although this common standard has the advantage that findings across studies can be compared straightforwardly, for instance by using meta-analyses, the narrow focus remains an issue. This is all the more serious since the MBI is neither grounded in firm

clinical observation nor based on sound theorising. Instead, it has been developed inductively by factor-analysing a rather arbitrary set of items (Schaufeli, 2003).

Clinical experience shows that burned-out employees who receive psychotherapeutic treatment report a host of distress complaints that are for a large part similar to those subsumed under the ICD-10 diagnostic label of neurasthenia (Schaufeli, Bakker, Schaap, Kladler & Hoogduin, 2001). Depending on one's definition, such atypical distress symptoms as sleep disturbances, irritability, inability to relax and tension headaches can either be considered elements of burnout, consequences of burnout or accompanying symptoms. More specifically, clinical practice suggests that employees suffering from severe burnout are characterised by cognitive impairment, and report symptoms such as inability to concentrate, forgetfulness and difficulties with solving complex tasks (Hoogduin, Schaap, Methorst, Peters Van Neyenhof & Van de Griendt, 2001). Such cognitive symptoms typically occur when one feels exhausted.

Recently, Van Horn, Taris, Schaufeli and Schreurs (in press) developed an alternative exhaustion scale that was labelled 'The Cognitive Weariness Scale' which includes items such as "*I have trouble concentrating*" and "*I'm absent-minded*". Their study among teachers showed that this scale was reliable and that it was substantively correlated with all MBI burnout scales, but particularly with emotional exhaustion. Hence, based on clinical experience, the MBI burnout concept should be supplemented by cognitive exhaustion or weariness, and perhaps also with distress symptoms (Schaufeli, 2003). The Cognitive Weariness Scale will be included for the purposes of this study.

Burnout can be enhanced by biographical factors. Biographical factors that could explain burnout include age, work experience and gender. Burnout is observed more often among younger employees compared with those older than 30 years, and burnout is negatively related to work experience (Cherniss, 1980; Künzle & Schulte, 1986; Maslach, Jackson & Leiter, 1996). Zijlstra and De Vries (2001), however, found that older, more experienced, single workers who experienced a high workload were significantly more at risk compared to younger, less experienced, married workers with a low workload. Women tend to score higher on emotional exhaustion, whereas men score higher on depersonalization (Schaufeli & Enzman, 1998). Cash (1988) found that individuals with a higher level of education were

more prone to burnout, possibly due to the higher expectations of both the individual and the organisation of these individuals.

The objectives of this study were to determine the factorial validity and internal consistency of an adapted version of the Maslach Burnout Inventory – General Survey (MBI-GS), complimented by the Cognitive Weariness Scale, for employees at a higher education institution in South Africa and to determine differences in burnout levels among different biographical groups.

### **The Maslach Burnout Inventory – General Survey**

In the beginning of the eighties, the first easy-to-administer self-report inventories on burnout appeared – most notably the Maslach Burnout Inventory (Maslach & Jackson, 1981). This initiated a major stimulation of the scientific interest in burnout. It is estimated that the MBI was used in over 90% of the empirical publications on burnout since the mid-eighties (Schaufeli & Enzman, 1998). According to Koeske and Koeske (1993), the MBI has taken a central position in shaping the theoretical debate over the nature of burnout.

With the introduction of the MBI-GS, the three burnout dimensions can be measured independently from the professional context. The MBI-GS was designed to measure burnout universally by means of three subscales, namely exhaustion, cynicism and professional efficacy. The exhaustion items are generic and refer to fatigue without direct reference to service recipients as its source; the cynicism items reflect a distant attitude towards one's work instead of towards the people one is working with; and the professional efficacy items encompass the non-social aspects of occupational accomplishments instead of exclusively focusing on the social aspects of these accomplishments. Hence, the MBI-GS has a broader scope than the original MBI (Schaufeli, 2003). Or put the other way around, the original MBI dimensions can be seen as manifestations of a more general burnout symptomatology; that is, emotional exhaustion is a particular kind of exhaustion (namely caused by emotional demands), depersonalisation is a particular kind of cynicism (namely directed towards recipients), and personal accomplishments is a particular kind of professional efficacy (namely in relation to recipients).

An advantage is that the MBI-GS can be used both in human services and non-human services samples, so that they can be directly compared. For instance, Taris et al. (1999) showed that, psychometrically speaking, the MBI-GS performed equally well in a sample of software engineers as among university teaching staff, but that levels of exhaustion and cynicism were significantly higher in the former sample compared to the latter, whereas the reverse was true for professional efficacy. In addition, their theoretical model fitted equally well across both samples: exhaustion was predicted by job demands and lack of decision latitude, while cynicism and professional efficacy were predicted by lack of decision authority and a lack of skill discretion. In other words, the study of Taris et al. (1999) shows that the MBI-GS can be used to measure burnout among educators and corporate employees and that – despite differences in levels – burnout is predicted by similar variables in both samples. This is another indication that burnout is not a typical helper syndrome. Other studies, using the MBI-GS have also demonstrated the consistency of the burnout construct across human services and non-human services samples (e.g. Bakker et al., 2002; Leiter & Schaufeli, 1996).

In the literature regarding the MBI-GS, satisfactory internal consistencies ranging from 0,73 (Cynicism) to 0,91 (Exhaustion) were found (Leiter & Schaufeli, 1996). Reliability analysis done by Schutte, et al. (2000) showed that the Exhaustion and Professional Efficacy sub-scales were sufficiently internally consistent, but that one Cynicism item (item 13) should be removed in order to increase the internal consistency beyond the criterion of 0,70. According to them, this might be caused by the ambivalence of the particular item: “I just want to do my job and not be bothered”. In their studies, Schaufeli et al. (1995) and Leiter and Schaufeli (1996) also found that this item had the lowest factor loadings of the three sub-scales.

Four studies that used the MBI-GS in South African samples were found. In a sample of senior managers in a manufacturing industry, Rothmann and Jansen van Vuuren (2002) found satisfactory alpha coefficients: Exhaustion = 0,79; Cynicism = 0,84 (after item 13 had been omitted); and Professional Efficacy = 0,84. Rothmann and Malan (2003) found higher alphas (Exhaustion = 0,98; Cynicism = 0,76; Professional Efficacy = 0,85), while Rothmann et al. (2003) found lower alphas for Cynicism (0,72 after item 13 had been omitted) and Professional Efficacy (0,69). Storm and Rothmann (2003) found alpha coefficients of 0,88 (Exhaustion), 0,78 (Cynicism) and 0,79 (Professional Efficacy) in a sample of 2 396 police officers in South Africa. They also confirmed the three-factor structure of the MBI-GS.

A large body of research has addressed the factor structure of the MBI-HSS (Maslach & Jackson, 1986; Maslach, 1993), but it seems as if there is a paucity of research on the internal and external validity of the MBI-GS (Taris et al., 1999). Confirmatory factor analysis done by Schutte et al. (2000) showed that the three-factor model was clearly superior to alternative one-factor and two-factor models. Schaufeli, Martinez, Pinto, Salanova and Bakker (2002) confirmed these findings. Leiter and Schaufeli (1996) employed confirmatory factor analysis using linear structural equation modelling and also confirmed a three-factor structure. Similar results were obtained by Taris et al. (1999).

Confirmatory factor analyses by Rothmann et al. (2003), Rothmann and Jansen van Vuuren (2002) and Rothmann and Malan (2003) consistently showed low loadings on item 13 of the MBI-GS on Cynicism. Storm and Rothmann (2003) used structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 1997) to test the factorial model for the MBI-GS on a random, stratified sample in the South African Police Services ( $N = 2396$ ). Prior to testing the three-factor model of burnout, a one-factor model was tested. However, the one-factor model showed poor fit, while a three-factor model, using 15 of the original items, resulted in a good fit.

### **Cognitive weariness**

Cognitive weariness refers to the lack of capacity to take up new information and loss of concentration at work. Cognitive weariness was devised as an analogue to Maslach's (1993) emotional exhaustion concept. Whereas the latter concept taps feelings of work-related fatigue (thus reflecting the tiredness-vigour dimension of affect), cognitive weariness specifically reflects employee's cognitive functioning, especially the degree to which workers are able to take up new information and are able to concentrate on their work (Van Horn et al., in press). Empirical research has shown that (affective) well-being on the one hand and indicators of cognitive functioning (e.g. "the number of minor everyday errors people make", Broadbent, Cooper, FitzGerald & Parkes, 1982) and self-reports about one's ability to concentrate and decision making skills (e.g. Goldberg, 1972; Wissing & Van Eeden, 2002) on the other hand are correlated. As cognitive functioning is relevant for many of today's jobs (e.g. 56% of the European workers report that they must solve complex tasks (Merllié &

Paoli, 2001), it was decided that this dimension deserved an additional place in the model of burnout (Schaufeli, 2003).

Schaufeli (2003) estimated the prevalence of burnout amongst the workforce in the Netherlands at about 4–7% of the working population, amounting to about 10% in specific occupations. He warned that it should be kept in mind that because of the healthy worker effect, these rates are inflated and most likely represent an underestimation of the true number of burnout cases. Landsbergis (2003) stated that there is indeed no *a priori* reason why the experience of burnout should be restricted to a particular country or cultural setting, all the more because the organisation of work undergoes similar sweeping changes across the globe, especially in developing countries. Research has shown that biographical factors can enhance burnout. Using the MBI-GS in a national, representative sample of the Dutch working population ( $N = 1,129$ ), Zijlstra and De Vries (2001) found that no differences in burnout levels were observed between males and females, but older, more experienced single workers who experienced high workload were significantly more at risk compared to younger, less experienced, married workers who experience low workload.

In order to determine a risk profile of employees at any organisation, biographical indicators of burnout can be helpful and can be used to direct future interventions. Factors like job/role demand stressors, individual demand stressors, participation, career progress opportunities and supervisory style can act as antecedents of burnout (Posig & Kickul, 2003). Biographical information of participants can shed light on which antecedent factors are prevalent in an organisation and can be utilised in directing both proactive and reactive interventions. This information on burnout should be relevant for all organisations, especially in the light of recent evidence which suggests that objective work characteristics (i.e. job autonomy, workload) which can be influenced by management are related to burnout (Aiken, Clarke, Sloane, Sochalski & Silber, 2002; Taris, Stoffelsohn, Bakker, Schaufeli & Van Dierendonck, 2002).

Referring to the literature study of this research it can be expected that regarding biographical characteristics of the population the following differences may be expected: It seems as if younger employees with less work experience will be more prone to burnout than those older than 30 years (Cherniss, 1980; Künzle & Schulte, 1986; Maslach, Jackson & Leiter, 1996). This implies that it can be expected that younger employees will reflect higher levels of

burnout, and also that those with fewer years of experience at the institution will reflect higher levels of burnout.

With regard to differences between employees from different language groups, indications are that, even though not much research evidence is available, no significant differences regarding burnout patterns and burnout levels could be found internationally between different cultures (Enzmann et al., 1995; Schutte et al., 2000). Seeing that different language groups represent different cultures, it can be expected that there would be no significant differences. With regard to gender differences, Schaufeli and Enzmann (1998) found that women tend to score higher on emotional exhaustion, whereas men score higher on depersonalisation. Based on this, it can be expected that women will reflect higher levels of burnout than their male counterparts. Cash (1988) found that individuals with a higher level of education were more prone to burnout, possibly due to the higher expectations of both the individual and the organisation of these individuals. Based on this finding it can be expected that the academic component of the population will experience higher levels of burnout than the administrative component, seeing that on average the academics have higher educational qualifications. Additionally, as the institution is a higher education institution, the core business of the organisation is education and research, which implies that the expectation of increased performance will impact more directly on the academic staff component.

The hypotheses of this study are as follows:

- H1: Burnout, as measured by the MBI-GS and Cognitive Weariness Scale, can be defined as a four-dimensional construct with acceptable levels of internal consistency for each of its subscales, namely Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness.
- H2: In terms of burnout levels of employees, significant differences based on biographical characteristics like age, language group, gender, job category and years of experience at the institution exist. Younger employees will reflect higher levels of burnout, and those with fewer years of experience at the institution will reflect higher levels of burnout. No significant differences regarding language group is expected. It can be expected that women will reflect higher levels of burnout than their male counterparts and that the academic component of the population will experience higher levels of burnout than the administrative component.

## **METHOD**

### **Research design**

A cross-sectional survey design was used. Cross-sectional designs are appropriate where groups of subjects at various stages of development are studied simultaneously, whereas the survey technique of data collection gathers information from the target population by means of questionnaires (Burns & Grove, 1993). Although Schaufeli and Enzmann (1998) criticise the use of cross-sectional designs in the study of burnout research and recommend that experiments and longitudinal designs should be used as far as possible, it offers the best possible design for the validation of the MBI-GS.

### **Study population**

The study population consisted of academic and administrative staff at a tertiary institution in South Africa. A total of 820 questionnaires were sent out: academic staff ( $N = 320$ ); and administrative staff ( $N = 500$ ). A total of 372 completed questionnaires were received back. This comprised 175 questionnaires from academic and 197 questionnaires from administrative staff members, giving a total response rate of 45,36% (47,04% for academic staff and 52,96% for administrative staff).

Females constituted 63% of the participants. Different language groups were included in the study. A total of 55% of the participants were Afrikaans-speaking; 19% were English-speaking; 11% Setswana-speaking; and 15% spoke other indigenous languages. The minority (16 %) of the participants were single. In total, 25% of the population had obtained master's (or related) degrees and/or higher qualifications. 47% indicated that they were improving their qualifications. 34% of the participants had been at the institution for 10 or more years of service. 66% reported to have had no opportunity to be promoted during their years of service. The characteristics of the participants are shown in Table 1.

Table 1  
*Characteristics of Participants*

| Item                      | Category                | Percentage |
|---------------------------|-------------------------|------------|
| Employment category       | Academic                | 47,04      |
|                           | Administrative          | 52,96      |
| Gender                    | Male                    | 37,12      |
|                           | Female                  | 62,88      |
| Language                  | Afrikaans               | 54,59      |
|                           | English                 | 19,46      |
|                           | Setswana                | 10,81      |
|                           | Other                   | 15,14      |
| Education                 | Highest grade/standard  | 21,95      |
|                           | 3-year qualification    | 23,04      |
|                           | 4-year qualification    | 30,08      |
|                           | Master's                | 19,24      |
|                           | Doctorate               | 5,69       |
| Marital status            | Single/Divorced         | 15,76      |
|                           | Engaged/in relationship | 37,77      |
|                           | Married                 | 44,29      |
| Years of service          | 0–5 years               | 31,29      |
|                           | 5,1–10 years            | 35,19      |
|                           | 10+ years               | 33,52      |
| Opportunity for promotion | none                    | 65,71      |
|                           | 1                       | 23,49      |
|                           | 2+                      | 10,80      |
| Studying further          | Yes                     | 47,28      |
|                           | No                      | 52,72      |
| Age distribution          | 23–30                   | 19,94      |
|                           | 31–40                   | 37,19      |
|                           | 41–50                   | 26,21      |
|                           | 51–60                   | 15,95      |

### Measuring battery

The Maslach Burnout Inventory – General Survey (MBI-GS) (Maslach et al., 1996) was used to measure burnout. The MBI-GS consists of 16 items and has three subscales, namely Exhaustion (Ex) (five items; e.g. “I feel used up at the end of the workday”); Cynicism (Cy) (five items; e.g. “I have become less enthusiastic about my work”) and Professional Efficacy (PE) (six items; e.g. “In my opinion, I am good at my job”). These three components of the burnout construct are conceptualised in broader terms relating to the job and not just to the

personal relationships that may be part of the job (Maslach, Schaufeli & Leiter, 2001). Together the sub-scales of the MBI-GS provide a three-dimensional perspective on burnout.

The items of the MBI-GS are phrased as statements about personal feelings and attitudes, which are self-scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). Internal consistencies found by Leiter and Schaufeli (1996) and Schaufeli, Van Diederendonck and Van Gorp (1996) range from 0,73 (Cynicism) to 0,91 (Exhaustion). Test-retest reliabilities after one year were 0,65 (Exhaustion), 0,60 (Cynicism) and 0,67 (Professional Efficacy) (Schaufeli et al., 1996). Test-retest reliability from three months to one year ranged from 0,50–0,82 (Leiter & Durup, 1996). In four South African samples (Rothmann et al. 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2003; Storm & Rothmann, 2003) alpha coefficients ranging from 0,69 (Professional Efficacy) to 0,98 (Exhaustion) were found. Storm and Rothmann (2003) confirmed the three-factor structure of the MBI-GS in the South African Police Service (SAPS), but also recommended that Item 13 should be dropped from the questionnaire. This study confirmed the structural equivalence of the MBI-GS for different race groups.

The *Cognitive Weariness Scale (CWS)* was developed by Van Horn et al. (in press) to measure cognitive well-being. Initially this scale consisted of seven items, but they recommended that, due to high internal consistency of items 3 and 7, item 7 be dropped in the general six-item version. The scale refers to the capacity to take up new information and loss of concentration at work, for instance, “I have trouble concentrating”. It is scored on a seven-point frequency scale with 0 (*a few times a year*) to 6 (*every day*). Van Horn et al. (in press) reported a Cronbach alpha coefficient of 0,92.

A *biographical questionnaire* was designed to gather gender, position, education and marital status information.

### **Statistical analysis**

The statistical analysis was carried out with the help of the SAS program (SAS Institute, 2000) and the AMOS program (Arbuckle, 1997).

To test the factorial validity of the MBI-GS, structural equation modelling (SEM) methods were initially used with the maximum likelihood method of the AMOS program (Arbuckle, 1997). SEM is a statistical methodology that takes a confirmatory or hypothesis-testing approach to the analysis of a structural theory bearing on a specific phenomenon (Byrne, 2001, p. 3). However, when model-fit with the data is computed, an exploratory factor analysis approach is taken in the post-hoc analysis of the data.

Hypothesised relationships are tested empirically for goodness of fit with the sample data. The  $\chi^2$  statistic equals  $(N - 1) F_{min}$ , which value tends to be substantial when the model does not hold, and the sample size is large (Byrne, 2001). A large  $\chi^2$  relative to degree of freedom indicates a need to modify the model to fit the data better. Researchers addressed the  $\chi^2$  limitations by developing goodness-of-fit indices that take a more pragmatic approach to the evaluation process. One of the first fit statistics to address this problem was the  $\chi^2/\text{degree of freedom}$  ratio (CMIN/DF; Wheaton, Muthén Alwin & Summers, 1977). These criteria, commonly referred to as “subjective/practical” indices of fit, are typically used as adjuncts to the  $\chi^2$  statistics.

The Goodness of Fit Index (GFI) indicates the relative amount of variance in the sample predicted by the estimates of the population. It usually varies between 0 and 1, and a result of 0,90 or above indicates a good model fit. In addition, the Adjusted Goodness of Fit Index (AAGFI) is a measure of the relative amount of variance accounted for by the model, corrected for the degrees of freedom in the model relative to the number of variables. The GFI and the AGFI can be classified as absolute indices of fit because they basically compare the hypothesized model with no model at all (Hu & Bentler, 1999; Jöreskog & Sörbom, 1993). Although both indices range from zero to 1,00, the distribution of the AGFI is unknown; therefore no statistical test or critical value is available (Jöreskog & Sörbom, 1986). The Parsimony Goodness-of-Fit Index (PGFI) addresses the issue of parsimony in SEM (Mulaik et al., 1989). They suggested that indices in the 0,90s accompanied by PGFIs in the 0,50s are not unexpected, but values > 0,80 are considered to be more appropriate (Byrne, 2001).

The Normed Fit Index (NFI) is used to assess the global model fit. The NFI represents the point at which the model being evaluated falls on a scale running from a null model to perfect fit. This index is normed to fall on a 0 to 1 continuum. Marsh, Balla and Hau (1996)

suggested that the NFI is relatively sensitive to sample sizes. The Comparative Fit Index (CFI) represents the class of incremental fit indices in that it is derived from the comparison of a restricted model (i.e., one in which structure is imposed on the data) with that of an independent (or null) model (one in which all correlations among variables are zero) in the determination of goodness-of-fit. The Tucker-Lewis Index (TLI) (Tucker & Lewis, 1973) is a relative measure of co-variation explained by the model that is specifically developed to assess factor models. For these fit indices, it is more or less generally accepted that a value of less than 0,90 indicates that the fit of the model can be improved (Hoyle, 1995), although a revised cut-off value close to 0,95 has recently been advised (Hu & Bentler, 1999).

To overcome the problem of sample size, Browne and Cudeck (1993) suggested using the Root Mean Square Error of Approximation (RMSEA) and the 90% confidence interval of the RMSEA. The RMSEA estimates the overall amount of error; it is a function of the fitting function value relative to the degrees of freedom. Hu and Bentler (1999) suggested a value of 0,06 to be indicative of good fit between the hypothesised model and the observed data. Researchers recently elaborated on these cut-off points and noted that RMSEA values ranging from 0,08 to 0,10 indicate mediocre fit, and those greater than 0,10 indicate poor fit (MacCallum, Browne & Sugawara, 1996).

Consequently descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to analyse the data. Cronbach alpha coefficients, inter-item correlation coefficients and confirmatory factor analysis were used to assess the reliability and validity (i.e. internal consistency, homogeneity and unidimensionality) of the measuring instruments (Clark & Watson, 1995). Coefficient alpha contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale. According to Clark and Watson (1995), the mean inter-item correlation (which is a straightforward measure of internal consistency) provides useful information in conjunction with the alpha coefficient of a scale (which is an indication of homogeneity of a scale), but cannot ensure unidimensionality of a scale. The range of inter-item correlation should also be inspected in this regard. Sufficient clustering of correlations around the mean should provide sufficient support for the unidimensionality of a scale.

Finally multivariate analysis of variance (MANOVA) was used to determine the significance of differences between burnout (exhaustion, cynicism, professional efficacy and cognitive

weariness) and various biographical characteristics of the sample. MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA a new dependent variable that maximises group differences is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda was used to test the significance of the effects. Wilks' Lambda is a likelihood ratio statistic that tests the likelihood of the data under the assumption of equal population mean vectors for all groups against the likelihood under the assumption that the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect was significant in MANOVA, ANOVA was used to discover which dependent variables were affected. Because multiple ANOVAs were used, a Bonferroni type adjustment was made for inflated Type 1 error. Tukey tests were done to indicate which groups differed significantly when ANOVAs were done.

T-tests were used to determine differences between the groups in the sample. Effect sizes (Cohen, 1988; Steyn, 1999) were used in addition to statistical significance to determine the significance of relationships. Effect sizes indicate whether obtained results are important (while statistical significance may often show results which are of little practical relevance). The use of only statistical significance testing in a routine manner has been criticised by editors of some periodicals and there have been appeals to place more emphasis on effect sizes (Steyn 1999). The following formula was used to determine the practical significance of differences ( $d$ ) when t-tests were used (Steyn, 1999):

$$d = \frac{Mean_A - Mean_B}{SD_{MAX}}$$

Where

$Mean_A$  = Mean of the first group

$Mean_B$  = Mean of the second group

$SD_{MAX}$  = Highest standard deviation of the two groups

The following formula was used to determine the practical significance of means of more than two groups (Steyn, 1999):

$$d = \frac{Mean_A - Mean_B}{Root\ MSE}$$

Where

$Mean_A$  = Mean of the first group

$Mean_B$  = Mean of the second group

$Root\ MSE$  = Highest standard deviation of the two groups

According to Cohen (1988),  $0,10 \leq d \leq 0,50$  indicates a small effect,  $0,50 \leq d \leq 0,80$  indicates a medium effect, and  $d \geq 0,80$  indicates a large effect.

A cut-off point of 0,50 (medium effect) (Cohen, 1988) was set for the practical significance of differences between group means.

## RESULTS

Structural equation modelling (SEM) methods, as implemented by AMOS (Arbuckle, 1997), were used to test the factorial models for the MBI-GS. Data analysis was conducted in two consecutive steps. Firstly, a quick overview of the model fit was done by looking at the overall  $\chi^2$  value, together with its degrees of freedom and probability value. Several goodness-of-fit statistics (GFI, AGFI, PGFI, NFI, TLI, CFI and RMSEA) were used for the global assessment of the model fits. Secondly, given findings of a poor-fitting initially hypothesised model, exploratory analysis was done. Possible misspecifications, as suggested by the so-called modification indices, were looked for in order to fit a revised, re-specified model to the data.

### *Hypothesised model*

The aim of this study was to verify an adapted model of burnout consisting of a three-factor model (as confirmed in research) with Cognitive Weariness as a fourth factor. Three default models using the total population were tested: A one-factor model of burnout; a four-factor model of burnout (with Cognitive Weariness as fourth factor); and a three-factor model of burnout with Cognitive Weariness loading on Exhaustion. Table 2 presents fit statistics for the default models.

Table 2

*The Goodness-of-fit Statistics for the Hypothesised One-Factor, Three-Factor and Four-Factor MBI-GS Models*

| Default Model      | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|--------------------|----------|-------------|------|------|------|------|------|------|-------|
| Model 1 (1 factor) | 1456,77  | 4,50        | 0,72 | 0,68 | 0,62 | 0,62 | 0,65 | 0,68 | 0,10  |
| Model 2 (3 factor) | 595,89   | 2,92        | 0,87 | 0,84 | 0,70 | 0,80 | 0,84 | 0,85 | 0,07  |
| Model 3 (4 factor) | 557,19   | 2,74        | 0,88 | 0,85 | 0,71 | 0,81 | 0,85 | 0,87 | 0,07  |

The first model (Default Model 1) tested was a one-factor model of the MBI-GS, but very poor overall fit was obtained, as indicated by the statistically significant  $\chi^2$  value of 1456,77 ( $df = 323,72$ ;  $p = 0,00$ ). All the other fit indices confirmed an extremely poor fit with the data.

The second model (Default Model 2) consisted of three factors, namely Weariness (consisting of Exhaustion and Cognitive Weariness), Cynicism and Professional Efficacy. Again a rather poor overall fit was obtained, as indicated by the statistically significant  $\chi^2$  value of 595,89 ( $df = 204,07$ ;  $p = 0,00$ ) (Golembiewski & Munzenrider, 1988; Meier, 1984). All the other fit indices confirmed a poor fit with the data.

The full hypothesised four-factor model (Exhaustion; Cynicism; Professional Efficacy; Cognitive Weariness) consisting of 22 items (Default Model 3) was consequently tested. The statistically significant  $\chi^2$  value of 557,19 ( $df = 203$ ;  $p = 0,00$ ) still revealed a very poor overall fit with the originally hypothesized four-factor model, but it is better than the  $\chi^2$  values of the one-factor and three-factor models. All other indices indicated a poor fit between the hypothesised model and the data obtained. From a practical perspective, a large  $\chi^2$  value relative to the degrees of freedom, together with NFI, TLI and CFI values lower than

0,95 and a RMSEA value higher than 0,05, are indicative of a failure to confirm the hypothesised model and requires a need to modify the model to better fit the data. In order to determine a model that better represents the sample data, modification indices (MI) were examined to identify possible areas of misfit. Table 3 presents fit statistics for the subsequent changes of the four-factor model.

Table 3

*The Goodness-of-fit Statistics for the Hypothesised Four-Factor MBI-GS Model*

| Model   | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|---------|----------|-------------|------|------|------|------|------|------|-------|
| Model 1 | 459,16   | 2,80        | 0,89 | 0,86 | 0,70 | 0,84 | 0,87 | 0,89 | 0,07  |
| Model 2 | 361,77   | 2,48        | 0,91 | 0,88 | 0,70 | 0,86 | 0,89 | 0,91 | 0,06  |
| Model 3 | 313,77   | 2,43        | 0,92 | 0,89 | 0,69 | 0,86 | 0,90 | 0,91 | 0,06  |
| Model 4 | 298,87   | 2,35        | 0,92 | 0,89 | 0,68 | 0,87 | 0,90 | 0,92 | 0,06  |

Looking at the regression weights, two parameters which represent the cross-loading of Item 13 and 27 (Model 1) indicated a considerably lower regression weight compared with the other MBI items. Item 16 (Model 2) and Item 4 (Model 3) were also problematic. In the next step considerable constrained error co-variation was detected between error 14 and error 15 (items 14 and 15) and error 11 and error 12 (items 11 and 12) (Model 4). These parameters could account for the substantial misspecification of the hypothesised factor loading.

#### *Post-hoc analysis*

Based on the regression weights and standardised residual co-variances, the four-factor model was re-estimated with Item 13 and Item 27 removed (see Model 1). Consequently Item 16 (see Model 2) and Item 4 (see Model 3) were removed. Errors of two item pairs, namely Items 14 and 15 (errors 14 and 15) and Items 11 and 12 (errors 11 and 12) were allowed to correlate. The final model of the MBI-GS structure (Model 4) was based on 18 of the original 22 items and included correlated errors between items 14 and 15, as well as items 11 and 12. After testing each of the resulting models, based on the adjustments as described, the  $\chi^2$  value and other indices appeared to have improved compared to those of the original four-factor model.

The results of the final model (Model 4) are shown in Table 3. Although the  $\chi^2$  value of 298,87 ( $df = 127$ ;  $p = 0,00$ ) is still high, it is considerably lower than that of the hypothesised model. The other fit statistics indicate an acceptable fit for the re-specified model.

The descriptive statistics, alpha coefficients and inter-item correlations of the four factors of the MBI-GS are given in Table 4.

Table 4

*Descriptive Statistics, Alpha Coefficients and Inter-Item Correlations of the MBI-HSS*

| Dimension             | Mean  | SD   | Skewness | Kurtosis | $r(\text{Mean})$ | $\alpha$ |
|-----------------------|-------|------|----------|----------|------------------|----------|
| Exhaustion            | 11,32 | 6,37 | 0,13     | -0,90    | 0,58             | 0,85     |
| Cynicism              | 8,03  | 5,46 | 0,41     | -0,20    | 0,37             | 0,70     |
| Professional Efficacy | 23,34 | 5,03 | -0,76    | 0,25     | 0,28             | 0,66     |
| Cognitive Weariness   | 9,50  | 6,05 | 0,47     | -0,38    | 0,39             | 0,76     |

The results in Table 4 indicate that the scores on the four dimensions of the adapted model of burnout are normally distributed. It is evident that with regard to internal consistency three dimensions, namely Exhaustion, Cynicism and Cognitive Weariness, seem to demonstrate acceptable coefficient alphas above the 0,70 guideline provided by Nunnally and Bernstein (1994). Even though Professional Efficacy (0,66) is below the guideline of 0,70, it is consistent with the findings of Rothmann et al. (2003) in their study of burnout (MBI-GS) and job stress in local government, and Storm and Rothmann (2003) in the South African Police Service. Furthermore, acceptable levels of inter-item correlations have been obtained for three factors (Cynicism, Professional Efficacy and Cognitive Weariness) consistent with the guideline of  $0,15 \leq r \leq 0,50$  suggested by Clark and Watson (1995). Exhaustion (0,58) had an inter-item correlation higher than the guideline. A measure of internal consistency (Cronbach alpha) is not an indication of the unidimensionality of a scale, but it is necessary to take the range of inter-item correlations into consideration when considering unidimensionality (Clark & Watson, 1995). In terms of these guidelines, the MBI-GS seems to satisfy the requirements of homogeneity (acceptable internal consistencies) and unidimensionality (acceptable clustering of inter-item correlations around the mean).

These results provide support for Hypothesis 1.

Next, MANOVA and ANOVA analyses followed to determine the relationship between burnout and various *biographical characteristics*, such as gender, language, age, years experience at institution and job category. Biographical characteristics were first analysed for statistical significance using Wilks' Lambda statistics. The results are shown in Table 5.

Table 5

*MANOVAs – Differences in Burnout Levels Based on Biographical Characteristics*

| Variable         | Value | F    | df | Den DF | p                 |
|------------------|-------|------|----|--------|-------------------|
| Language         | 0,87  | 6,50 | 8  | 706    | 0,00 <sup>*</sup> |
| Age              | 0,98  | 0,78 | 8  | 688    | 0,62              |
| Years experience | 0,94  | 2,64 | 8  | 702    | 0,00 <sup>*</sup> |

\* Statistically significant difference:  $p \leq 0,01$

In an analysis of Wilks' Lambda values, no statistically significant differences ( $p < 0,01$ ) regarding burnout levels could be found between different age groups. However, statistically significant differences ( $p \leq 0,01$ ) were found for different language groups and categories of different years of experience at the institution. The relationship between burnout and those biographical characteristics that showed a statistically significant difference was further analysed to determine practical significance using ANOVA, followed by Tukey HSD tests.

The ANOVAs of differences in burnout levels of the different language groups are given in Table 6.

Table 6

*ANOVAs – Differences in Burnout Levels of Different Language Groups*

| Dimension             | Afrikaans          | English            | Indigenous | p                 | Root MSE |
|-----------------------|--------------------|--------------------|------------|-------------------|----------|
| Exhaustion            | 12,31 <sup>b</sup> | 12,61 <sup>b</sup> | 8,18       | 0,00 <sup>*</sup> | 6,09     |
| Cynicism              | 8,39               | 8,85               | 6,78       | 0,03              | 5,44     |
| Professional efficacy | 23,05              | 23,38              | 23,82      | 0,54              | 5,06     |
| Cognitive Weariness   | 10,94 <sup>c</sup> | 9,76 <sup>b</sup>  | 6,36       | 0,00 <sup>*</sup> | 5,73     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from language group (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

According to Table 6, Afrikaans- and English-speaking language groups scored significantly higher on Exhaustion than the indigenous language-speaking groups (practically significant, medium effect). Afrikaans- (practically significant difference, large effect) and English-speaking (practically significant difference, medium effect) language groups also scored significantly higher than indigenous language-speaking groups in terms of Cognitive Weariness levels.

Table 7 shows the ANOVAs of differences in burnout levels for different categories of years of experience at the institution.

Table 7

*ANOVAs – Differences in Burnout Levels of Years of Experience Categories*

| Dimension             | 0–5 years | 5,1–10 years | 10,1–44 years      | <i>p</i>          | Root MSE |
|-----------------------|-----------|--------------|--------------------|-------------------|----------|
| Exhaustion            | 9,54      | 10,96        | 12,87 <sup>b</sup> | 0,00 <sup>*</sup> | 6,23     |
| Cynicism              | 6,40      | 7,74         | 9,03 <sup>c</sup>  | 0,01 <sup>*</sup> | 5,49     |
| Professional efficacy | 24,90     | 23,06        | 22,99              | 0,06              | 5,03     |
| Cognitive Weariness   | 8,13      | 9,07         | 11,13 <sup>b</sup> | 0,00 <sup>*</sup> | 6,00     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from group (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

Table 7 indicates that people with more than 10 years' experience at the institution scored practically significantly higher on the Exhaustion (medium effect), Cynicism and Cognitive Weariness (medium effect) dimensions of burnout in comparison with those with 0–5 years experience. This is contrary to research that has shown that burnout is negatively related to work experience, and that younger employees are more prone to burnout (Cherniss, 1980; Künzle & Schulte, 1986; Maslach, Jackson & Leiter, 1996), but might be in line with the findings of Zijlstra and De Vries (2001) that older, more experienced, single workers who experienced a high workload were significantly more at risk compared to younger, less experienced, married workers with a low workload.

Based on T-test evaluation no statistically significant differences could be found regarding the biographical characteristics of gender and job category.

The results in Tables 5–7 provide partial supporting evidence for the acceptance of hypothesis 2, which projected that significant differences based on the biographical characteristics of gender, job characteristics, age, language and years of experience at the institution will exist. In contrast with the hypothesis, higher levels of burnout were found among workers with more years of experience at the institution and significant differences were found between different language groups. Also unexpectedly, no differences were found between genders, and academic and administrative staff. It can thus be concluded that, as hypothesised, differences based on biographical characteristics were found, but they reflected quite a different picture from that which could be expected based on the literature.

## DISCUSSION

The aim of this study was to validate the MBI-GS and Cognitive Weariness Scale for employees at a higher education institution in South Africa, to test an adapted four-factor model of burnout, consisting of Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness, and to determine differences between genders, different language groups, different job categories, employees in different age groups and employees with different years of experience at the institution.

The psychometric soundness of the MBI-GS and CWS was tested, i.e. the construct validity and internal consistency. Reliability analysis confirmed sufficient internal consistency of the subscales. The results obtained using the structural equation modelling approach supported a four-factor structure for the MBI-GS and Cognitive Weariness Scale with Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness as factors. This is a first in South African research on burnout, and consistent with the findings of Van Horn et al. (in press). However, based on both conceptual and empirical grounds, items 4, 13 and 16 were eliminated from the original MBI-GS, resulting in a 13-item scale. It seems as if problems with item 13 (“I just want to do my job and not be bothered”) might be caused by the ambivalent nature of the item, as confirmed by previous research (Rothmann et al., 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2003; Schutte et al. 2000). Even though item 4 (“Working all day is really a strain for me”) and item 16 (“At my work I feel confident that I am effective at getting things done”) also contributed to unwanted variance in the model, no theoretical premise could be found for its omission in the post hoc analysis. Possibly, this could be attributed to small sample size ( $N = 372$ ) in subsequent analysis, or

alternatively to the fact that these items were perceived as not relevant in the work reality due to the fact that the population in general did not report excessively high levels of burnout. These two questions are specifically related to aspects of overload which do not seem to be a major stressor among the population of this institution, and thus could result in participants' disregard of the relevance of these specific questions in their work situation, subsequently contributing to the unwanted variance in the model. The ambivalent content of these two items could also play a role here. Even though the elimination of items 4 and 16 increased model fit, their omission in post hoc analysis can be explained on conceptual grounds and should be validated in future larger replicated studies in higher education institutions.

The fourth burnout dimension that was added in this study was the six-item Cognitive Weariness scale as compiled by Van Horn et al. (in press). Item 27 ("I have problems processing new information"), which forms part of this scale, proved to be problematic and was subsequently eliminated on conceptual and empirical grounds. Its omission from post hoc analysis might also be explained by the ambivalence of this particular item. Participants might relate this item to a study and not to a work scenario and misinterpret its content as related to the processing of study material which might not be relevant for the 53% of the population not currently involved in improving their qualifications. However, the omission of this item should be validated in future research.

Furthermore, error terms within the subscales were allowed to correlate in order to improve model fit. Although correlated error terms may be derived from specific characteristics of either the respondents or the items of a survey, they represent systematic rather than random measurement error in item responses. This could indicate, for example, a small omitted factor or, which is more likely the case in the current study, could be reflective of respondent characteristics contributing to the bias of an instrument by means of randomly responding to items without really reading the items, social desirability (Aish & Jöreskog, 1990) as well as a high degree of item content overlap, i.e. different wording of an item, but essentially meaning the same thing (Byrne, 2001). From a technical, psychometric point of view the MBI-GS is a good instrument. From a clinical psychological perspective the MBI-GS does not cover the whole range of symptoms that are observed among employees with severe burnout (Schaufeli, 2003). Most notably cognitive impairment and distress symptoms (neurasthenic distress) are omitted, while reduced professional efficacy does not seem to play an important role. This research seems to prove that the original model of the MBI-GS is in

need of re-specification and that additional aspects (e.g. cognitive weariness) need to be considered for future inclusion.

Regarding the differences in burnout levels based on biographical characteristics, it was found that Afrikaans (55% of the population) and English (19% of the population) language groups experience significantly higher levels of Exhaustion and Cognitive Weariness than the indigenous language groups (26% of the population). Employees with more than 10 years experience at the institution (34% of the population) also experience significantly (practically and statistically significant differences) higher levels of Exhaustion, Cynicism and Cognitive Weariness. This is in contrast with research that has shown that younger employees are more prone to burnout and that burnout is negatively related to work experience (Cherniss, 1980; Künzle & Schulte, 1986; Maslach et al., 1996) but might be in line with the findings of Zijlstra and De Vries (2001) that older, more experienced, single workers who experienced a high workload were significantly more at risk compared to younger, less experienced, married workers with a low workload.

These observations might be understood if the recent history of this institution is taken into account. During the past eight years the student population has been transformed from predominantly white to a predominantly black distribution. This led to the change of the official language used at the institution from Afrikaans to English. During the same time (in adherence to the equity legislation passed by the post-apartheid government of South Africa), a decision was made to appoint only designated groups (i.e. black, Indian, Coloured and white female applicants, in order of preference) in vacant positions to ensure that the staff component reflects the demographics of the area (Vaal Triangle). Consequently, the staff component was changed from predominantly white to being demographically representative, and the management of the institution was also transformed.

As a result of these fast-paced and radical interventions, most of the employees with more than 10 years' experience are white and in the Afrikaans- (55%) and English-speaking (19%) language groups. The Afrikaans speaking, white employees additionally had to adjust to communicate/educate second language-speaking students (indigenous languages) in, for them also, a second language (English). Both the Afrikaans and English language groups who have been employed at the institution for more than 10 years are also subjected to radical changes with regard to the culture of their clients (the students) and their co-workers. Another source

of change might be the total transformation of the top management of the institution and its secondary impact on the governance, culture and climate of the organisation. Adjusting to these changes in a relatively short period of time might have resulted in elevated levels of Exhaustion, Cognitive Weariness and Cynicism among the Afrikaans- and English-language groups in comparison with the indigenous language-speaking (26%) staff component, who in the population also predominantly represent those with 0–5 years of experience. Of concern is the fact that those employees adversely affected by Exhaustion, Cognitive Weariness and Cynicism represent, based on language groups, 74%, and based on years of experience, 34% of the population – figures that cannot be ignored if employee wellness is a priority in an organisation.

In conclusion, this study could serve as a standard regarding burnout levels of the total population in a higher education institution. Added to the previously accepted three-factor structure of burnout, an adapted four-factor structure is largely confirmed, as well as the internal consistency of Exhaustion, Cynicism, Professional Efficacy and Cognitive Weariness. Based on the results obtained in the study, it would seem as if the MBI-GS in combination with the Cognitive Weariness Scale could be regarded as a suitable instrument for measuring burnout in higher education institutions in South Africa. The higher levels of Exhaustion, Cognitive Weariness and Cynicism that were observed among Afrikaans- and English-language groups, as well as among those with more than 10 years' experience at the institution, are also an alarming aspect that certainly justifies further research, especially in institutions that are marked by radical transformation in a short period of time.

A limitation of this study is its reliance solely on self-report measures. According to Schaufeli, Enzman and Girault (1993) the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variances between measures can be attributed to method variance. Another limitation is the size of the sample, which has significant limitations in terms of the generalisation of the findings applied to the total study population. Future studies could benefit hugely in terms of a stratified random-sample design which would ensure sufficient representation of the different groups in the total population. Also, in terms of the research design, future studies should focus on longitudinal designs where inferences in terms of cause and effect could be made. Future studies conducted should consider extending the sample to include employees of all the higher education institutions in

South Africa in order to standardise the MBI-GS for employees of higher education institutions in South Africa.

## **RECOMMENDATIONS**

According to the results obtained in this study, the use of the MBI-GS combined with the Cognitive Weariness Scale is recommended to assess burnout in higher education institutions in South Africa. However, item 13 should be omitted from the MBI-GS. The additional omission of items 4 and 16 from the MBI-GS and item 27 from the Cognitive Weariness Scale (item 6 in the original version of CWS) should be validated in future research.

The operationalisation of the instruments used in this research is another aspect which justifies further research. In terms of the operationalisation of the MBI specifically, mounting criticism against the predominant use of negatively phrased items has been voiced in the literature. Recently, the psychometric properties of the MBI-GS were increased by the addition of the Disengagement subscale of the Oldenburg Burnout Inventory (OLBI) to the existing scales of the MBI-GS (Demerouti, Bakker, Vardakou & Kantas, 2002). In terms of future research, it is suggested that studies should focus on the inclusion of positively phrased items to the existing subscales of the MBI.

In order to fully understand the effect of different biographic characteristics on burnout and cognitive weariness, especially in institutions undergoing radical transformation on different levels simultaneously, it is recommended that future studies with regard to higher education institutions in South Africa be expanded to measure the secondary impact that the negative residue of burnout might have on affected employees, students and co-workers. Another informative investigation could include the effect of burnout and cognitive weariness on the psychological contract and organisational commitment of the individual.

It is suggested that future research focus on the MBI-GS and Cognitive Weariness Scale in other higher education institutions in South Africa to verify the current findings. Other occupational settings should also be investigated in a similar manner in order to verify the reliability and validity of the MBI-GS and Cognitive Weariness Scale. It is also important to determine norm levels for other occupations in South Africa. It is recommended that larger samples with a more powerful sampling method be utilised to enable generalisation of the

findings to other similar groups. It might also be necessary to translate the MBI-GS and Cognitive Weariness Scale into other languages used in South Africa.

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## **CHAPTER 3**

### **RESEARCH ARTICLE 2**

# **THE VALIDATION OF THE UTRECHT WORK ENGAGEMENT SCALE FOR EMPLOYEES OF A HIGHER EDUCATION INSTITUTION IN SOUTH AFRICA \***

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## **ABSTRACT**

The objectives of this study were to determine the construct and factorial validity of the Utrecht Work Engagement Scale (UWES) for employees of a higher education institution in South Africa and to determine differences between the work engagement levels of different language groups, different job categories and employees with different years of experience at the institution. A cross-sectional survey design ( $N = 372$ ) was used. The UWES and a biographical questionnaire were administered. Structural equation modelling confirmed a three-factor model of work engagement, consisting of Vigour, Dedication and Absorption, with acceptable internal consistencies. Practically significant differences were found in engagement levels of employees in different language groups, those with different years of experience at the institution and between academic and administrative employees.

## **OPSOMMING**

Die doelstellings van die studie was om die Utrecht-werksbegeesteringskaal (UWES) te valideer en om te bepaal of verskillende taalgroepe, werknemerkategorieë en werknemers met verskillende jare ervaring by 'n hoërsonderwysinstansie in Suid-Afrika verskille in werksbegeesteringsvlakke ervaar. 'n Dwaarsnecopname-ontwerp ( $N = 372$ ) is gebruik. Die UWES en 'n biografiese vraelys is afgeneem. Strukturele vergelykingsmodellering het 'n driefaktormodel met aanvaarbare interne konsekwentheid bevestig vir al drie die skale, naamlik Energie, Toewyding en Absorpsie. Prakties betekenisvolle verskille is gevind vir werksbegeesteringsvlakke by verskillende taalgroepe, werknemers met verskillende jare ervaring by die instansie, en tussen akademiese en administratiewe aanstellings.

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Work can lead to illness as well as health (Schaufeli & Bakker, 2001; Turner, Barling & Zacharatos, 2002). On the one hand work requires effort and is associated with lack of freedom and negative feelings. On the other hand, work gives energy, enables development and generates positive feelings (Rothmann, 2003). Despite its name, research in Occupational Health Psychology is dramatically weighted on the side of ill health (absence of illness) and unwell-being instead of health and well-being (wellness) at work. Based on an electronic search of *Psychological Abstracts*, Myers (2000) calculated that articles researching negative aspects outnumber those focusing on positive aspects by a ratio of 14 to 1. Additionally a simple count of articles that appeared from 1996 in the *Journal of Occupational Health Psychology* reveals that only 6% of articles examined positive outcomes of health and well-being (Schaufeli & Bakker, 2002). However, after World War II, psychology became a science that focused largely on healing.

This general trend culminated in the recent introduction of the so-called “positive psychology” (Seligman & Csikszentmihalyi, 2000), landmarking a shift from the traditional focus on weakness and malfunctioning (i.e. pathology) towards human strengths and optimal functioning (i.e. fortology) (Ryan & Deci, 2000; Strümpfer, 1995; 2002a). Attempts to discover “what can go right” as opposed to “what can go wrong” became the focus of modern psychology (Tytherleigh, 2003). In a special edition of the *American Psychologist* called “Positive Psychology” an international attempt was made to stimulate research into positive psychology (Seligman & Csikszentmihalyi, 2000). Seligman and Csikszentmihalyi (2000) go one step further in proposing that the aim of positive psychology must be to catalyse a change in the facts of psychology from preoccupation with repairing the worst things in life to building and optimising positive qualities.

A movement in the direction of positive psychology is also evident in South Africa. The work of Strümpfer (1995, 2002a) focuses on the fortigenic paradigm, which is different from the dominant pathogenic orientations. This paradigm implies a shift from a psychology of sick and dysfunctional to positive psychology with an emphasis on challenges and opportunities of people in the work place. Thus, the fortigenic paradigm focuses on the origins of strength. Recent work of Strümpfer (2002b) focused on the fortigenic paradigm and its relation to burnout. He considered psychological constructs that could help understand alternatives to burnout as well as helping people to move in the general direction of health. Wissing and Van Eeden (2002) also focused on positive psychology in their study of psychological well-being,

and endeavour to achieve greater empirical clarification of the nature of psychological well-being by investigating its nature from a fortigenic perspective.

Similar tendencies can be detected in the burnout research literature. Where burnout originally focused more on 'pathology' recent emphasis tends to be more on the 'positive' perspective. Empirical studies revealed that some employees, regardless of high job demands and long working hours, do not develop burnout in comparison to others, but seemed to find pleasure in hard work and dealing with job demands (Schaufeli & Bakker, 2001). Consequently, theoretical and empirical studies commenced on the concept of engagement, theoretically viewed as the antithesis of the burnout construct.

Development of the engagement construct took two different but related paths. Firstly, Maslach and Leiter (1997, p. 23) rephrased burnout as "an erosion of engagement with the job". Work that started out as important, meaningful and challenging becomes unpleasant, unfulfilling and meaningless. They characterize engagement by energy, involvement and efficacy, which are considered the direct opposites of the three burnout dimensions, namely exhaustion, cynicism and lack of professional efficacy. Engagement is then assessed by the opposite pattern of scores on the three Maslach Burnout Inventory (MBI) dimensions. Low scores on exhaustion and cynicism, and high scores on efficacy are indicative of engagement.

The second path was taken by Schaufeli and his colleagues, agreeing in part with the description of engagement proposed by Maslach and Leiter (1997), with the difference that engagement be measured with a different instrument worthy of operationalisation in its own right (Schaufeli, Salanova, Gonzáles-Romá & Bakker, 2002, b). They further argue that the simultaneous empirical investigation of burnout and engagement would be impossible with one instrument. Based on a theoretical analysis, burnout and engagement were conceptually related to each other, resulting in two work-related dimensions of well-being being identified, namely (1) *activation*, ranging from exhaustion to vigour, and (2) *identification*, ranging from cynicism to dedication (Watson & Tellegen, 1985). Also, personal accomplishment and absorption were included in the burnout and engagement constructs respectively, but not in an antithetical manner. It was argued that personal accomplishment was added only afterwards in the development of the Maslach Burnout Inventory (MBI) when a third factor was discovered during a factor analysis of a preliminary version of the MBI (Maslach, 1993).

Similarly, absorption was discovered as a related dimension of the engagement construct during 30 in-depth interviews (Schaufeli et al., in press).

Schaufeli et al. (2002, b) consider burnout and engagement to be opposite concepts that should be measured independently and with different instruments. They define work engagement as “a positive fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption” (Schaufeli et al., 2002, b, p. 71). *Vigour* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, not being easily fatigued, and persistence even in the face of difficulties. *Dedication* is characterised by deriving a sense of significance from one’s work, by feeling enthusiastic and proud about 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 difficulties detaching oneself from it. Time passes quickly and one forgets everything else that is around one.

Engagement, defined as a positive, fulfilling, work-related state of mind, cannot be described as a momentary and specific state. Rather, it is a more persistent and pervasive affective-cognitive state which is not focused on a particular object, event, individual or behaviour (Schaufeli et al., 2002, b). This indicates a paradigm shift towards the positive pole of employees’ well-being, instead of focusing exclusively on the negative pole. From this perspective, burnout is rephrased as erosion of engagement with the job (Schaufeli et al., 2002, b). Schutte, Toppinen, Kalimo and Schaufeli (2000) describe work engagement as an energetic state in which the employee is dedicated to excellent performance at work and is confident of his or her effectiveness. Engagement, therefore, can be distinguished but not divorced from burnout in terms of its structure and operationalisation.

Work engagement is also distinct from other established constructs in organisational psychology, such as organisational commitment, job satisfaction or job involvement (Maslach, Schaufeli & Leiter, 2001). Engagement (especially absorption) comes close to what has been called “*flow*”, a term used by Csikszentmihalyi (1990) that represents a state of optimal experience that is characterised by focused attention, a clear mind and body union, effortless concentration, complete control, loss of self-consciousness, distortion of time and intrinsic enjoyment. However, flow is a more complex concept that includes many aspects and refers to rather particular, short-term “peak” experiences instead of a more

pervasive and persistent state of mind, as is the case with engagement (Schaufeli et al., 2002, b).

Schaufeli et al. (2002, b) further cautioned that although engagement is theoretically viewed as the opposite end of the continuum from burnout, it cannot effectively be measured by the Maslach Burnout Inventory (MBI), but they proposed that a separate engagement survey, namely the Utrecht Work Engagement Scale (UWES), rather be used. They found acceptable reliability for the UWES. Two recent studies using confirmative factor analysis demonstrated the factorial validity of the UWES (Schaufeli, Bakker, Hoogduin, Schaap & Kladler, 2001; Schaufeli, Martinez, Pinto, Salanova & Bakker; 2002, a). The three scales are moderately to strongly related (mean  $r = 0,63$  in Sample 1 and mean  $r = 0,70$  in Sample 2). Also the fit of the hypothesised three-factor model to the data was superior to a one-factor solution (Maslach et al., 2001; Schaufeli et al., 2002, a). Only two studies in this regard could be found in South Africa, namely that of Storm and Rothmann (2003) and Naudé and Rothmann (in press). Although structural equation modelling supported a three-factor model of work engagement in both studies, the correlations between the three dimensions (i.e. vigour, dedication and absorption) were high, suggesting the possibility that work engagement (as measured by the UWES) is a one-dimensional construct. Acceptable Cronbach alpha coefficients with  $\alpha > 0,70$  (Nunnally & Bernstein, 1994) were found. As a result, information regarding the internal consistency, construct validity and comparability across cultural groups for the UWES are lacking, especially in the multicultural South African context.

Since 1994 the landscape of higher education in South Africa has been changing. One of the focus areas of redress of the post-apartheid government is the education system (Cross, Mungadi & Rouhani, 2002). At an institutional level, this boils down to the introduction of policies and mechanisms aimed at redress on different levels and huge demands in terms of access to education (Kraak, 2000). This resulted in a restructuring of the higher education system in South Africa, which poses various challenges to the management as well as the employees of tertiary institutions. New organisational cultures have to be introduced; values, cultural norms and organisational support systems are subjected to ongoing change; peer support within the organisation is challenged, with issues like equity diversity and resistance and establishing an organisational climate being continually and inevitably influenced by ongoing change.

Higher education institutions can make an important contribution to the reconstruction and development of South Africa (Marais, Grobbelaar & Potgieter, 1997). However, of great importance are those responsible for producing the outcomes of higher education institutions. Administrators (Goldstein, 1992; Blaise, 1996), lecturers/teachers (Seldin, 1991; Schnacke, Martray & Heck, 1994), and support staff (Alexy, 1991; Glasgow, Terborg, Hollis, Severson & Boles, 1995) comprise the “human capital” of an educational institution and, as such, it is important to care for these groups of people (Sackney, Noonan & Miller, 2000).

The current higher education scenario will inevitably have an impact on engagement of employees at institutions of higher education. But the question asked is why certain workers can deal with change and accomplish large amounts of work with enthusiasm and pleasure, without becoming sick or being burned out. Research on work engagement can hopefully answer this question.

The objective of this study was to determine the construct validity and internal consistency of an adapted version of the UWES for employees at a higher education institution in South Africa and to determine whether employees will experience different levels of engagement based on biographical characteristics like language, age, years of experience, job category and gender.

### **The Utrecht Work Engagement Scale (UWES)**

Schaufeli et al. (2002, b) developed a self-report questionnaire to assess work engagement (the Utrecht Work Engagement Scale – UWES), which includes items such as: “I am bursting with energy in my work (vigour); “My job inspires me” (dedication); “I feel happy when I’m engrossed in my work” (absorption). Acceptable internal consistency was reported. Recent confirmatory factor-analytic studies confirmed the factorial validity of the UWES (Schaufeli et al, 2001; Schaufeli et al., 2002, a; Schaufeli et al., 2002, b). The findings showed internal consistent results for the three scales of the UWES. In a sample of undergraduate students ( $N = 314$ ) and a sample of employees ( $N = 619$ ), adequate Cronbach alphas were found as follows: Vigour (6 items),  $\alpha = 0,68$  and  $0,80$ ; Dedication (5 items),  $\alpha = 0,91$  for both samples and Absorption (6 items),  $\alpha = 0,73$  and  $0,75$ . In the student sample, the value of  $\alpha$  could be improved by eliminating three items ( $\alpha = 0,79$ ). The scales seem to be moderately to strongly related to the mean  $r = 0,63$  in the sample of undergraduate students and the mean  $r = 0,70$  in

the sample of employees. Also, the fit of the hypothesized three-factor model with the data was found to be superior to the one-factor solution (Maslach, et al., 2001; Schaufeli et al., 2002, a).

In a cross-cultural study regarding the UWES for students in Spain, Portugal and the Netherlands, the factorial validity of the UWES was confirmed and the internal consistency of the scales was found to be satisfactory (Schaufeli et al., 2002, a). Factor loadings of Absorption were found to be invariant across all samples, while factor loadings of Vigour were invariant for only two of the three groups. The three-factor model fit to the data was found to be superior in all three samples after removing three items, namely items 17, 16 and 11. Internally consistent Cronbach alphas ranged from 0,65 to 0,79 for Vigour (5 items); 0,77 to 0,85 for Dedication (5 items); and from 0,65 to 0,73 for Absorption (4 items).

Naudé and Rothmann (in press) and Storm and Rothmann (2003) studied the internal consistency, factorial validity, structural equivalence and bias of the UWES in South Africa. In their study, Storm and Rothmann (2003) found that a re-specified one-factor model (after deleting items 3, 11, 15 and 16) fitted the data the best in their random, stratified sample of police members in South Africa ( $N = 2\,396$ ). Although a re-specified three-factor model (deleting items 4 and 14 and allowing items 8 and 9, and items 15 and 16 to correlate) was also initially tested and satisfactory results obtained, the fit with the data was superior for a one-factor model. Internal consistencies of the three subscales were confirmed at acceptable levels according to the guideline of  $\alpha = 0,70$  (Nunnally & Bernstein, 1994). Cronbach alphas were determined at 0,78 (Vigour); 0,89 (Dedication) and 0,78 (Absorption). No evidence of structural un-equivalence or item bias was found for the UWES in this particular study.

Naudé and Rothmann (in press) used a cross-sectional survey design with an accidental sample ( $N = 405$ ) of emergency workers in Gauteng. Although structural equation modelling supported a three-factor model of work engagement, the correlations between the three dimensions (i.e. vigour, dedication and absorption) were high, suggesting the possibility that work engagement (as measured by the UWES) is a one-dimensional construct. Cronbach alpha coefficients of the scales (Vigour – 0,70; Dedication – 0,83; Absorption – 0,67) were acceptable, compared to the guideline of  $\alpha > 0,70$  (Nunnally & Bernstein, 1994). Exploratory factor analysis with target rotations confirmed the construct (structural) equivalence of the

engagement construct for the Afrikaans, English and Sotho groups, but not for the Nguni language group.

Since the development of the UWES by Schaufeli et al. (2002, b), only a couple of studies regarding engagement could be found in the literature (Maslach, et al., 2001, Naudé & Rothmann, in press; Schaufeli et al, 2001; Schaufeli et al., 2002, a; Schaufeli et al., 2002, b; Storm & Rothmann, 2003). As a result, information regarding in-group differences in engagement levels are practically non-existent. Rothmann (2003) encourages research not only of factorial validity of the UWES, but also of its factorial invariance (Byrne, 1991) for biographical characteristics like different language and occupational groups.

This study will be an attempt to determine differences in engagement levels of employees at a higher education institution in South Africa, and the focus will be on gender, age, job category, language group and years of experience at the institution. Keeping in mind that engagement is seen as the positive antithesis of burnout (Schaufeli et al., 2002, b), it can be postulated that, if engagement reflects the opposite image of the findings in the burnout literature, the following patterns can be expected: Men will be more engaged in their work than women (Schaufeli and Enzmann (1998) found that women reflect higher levels of burnout than men); younger employees and those with fewer years of experience will reflect lower levels of engagement (Cherniss (1980) and Maslach, Jackson and Leiter (1996) found that younger employees with fewer years of experience reflect higher levels of burnout); administrative staff members will be more engaged compared to academics (Cash (1988) found that individuals with a higher level of education were more prone to burnout); and no significant differences in engagement levels will be found among different language groups (Schutte et al. (2000) found that no significant differences in burnout levels across cultures could be detected).

Consequently, the following research hypotheses can be formulated:

H1: Work engagement, as measured by the UWES, is a three dimensional construct and shows internal consistency and construct validity for employees at a higher education institution in South Africa.

H2: Significant differences based on biographical characteristics like gender, age, language group, job category and years of experience at the institution exist regarding engagement levels of employees at a higher education institution in South Africa. Men will reflect higher levels of engagement than women, younger employees and those with fewer years of experience will reflect lower levels of engagement, administrative staff members will be more engaged compared to academics, and no significant differences in engagement levels will be found among different language groups.

## **METHOD**

### **Research design**

A cross-sectional design was used to achieve the objectives of this research. According to Burns and Grove (1993) cross-sectional designs are appropriate where groups of subjects at various stages of development are studied simultaneously, whereas the survey technique of data collection gathers information from the target population by means of questionnaires. Although Schaufeli and Enzmann (1998) criticised the use of cross sectional-designs in the study of burnout and related research, and recommended that experiments and longitudinal designs should be used as far as possible, Schaufeli and Zechmeister (1997) proposed that cross-sectional designs are suitable for the development and validation of questionnaires (in this case the UWES).

### **Study population**

The study population consisted of academic and administrative staff at a tertiary institution in South Africa. A total of 820 questionnaires were sent out: academic staff ( $N = 320$ ); and administrative staff ( $N = 500$ ). A total of 372 completed questionnaires were received back. This comprised 175 questionnaires from academic and 197 questionnaires from administrative staff members, giving a total response rate of 45,36% (47,04% for academic staff and 52,96% for administrative staff).

Females constituted 63% of the participants. Different language groups were included in the study. A total of 55% of the participants were Afrikaans-speaking; 19% were English-

speaking; 11% Setswana-speaking and 15% spoke other indigenous languages. The minority (16%) of the participants were single. In total, 25% of the population had obtained a master's (or related) or related degrees and/or higher qualifications. 47% indicated that they were improving their qualifications. 34% of the participants were at the institution for 10 or more years of service. 66% reported to have had no opportunity to be promoted during their years of service. The characteristics of the participants are shown in Table 1.

Table 1  
*Characteristics of Participants*

| Item                      | Category                | Percentage |
|---------------------------|-------------------------|------------|
| Employment category       | Academic                | 47,04      |
|                           | Administrative          | 52,96      |
| Gender                    | Male                    | 37,12      |
|                           | Female                  | 62,88      |
| Language                  | Afrikaans               | 54,59      |
|                           | English                 | 19,46      |
|                           | Setswana                | 10,81      |
|                           | Other                   | 15,14      |
| Education                 | Highest grade/standard  | 21,95      |
|                           | 3 year qualification    | 23,04      |
|                           | 4 year qualification    | 30,08      |
|                           | Masters                 | 19,24      |
|                           | Doctoral                | 5,69       |
| Marital status            | Single/Divorced         | 15,76      |
|                           | Engaged/in relationship | 37,77      |
|                           | Married                 | 44,29      |
| Years of service          | 0 – 5 years             | 31,29      |
|                           | 5,1 – 10 years          | 35,19      |
|                           | 10+ years               | 33,52      |
| Opportunity for promotion | none                    | 65,71      |
|                           | 1                       | 23,49      |
|                           | 2+                      | 10,80      |
| Studying further          | Yes                     | 47,28      |
|                           | No                      | 52,72      |
| Age distribution          | 23–30                   | 19,94      |
|                           | 31–40                   | 37,19      |
|                           | 41–50                   | 26,21      |
|                           | 51–60                   | 15,95      |

## Measuring battery

The *Utrecht Work Engagement Scale* (UWES) (Schaufeli et al., 2002, b) was used to measure levels of engagement. Although work engagement is conceptually seen as the positive antithesis of burnout, it is operationalised in its own right. Work engagement is a concept that includes three dimensions: vigour, dedication and absorption. Engaged workers are characterised by high levels of vigour and dedication, and they are immersed in their jobs. The UWES is scored on a seven-point frequency scale, ranging from 0 “never” to 6 “every day”. Three dimensions of engagement can be distinguished, namely Vigour (6 items; e.g. “I am bursting with energy in my work”), Dedication (5 items; e.g. “I find my work full of meaning and purpose”) and Absorption (6 items, e.g. “When I am working, I forget everything else around me”). In terms of internal consistency, reliability coefficients for the three subscales between 0,68 and 0,91 have been determined. Improvement of the alpha coefficient (ranging from 0,78 to 0,89) seems possible without adversely affecting the internal consistency of the scale (Storm & Rothmann, 2003). The alpha coefficient could be improved by eliminating a few items without substantially decreasing the scale’s internal consistency.

A *biographical questionnaire* was designed to gather information regarding, among others, gender, position, education and marital status.

## Statistical analysis

The statistical analysis was carried out with the help of the SAS program (SAS Institute, 2000). Confirmatory factor analysis was conducted with the AMOS program (Arbuckle, 1997).

In order to test the factorial validity of the UWES, structural equation modelling (SEM) methods were initially used with the maximum likelihood method of the AMOS program (Arbuckle, 1997). SEM is a statistical methodology that takes a confirmatory or hypothesis-testing approach to the analysis of a structural theory bearing on a specific phenomenon

(Byrne, 2001, p. 3). However, when model-fit with the data is computed, an exploratory factor-analysis approach is taken in the post hoc analysis of the data.

In the SEM analysis, the hypothesised structural (unobserved, latent factor) relationships are empirically tested by means of goodness-of-fit with the sample data. The  $\chi^2$  statistic and several other goodness-of-fit indices summarise the degree of correspondence between the implied and observed covariance matrices. Jöreskog and Sörbom (1993) suggest that the  $\chi^2$  value may be considered more appropriately as a badness-of-fit rather than a goodness-of-fit measure in the sense that a small  $\chi^2$  value is indicative of good fit. However, because the  $\chi^2$  statistics equals  $(N - 1)F_{\min}$ , this value tends to be substantial when the model does not hold and the sample size is large (Byrne, 2001). A large  $\chi^2$  relative to the degrees of freedom indicates a need to modify the model to better fit the data. Researchers have addressed the  $\chi^2$  limitations by developing goodness-of-fit indices that take a more pragmatic approach to the evaluation process. One of the first fit statistics to address this problem was the  $\chi^2$ /degrees of freedom ratio (CMIN/DF) (Wheaton, Muthén, Alwin & Summers, 1977). These criteria commonly referred to as “subjective” or “practical” indices of fit are typically used as adjuncts to the  $\chi^2$  statistic.

The Goodness of Fit Index (GFI) indicates the relative amount of the variances/co-variances in the sample predicted by the estimates of the population. It usually varies between 0 and 1, and a result of 0,90 or above indicates a good model fit. In addition, the Adjusted Goodness-of-Fit Index (AGFI) is given. The AGFI is a measure of the relative amount of variance accounted for by the model, corrected for the degrees of freedom in the model relative to the number of variables. Although both indices range from zero to 1,00, the distribution of the AGFI is unknown, therefore no statistical test of critical value is available (Jöreskog & Sörbom, 1986). The parsimony goodness-of-fit index (PGFI) addresses the issue of parsimony in SEM (Mulaik et al., 1989). The PGFI takes into account the complexity (i.e., number of estimated parameters) of the hypothesized model in the assessment of overall model fit and provides a more realistic evaluation of the hypothesised model. Mulaik et al. (1989) suggested that indices in the 0,90s accompanied by PGFI's in the 0,50s are not unexpected; however, values > 0,80 are considered to be more appropriate (Byrne, 2001).

The Normed Fit Index (NFI) is used to assess global model fit. The NFI represents the point at which the model being evaluated falls on a scale running from a null model to perfect fit.

This index is normed to fall on a 0 to 1 continuum. Marsh, Balla and Hau (1996) suggest that this index is relatively insensitive to sample sizes. The Comparative Fit Index (CFI) represents the class of incremental fit indices in that it is derived from the comparison of a restricted model (i.e., one in which structure is imposed on the data) with that of an independent (or null) model (i.e., one in which all correlations among variables are zero) in the determination of goodness-of-fit. The Tucker-Lewis Index (TLI) (Tucker & Lewis, 1973) is a relative measure of co-variation to assess factor models. For these indices (NFI, CFI and TLI), it is more or less generally accepted that a value of less than 0,90 indicates that the fit of the model can be improved (Hoyle, 1995), although a revised cut-off value close to 0,95 has recently been advised (Hu & Bentler, 1999).

To overcome the problem of sample size, Browne and Cudeck (1993) suggested using the Root Mean Square Error of Approximation (RMSEA) and the 90% confidence interval of the RMSEA. The RMSEA estimates the overall amount of error; it is a function of the fitting function value relative to the degrees of freedom. The RMSEA point estimate should be 0,05 or less and the upper limit of the confidence interval should not exceed 0,08. Hu and Bentler (1999) suggested a value of 0,06 to be indicative of good fit between the hypothesised model and the observed data. MacCullum, Brown, and Sugwara (1996) recently elaborated on these cut-off points and noted that RMSEA values ranging from 0,08 to 0,10 indicate mediocre fit, and those greater than 0,10 indicate poor fit.

Consequently descriptive statistics (e.g., means, standard deviations, skewness and kurtosis) were used to analyse the data. Cronbach alpha coefficients, inter-item correlation coefficients and confirmatory factor analysis were used to assess the reliability and validity (i.e. internal consistency, homogeneity and unidimensionality) of the measuring instruments (Clark & Watson, 1995). Coefficient alpha contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale. According to Clark and Watson (1995), the mean inter-item correlation (which is a straightforward measure of internal consistency) provides useful information in conjunction with the alpha coefficient of a scale (which is an indication of homogeneity of a scale), but cannot ensure unidimensionality of a scale. The range of inter-item correlation should also be inspected in this regard. Sufficient clustering of correlations around the mean should provide sufficient support for the unidimensionality of a scale.

Finally multivariate analysis of variance (MANOVA) was used to determine the significance of differences between engagement (vigour, dedication and absorption) levels as influenced by various biographical characteristics of the sample. MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell, 2001). In MANOVA a new dependent variable that maximises group differences is created from the set of dependent variables. One-way analysis is then performed on the newly created dependent variable. Wilks' Lambda was used to test the significance of the effects. Wilks' Lambda is a likelihood ratio statistic that tests the likelihood of the data on the assumption of equal population mean vectors for all groups against the likelihood that the population mean vectors are identical to those of the sample mean vectors for the different groups. When an effect was significant in MANOVA, ANOVA was used to discover which dependent variables were affected. Because multiple ANOVAs were used, a Bonferroni type adjustment was made for an inflated Type 1 error. Tukey tests were done to indicate which groups differed significantly when ANOVAs were done.

T-tests were used to determine differences between the groups in the sample. Effect sizes (Cohen, 1988; Steyn, 1999) were used in addition to statistical significance to determine the significance of relationships. Effect sizes indicate whether obtained results are important (while statistical significance may often show results which are of little practical relevance). The use of only statistical significance testing in a routine manner has been criticised and from editors of some periodicals there have been appeals to place more emphasis on effect sizes (Steyn 1999). The following formula was used to determine the practical significance of differences ( $d$ ) when t-tests were used (Steyn, 1999):

$$d = \frac{Mean_A - Mean_B}{SD_{MAX}}$$

Where

$Mean_A$  = Mean of the first group

$Mean_B$  = Mean of the second group

$SD_{MAX}$  = Highest standard deviation of the two groups

The following formula was used to determine the practical significance of means of more than two groups (Steyn, 1999):

$$d = \frac{Mean_A - Mean_B}{Root\ MSE}$$

Where

$Mean_A$  = Mean of the first group

$Mean_B$  = Mean of the second group

$Root\ MSE$  = Highest standard deviation of the two groups

According to Cohen (1988),  $0,10 \leq d \leq 0,50$  indicates a small effect,  $0,50 \leq d \leq 0,80$  indicates a medium effect, and  $d \geq 0,80$  indicates a large effect.

A cut-off point of 0,50 (medium effect) (Cohen, 1988) was set for the practical significance of differences between group means.

## RESULTS

Structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 1997) were used to test two factorial models for the UWES, a one-factor as well as a three-factor model of work engagement. The purpose of this analysis is twofold, namely to investigate the factorial composition of the UWES scale and to standardise it for the population. Data analysis was conducted in two consecutive steps. Firstly, a quick overview of the model fit was done by looking at the overall  $\chi^2$  value, together with its degrees of freedom and probability value (West, Finch & Curren, 1995). Comparative fit indices, such as the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Parsimony Goodness-of-Fit Index (PGFI), The Normed Fit Index (NFI), The Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Mean Square Error of Approximation (RMSEA) were used for the global assessment of the model fits.

In the second step, exploratory model modification analysis was initiated, based on the information gained from the modification indices in the instances where misspecifications in

the empirical model were found. Alternative model construction and re-specification resulted in the alternative model being fitted to the data and evaluated during the post hoc analysis process. This process continued to the point where an acceptable solution, comparable with previous, related studies, could be found.

#### *Hypothesised model*

In this procedure, the 17-item theoretical model, as proposed by Schaufeli et al. (2002c), was tested. Firstly, the unidimensional model, which assumes that all 17 UWES items load on one single factor, was tested. Table 2 provides a summary of the fit statistics for the hypothesised one-factor model.

Table 2

#### *Goodness-of-Fit Statistics for the 17-Item Hypothesised One-Factor UWES Model*

| Model         | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-------------|------|------|------|------|------|------|-------|
| Default model | 1456,77  | 4,50        | 0,72 | 0,68 | 0,62 | 0,62 | 0,65 | 0,68 | 0,10  |

This model as shown in Table 2, however, revealed very poor overall fit as is indicated by the statistically significant  $\chi^2$  value of 1 456,77 ( $df = 323,72$ ;  $p = 0,00$ ). All the other fit indices confirmed a poor fit with the data.

Consequently, the hypothesised 17 item three-factor UWES model was fitted with the data. In Table 3 the fit statistics are provided for the fit between the original model and the empirical data.

Table 3

#### *Goodness-of-Fit Statistics for the 17-Item Hypothesised Three-Factor UWES Model*

| Model         | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-------------|------|------|------|------|------|------|-------|
| Default model | 464,42   | 4,00        | 0,87 | 0,82 | 0,66 | 0,84 | 0,85 | 0,87 | 0,09  |

According to Table 3, it is evident that the SEM analysis yielded a poor fit between the theoretical model and the empirical data. The statistically significant  $\chi^2$  value of 464,42 ( $df = 116$ ;  $p = 0,00$ ), the relatively low PGFI and elevated RMSEA value indicate that possible existing misspecifications in the theoretical model could be modified for model-fit improvement in the post hoc analysis. However, both the sensitivity of the likelihood ratio test to sample size and its basis on the central  $\chi^2$  distribution, which assumes that the model fits the population perfectly, have been reported to lead to problems of fit. Jöreskog and Sörbom (1993) pointed out that the use of  $\chi^2$  is based on the assumption that the model holds exactly in the population, which is a stringent assumption. A consequence of this assumption is that models that hold approximately in the population will be rejected in a large sample. Furthermore, the hypothesised model (Model 1) was also not that good from a practical perspective. The PGFI value of lower than 0,80, NFI, TLI and CFI values of lower than 0,95 and the RMSEA value of higher than 0,05 are indicative of failure to confirm the hypothesised model. Thus, it is apparent that some modification in specification is needed in order to determine a model that better represents the sample data.

To pinpoint possible areas of misfit, modification indices were examined. Furthermore, standardised residual values were examined. Standardised residuals are fitted residuals divided by their asymptotically (large samples) standard errors (Jöreskog & Sörbom, 1988). In essence, they represent estimates of the number of standard deviations the observed residuals are from the zero residuals that would exist if model fit were perfect (Byrne, 2001). Values  $> 2,58$  are considered to be large (Jöreskog & Sörbom, 1988).

#### *Post hoc analysis*

Given the poor fit of the initially postulated three-factor model, the focus shifted from model test to model development (exploratory factor analysis). Considering the high standardised residuals of two items, it was decided to re-specify the model with Item 4 and Item 15 deleted. In previous South African studies Item 4 (Storm & Rothmann, 2003) and Item 15 (Naudé & Rothmann, in press) also posed problematic.

Table 4

*Goodness-of-Fit Statistics for the 15-Item Hypothesised Three-Factor UWES Model*

| Model         | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-------------|------|------|------|------|------|------|-------|
| Default model | 406,22   | 3,50        | 0,88 | 0,84 | 0,67 | 0,87 | 0,88 | 0,90 | 0,08  |

This re-specified three-factor model (Table 4) shows a small improvement in the fit statistics in comparison with the results in Table 3. A further attempt at model development was investigated. The high standardised residuals of Item 16 and Item 17 indicated re-specification by deleting these items. This decision was supported by the notion that Item 16 and 17 were not initially included in the UWES (Schaufeli et al., 2002c). Consequently, as is shown in Table 5, these items were deleted in the hope of a better fit.

Table 5

*Goodness-of-Fit Statistics for the 13-Item Hypothesised Three-Factor UWES Model (1)*

| Model         | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-------------|------|------|------|------|------|------|-------|
| Default model | 301,44   | 3,46        | 0,90 | 0,86 | 0,65 | 0,89 | 0,91 | 0,92 | 0,08  |

According to Table 5, it is evident that the SEM analysis yielded a moderate fit between the theoretical model and the empirical data. The statistically significant  $\chi^2$  value of 301,44 ( $df = 87$ ;  $p = 0,00$ ), the relatively low PGFI and the elevated RMSEA value still indicate possible existing misspecifications.

Modification indices (MI) were consequently considered to pinpoint areas of misspecification in the model. The constrained parameters exhibiting the highest degree of misfit lay in the error covariance matrix and represent a correlated error between Item 3 and Item 9 ( $MI = 13,74$ ), as well as between Item 7 and Item 13 ( $MI = 10,43$ ). Compared with MI values for all other error covariance parameters, these values are high and in need of re-specification. Based on the modification indexes and on theoretical considerations, the errors of these two item pairs were allowed to correlate.

Table 6

*Goodness-of-Fit Statistics for the 13-Item Hypothesised Three-Factor UWES Model (2)*

| Model         | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|---------------|----------|-------------|------|------|------|------|------|------|-------|
| Default model | 263,36   | 3,10        | 0,91 | 0,87 | 0,64 | 0,91 | 0,92 | 0,94 | 0,08  |

According to the fit statistics in Table 6, an overall acceptable fit with the data is obtained by the third re-specified three-factor model. The  $\chi^2$  value of 263,36 ( $df = 85$ ;  $p = 0,00$ ) is significantly higher than that of the first three-factor model fitted to the data. Furthermore, the goodness-of-fit statistics indicate acceptable levels of model fit for the GFI, NFI, TLI and CFI, with AGFI approaching 0,90. Also the RMSEA of 0,08 is indicative of acceptable fit. Disappointing was the lowered level of PGFI, which is understandable, considering that four items were deleted from the initial theoretical model. Since model fit was determined to be acceptable and the results agree with the theoretical assumptions underlying the structure of the UWES (Schaufeli et al., 2002c), no further modifications of the model were deemed necessary.

The descriptive statistics, alpha coefficients and inter-item correlations of the three factors of the UWES are given in Table 7.

Table 7

*Descriptive Statistics, Alpha Coefficients and Inter-Item Correlations of the UWES*

| Item            | Mean  | SD   | Skewness | Kurtosis | $r(\text{Mean})$ | $\alpha$ |
|-----------------|-------|------|----------|----------|------------------|----------|
| Vigour (VI)     | 19,63 | 6,85 | -0,53    | -0,51    | 0,51             | 0,84     |
| Dedication (DE) | 21,54 | 7,13 | -0,62    | -0,56    | 0,59             | 0,88     |
| Absorption (AB) | 19,66 | 6,10 | -0,47    | -0,12    | 0,33             | 0,70     |

The information in Table 7 indicates that the three dimensions of the engagement model are normally distributed. The internal consistency of the three scales of the UWES is acceptable with Cronbach alphas above the 0,70 guideline provided by Nunnally and Bernstein (1994). The mean inter-item correlation of Absorption is considered acceptable compared to the guideline of  $0,15 \leq r \leq 0,50$  (Clark & Watson, 1995). The mean inter-item correlations of

Vigour and Dedication were somewhat higher than the suggested guideline of  $r < 0,50$ . Because internal consistency is a prerequisite for homogeneity, but not for unidimensionality, the distribution of the inter-item correlations were studied in terms of their spread around the inter-item correlation mean. Acceptable clustering of inter-item correlations around the mean inter-item correlations were found for all three scales of the UWES, therefore confirming the unidimensionality of the scales. This indicates that the three scales of the UWES demonstrated acceptable levels of internal consistency, homogeneity and unidimensionality.

These findings provide support for Hypothesis 1.

Consequently MANOVA and ANOVA analysis were done to determine the relationship between engagement and various *biographical characteristics* such as language, age, gender, job category and years of experience at the institution. Biographical characteristics were first analysed for statistical significance using Wilks' Lambda statistics. The results are shown in Table 8.

Table 8

*MANOVAs – Differences in Engagement Levels based on Biographical Characteristics*

| Variable         | Value | F    | df | Den DF | P     |
|------------------|-------|------|----|--------|-------|
| Language         | 0,89  | 6,93 | 6  | 708    | 0,00* |
| Age              | 0,98  | 1,44 | 6  | 690    | 0,20  |
| Years experience | 0,92  | 5,28 | 6  | 704    | 0,00* |

\* Statistically significant difference:  $p \leq 0,01$

An analysis of Wilks' Lambda values indicate statistically significant differences ( $p \leq 0,01$ ) for different language groups and categories of different years of experience at the institution. No statistically significant differences ( $p \leq 0,01$ ) regarding engagement levels could be found between different age groups.

The relationship between engagement and these biographical characteristics that showed a statistically significant difference was further analysed to determine practical significance using ANOVA, followed by Tukey HSD tests.

The ANOVAs of differences in engagement levels in the different language groups are given in Table 9.

Table 9

*ANOVAs – Differences in Engagement Levels of Different Language Groups*

| Dimension  | Afrikaans | English | Indigenous         | <i>p</i> | Root MSE |
|------------|-----------|---------|--------------------|----------|----------|
| Vigour     | 18,50     | 19,94   | 21,69 <sup>a</sup> | 0,00*    | 6,77     |
| Dedication | 20,92     | 20,97   | 23,44              | 0,02     | 7,02     |
| Absorption | 20,01     | 19,29   | 18,93              | 0,35     | 6,13     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from group (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

According to Table 9, indigenous language groups scored significantly higher (practically significant difference, small effect) than the Afrikaans language group in terms of Vigour.

Table 10 shows the ANOVAs of differences in engagement levels for different categories of years of experience at the institution.

Table 10

*ANOVAs – Differences in Engagement Levels of Years of Experience Categories*

| Dimension  | 0–5 years          | 5,1–10 years | 10,1–44 years | <i>p</i> | Root MSE |
|------------|--------------------|--------------|---------------|----------|----------|
| Vigour     | 22,00 <sup>b</sup> | 20,01        | 17,76         | 0,00*    | 6,77     |
| Dedication | 23,52              | 21,51        | 20,58         | 0,05     | 7,06     |
| Absorption | 20,63              | 19,11        | 20,06         | 0,20     | 6,15     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from category (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

Table 10 shows that employees with 0-5 years' experience at the institution scored significantly higher (practically significant difference, medium effect) on Vigour in comparison with employees with more than 10 years experience at the institution.

Table 11 gives an indication of differences in engagement levels based on job category as indicated by T-test procedures. No statistically significant differences regarding gender could be found.

Table 11

*T-Tests: Differences in Engagement Levels based on Job Category*

| Dimension  | Academic    |           | Administration     |           | <i>t</i> | <i>p</i>          | <i>d</i> |
|------------|-------------|-----------|--------------------|-----------|----------|-------------------|----------|
|            | <i>Mean</i> | <i>SD</i> | <i>Mean</i>        | <i>SD</i> |          |                   |          |
| Vigour     | 18,56       | 6,98      | 20,59 <sup>a</sup> | 6,61      | -2,87    | 0,00 <sup>*</sup> | 0,29     |
| Dedication | 20,90       | 6,71      | 22,12              | 7,45      | -1,66    | 0,10              | -        |
| Absorption | 19,65       | 6,52      | 19,66              | 5,71      | -0,02    | 0,98              | -        |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from category (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

Table 11 indicates that the administrative staff component scored statistically significantly higher on the vigour dimension of engagement in comparison to the academic staff component (practically significant difference, small effect). No statistically or practically significant differences were observed regarding the other engagement dimensions and job category.

The results in Tables 8–11 provide partial supportive evidence for the acceptance of Hypothesis 2, which postulates that significant differences based on the biographical characteristics of employees at a higher education institution in South Africa will exist. Contrary to what was hypothesised, the following results emerged: Even though it was expected that men will reflect higher levels of engagement, no significant differences between the genders could be detected; it was expected that younger employees will be less engaged, but no significant differences between age groups could be found; it was expected that employees with fewer years experience will reflect lower levels of engagement, but in contrast, it was found that those with more than ten years experience was less engaged; as expected, the administrative staff component showed higher levels of engagement than the academic staff; and in contrast with expectations that no differences regarding language groups will manifest, it was found that the indigenous language groups were more engaged in their work compared to the Afrikaans speaking group.

## DISCUSSION

The psychometric properties of the UWES were investigated in this study, specifically for employees of a higher education institution in South Africa. The objectives were to determine

the construct validity and internal consistency of the UWES and to determine differences between the work engagement levels of different genders, age groups, language groups, different job categories and employees with different years of experience at the institution.

The structural validity of the UWES was investigated with the aid of structural equation modelling (SEM) analysis. The three-factor structure of the UWES was confirmed for the three scales of the UWES, namely Vigour, Dedication and Absorption. This finding is supported by research in different samples, groups and countries (Naudé & Rothmann, in press; Schaufeli et al., 2002, a; Schaufeli et al., 2002, b; Storm & Rothmann, 2003) Also, the internal consistency of the scales was found to be satisfactory and in line with reported findings in the literature.

The elimination of item 15 (“I am very resilient, mentally, in my job”) and 4 (“I feel strong and vigorous in my job”) can be validated on both conceptual and theoretical grounds, resulting in a 15-item UWES scale. In their study, Storm and Rothmann (2003) found considerable cross-loadings pertaining to item 15 in their validation of the UWES for police members. Naudé and Rothmann (in press) found the same for item 4. Even though deletion of these items formed part of the post hoc analysis, and validation is needed in future studies, the decision to eliminate these items was based partly on previous research (Naudé & Rothmann, in press; Storm & Rothmann, 2003) and should therefore not be viewed as a strategy for model modification solely for the purpose of data fitting.

Additional exploratory work revealed substantial improvement in model fit with the additional deletion of item 16, “It is difficult to detach myself from my job” and item 17 “I always persevere at work, even when things do not go well”. These two items were not initially included in the UWES (Schaufeli et al., 2002, b). Error terms were also allowed to correlate in order to improve model fit (Byrne, 2001).

Notwithstanding the motivation for deleting variables from the UWES for reasons of bias and model-fit improvement, it is disconcerting that model parsimony is sacrificed in the process, in other words, relationships have been eliminated, which could be viewed as an erosion in meaning of the work engagement construct. Also, it is possible, due to the relatively small sample size and sampling procedure (subgroup representation), that these findings could have been obtained by pure chance. Furthermore, the possibility of semantic differences in

meaning attributed to these items cannot be excluded, especially in view of the comparison between groups on the basis of linguistic groupings. Closer inspection of the actual wording of the problematic items (Item 4: 'I feel strong and vigorous in my job'; Item 15: 'In my job I am mentally resilient'; Item 16: 'It is difficult to detach myself from my job'; Item 17: 'I always persevere at work even when things do not go well') highlight the fact that second-language English speakers might have difficulty interpreting words like 'vigorous', 'resilient', 'detach' and 'persevere'. Using language that can be easily interpreted might overcome problems with these items, or alternatively the tests can, where practically possible, be translated into the first language of the participants.

The prominent correlated errors in this study present an important problem. In general, the specification of correlated error items for the purpose of achieving a better-fitting model is not an acceptable practice. Correlated error terms in measurement models represent systematic, rather than random, measurement error in item responses. They may derive from characteristics specific to either the items or the respondents (Aish & Jöreskog, 1990). For example, if these parameters reflect item characteristics, they may represent a small omitted factor. However, as may be the case in this instance, correlated errors may represent respondent characteristics that reflect bias such as yea-/nay-saying, social desirability (Aish & Jöreskog, 1990), as well as a high degree of overlap in item content (when an item, although worded differently, essentially asks the same question) (Byrne, 2001).

However, previous research with psychological constructs in general (e.g. Jöreskog, 1982; Newcomb & Bentler, 1988; Tanaka & Huba, 1984), and with measuring instruments in particular (Byrne, 1991, 2001), has demonstrated that the specification of correlated errors can often lead to substantially better fitting models. Bentler and Chou (1987) also argue that the specification of correlated errors can often lead to substantially better fitting models. Bentler and Chou (1987) argue that the specification of a model that forces these error parameters to be uncorrelated is rarely appropriate with real data. Therefore, it was considered more realistic to incorporate the correlated errors in this study, rather than to ignore their presence.

Multivariate analysis of variance was used to determine the significance of differences between engagement levels of different biographical characteristics of the population. The results as shown in Table 8–11 provide support for hypothesis 2 of this study. Regarding the

differences in engagement levels based on biographical characteristics of the population higher levels of the Vigour dimension of engagement can be observed among the indigenous language-speaking group (26% of the population) in comparison with the Afrikaans language group (55% of the population). Vigour is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, not being easily fatigued, and persistence even in the face of difficulties. Against the background of the recent history of this institution these findings might be better understood.

Since 1994 the student population has been transformed from predominantly white to predominantly black students. During the same time (in adherence to the equity legislation by the post-apartheid government of South Africa), a decision was made to appoint only designated groups (i.e. black, Indian, Coloured and white Female applicants, in order of preference) in vacant positions to ensure that the staff component reflects the demographics of the area (Vaal Triangle). Consequently, the staff component was changed from predominantly white to representative and the management of the institution was also transformed. As a result of these fast-paced and radical interventions and the demographics of the area, most of the indigenous language-speaking employees at the institution are black males and females.

Keeping in mind the impact of the Apartheid legacy, especially concerning job reservation and promotion for selective groups (predominantly white, Afrikaans-speaking males), those with fewer years of experience (previously disadvantaged groups) might be more vigorously committed and engaged due to the joy of finding a job and the better possibility of promotion. During the past eight years, the official language at the institution was also changed from Afrikaans to English. The Afrikaans-speaking, white employees (who reflected significantly lower levels of vigour), in contrast to their black colleagues who were predominantly educated in English in the black schools of the Apartheid government, had to adjust to communicate/educate second language-speaking students (indigenous languages) in, for them also, a second language (English). Additionally they are subjected to radical changes with regard to the culture of their clients (the students), as well as their co-workers and the management of the institution. These factors might have contributed to lower levels of engagement.

Vigour is also significantly higher among employees with 0–5 years experience (31,09% of the population), in comparison with those with more than 10 years experience at the institution (33,52% of the population). Even though no relevant research with regard to years of service and it's the relationship thereof to engagement could be found in the literature, it might be linked to burnout research which indicated that older, more experienced, single workers who experience a high workload are significantly more at risk of burnout than younger, less experienced, married workers who experienced a low workload (Zijlstra & De Vries, 2001) Keeping in mind that engagement represents the positive antithesis of burnout (Schaufeli et al., 2002c), it can be expected that employees with fewer years experience at an institution might still be more vigorously committed to and engaged in their work than those with longer years of service.

The administrative staff component (52,96% of the population) also shows significantly higher levels of vigour than the academic staff component (47,04% of the population). This might be attributed to the fact that employees in administrative positions are not as much affected by the recent radical changes in higher education and increased psychological stress that globally became the trademark of working in academia (Barkhuizen, Rothmann & Tytherleigh, 2003; Kinman & Jones, 2003; Tytherleigh, 2003) This is confirmed by Winefield et al. (2003), who found that in 17 Australian universities the academic staff (43%) showed more signs of psychological illness compared to the general staff (37%). In view of these findings it might be explained that administrative employees showed significantly higher levels of vigour compared to academics, due to the fact that their job content might be more stable and under control and not continuously submitted to change. Another intra-institutional factor that might contribute to this finding is the fact that transformation of the administrative staff component was more drastic and accelerated than that of the academic staff component. As a result of this, most of the administrative employees are black with less than 5 years experience at the institution. Therefore the same dynamics as explained under the impact of language and years experience are relevant. The total transformation of the top management of the institution also has a secondary impact on the governance, culture and climate of the organisation.

For the black, administrative staff component with fewer than five years experience, this might have been an invigorating and challenging experience resulting in higher levels of engagement. In contrast, adjusting to and dealing with the realities of these changes in a

relatively short period of time might have resulted in reduced levels of the vigour dimension of engagement among especially Afrikaans-speaking, academic employees with more than 10 years experience at the institution. The fact that the loss of vigour is found in between a third and a half of the population certainly requires serious organisational consideration, and possibly for interventions in the interest of employee wellness in general.

In conclusion, the results of this study could serve as a standard for measuring engagement levels of employees at higher education institutions. The three-factor structure of the UWES is largely confirmed with suitable internal consistency of its subscales of Vigour, Dedication and Absorption. The results further show that the UWES is a suitable instrument for measuring engagement of employees at higher education institutions in South Africa and further possibilities in terms of research is made possible along similar lines. The lowered level of vigour and dedication that was observed among the Afrikaans language group, academic appointees, and among those with 10 or more years of experience at the institution, is a warning sign that certainly justifies further research, especially in institutions that are marked by radical transformation in a short period of time.

A limitation of this study is its reliance solely on self-report measures. According to Schaufeli, Enzmann and Girault (1993), the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variance between measures can be attributed to method variance. Another limitation is the size of the sample, specifically the distribution of language groups and the sampling method. Future studies could benefit greatly by utilising a randomly stratified sample with the proportionate inclusion of all language or race groups in the sample. Future studies conducted in this manner would confirm whether differences in engagement levels as measured by the UWES indeed exist for the different language groups of employees and those with different years of experience and different job categories at higher education institutions in South Africa, especially at institutions that are undergoing rapid and drastic transformation. The use of a cross-sectional study design also represents a limitation, i.e. that of the ability to test causal assumptions regarding the engagement syndrome. Longitudinal data would allow for forming a better understanding of the true nature of work engagement. Also, items were allowed to correlate in the model specification. This may pose interpretation problems because when correlated error terms are added to the model, the correspondence between the posited

construct of interest and the empirically defined factor becomes unclear (Gerbing & Anderson, 1984).

## **RECOMMENDATIONS**

According to the results in this study, the use of the UWES is recommended to assess engagement of employees at a higher education institution in South Africa.

It is suggested that future research could focus on the UWES in other higher education institutions in South Africa to verify the current findings. Also, although the UWES was found to be reliable and valid for this sample, other occupational settings should also be investigated in a similar manner. It is also important to determine norm levels for other occupations in South Africa. Future studies should use large samples and adequate statistical techniques (e.g. structural equation modelling). Large sample sizes might provide increased confidence that study findings would be consistent across other similar groups. Researchers contemplating future validation of the UWES are urged to utilise statistical programs that can yield a measure of multivariate normality, and provide appropriate estimation procedures, given findings of non-normal data. In the quest to make the UWES more user-friendly with regard to comprehensibility by different language groups some of the items may be adjusted. The possibility of translating the UWES to other South African languages should also be considered.

In order to understand fully the effect of different biographical characteristics on engagement, especially in institutions undergoing radical transformation on different levels simultaneously, it is recommended that future studies with regard to higher education institutions in South Africa be expanded to measure the secondary impact that the erosion of engagement might have on affected employees, students (i.e. clients) and co-workers. Valuable scientific contributions may also be made regarding measures to redress engagement levels as reflected by vigour (high levels of energy, mental resilience, enhanced individual performance, persistence and commitment even in the face of difficulties) and dedication (deriving a sense of significance from one's work by feeling enthusiastic, inspired, challenged and proud of one's job) among employees, especially in institutions undergoing rapid and drastic transformation. The impact of engagement on the psychological contract and measures on how to enhance engagement and trust are issues that justify further

investigation and needs to be addressed if employee wellness is ranked as a priority in an organisation.

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## **CHAPTER 4**

### **RESEARCH ARTICLE 3**

# **OCCUPATIONAL STRESS OF EMPLOYEES AT A TERTIARY INSTITUTION IN SOUTH AFRICA\***

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## **ABSTRACT**

The objectives of this study were to determine the construct validity and internal consistency of An Organisational Stress Screening Tool (*ASSET*) for employees of a higher education institution in South Africa, to determine indicators and moderators of occupational stress, as well as in-group differences based on language, age, gender, job category and years of experience at the institution. A cross-sectional survey design ( $N = 372$ ) was used. The *ASSET* and a biographical questionnaire were administered. The results showed that, compared to normative data, the participants reported significantly high levels of physical ill health, psychological outcomes of stress, and perceived lack of commitment from the organisation. Analysis of variance revealed differences in occupational stress levels for all the biographical variables tested.

## **OPSOMMING**

Die doelstellings van hierdie studie was om die konstruk geldigheid en interne konsistensie van 'n Organisasie stresgraderingsinstrument ('*ASSET*') vir werknemers van 'n hoër onderwysinstansie in Suid-Afrika te bepaal, om aanwysers en verliggende faktore van beroepstres te identifiseer, asook moontlike binnegroepverskille gebaseer op taal, ouderdom, geslag, werkskategorie en jare ervaring by die instansie. 'n Dwarsdeursnee-opnameontwerp ( $N = 372$ ) is gebruik. Die *ASSET* en 'n biografiese vraelys is afgeneem. Die resultate het getoon dat, vergeleke met die normatiewe data, deelnemers beduidend hoër vlakke van fisiese ongesondheid en psigologiese uitkomstes van stres rapporteer, en ook 'n gebrek aan verbondenheid komende van die werkgewer ervaar. Variansieanalise het verskille in werkstresvlakke uitgewys vir al die biografiese veranderlikes wat getoets is.

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Employees are increasingly threatened by psychological stress, due to aspects such as over-population, competition, economic crises, lack of meaningful relationships and time pressures (Van den Bergh, 2001). It seems as if stress is a reality of life, it is unavoidable, both good and bad, and both constructive and destructive. Occupational stress is an area of organisation psychology that is associated with increases in stress outcomes, such as job satisfaction, ill health, absenteeism, higher turnover and lower productivity (Jones & Bright, 2001). The negative effects of occupational stress include impaired performance or reduction in productivity, diminishing levels of customer service, health problems, absenteeism, turnover, industrial accidents, alcohol and drug usage and purposefully destructive behaviours (e.g. spreading of rumours and stealing) (Karasek & Theorell, 1990; Perrewé, 1991; Quick, Quick, Nelson & Hurrell, 1997; Wright & Smye, 1996). In the United States alone it is estimated that the overall business and industry costs associated with dispirited employees are in the range of \$150 to \$180 billion per annum (Wright & Smye, 1996).

Historically, working in a tertiary institution has generally been considered relatively stress-free and highly satisfying (Willie & Stecklein, 1982). For example, Watts et al. (1991) found that 75% of university workers who reported long working hours, work overload and lack of support were nevertheless satisfied with their jobs. Doyle and Hind (1998) also found that 40% of female university lecturers in their sample who reported long working hours and high levels of burnout, still found their jobs intrinsically motivating, enjoyable and potentially rewarding. Thus, in comparison with other professions, academic work is 'somewhat unusual' (Kinman, 2001). A possible explanation for this might be differences in work context factors, e.g. higher levels of autonomy, clarity and tenure and a 'collegiate culture', which emphasises consensual decision-making and shared values (French, Caplan & Van Harrison, 1982) and working conditions, e.g. intrinsic motivation by respective disciplines (Lacy & Sheehan, 1997; McInnis 1999), clear and achievable goals, challenging tasks, supportive supervisors and an organisational structure which permits them to influence decision-making (Winter & Sorros, 2002). Individuals who perceive that they can control their environment are less likely to suffer stress (Makin, Cooper & Cox, 1996).

However, recently the world has started to change, and so must higher education institutions if they are to survive (Gilbert, 2000). In 1996, the results of an international survey of academic professions which was carried out using data from 14 countries (i.e. Australia, Brazil, Chile, England, Germany, Hong Kong, Israel, Japan, Korea, Mexico, The

Netherlands, Russia, Sweden and the United States) reported that significant changes had taken place in higher education (Altbach, 1996). For example, academics are now faced with demands for greater accountability, value for money, efficiency and quality, and an increase in remote and autocratic management styles. Other studies among staff at higher education institutions in the UK reported the most significant stressors as new management styles, unmanageable workload, too much administrative paperwork, lack of information, change in conditions of service, lack of administrative support (Earley, 1994), inadequate resources, uncaring organisation, inadequate salary (Daniels & Guppy, 1994), lack of opportunities for promotion, ineffective organisational communication and a rushed pace of work (Jackson & Hayday, 1997; Kinman, 1996).

These challenges, added to the increasing work load caused by massification of student numbers (Gilbert, 2000; Kistan, 1999; Kraak, 2000), life-long learning and adult learning (Shortlidge, 2003; Kraak, 2000), new trends in teaching and learning (Kistan, 1999; Kraak, 2000), changes in the market place (Blackmore, 2001; Lomas, 1997; Rowley, 2000) and globalisation (Brown, 1999), will certainly have an impact on the well-being of employees at tertiary institutions. Combined with a gradual erosion of pay and job security, these stressors are now being reflected in lower levels of job satisfaction and commitment (Lacy & Sheehan, 1997; Millward-Brown, 1996; Rose, 1999; Kinman & Jones, 2003).

Seldin (1991, p. 14) explained that "levels of stress of staff on campuses have risen appreciably in recent years and are likely to get worse". This is relevant for lecturers and administrators as well as support personnel, including para-professionals, secretaries and custodial staff who contribute to the daily operations and success of a tertiary institution. Gorschkov (1998) accentuated that stable and productive support systems in terms of higher education and training are of vital importance to any country in order to ensure sustainable economic, social and political reconstruction and development.

Psychological stress now appears to be a feature of occupational life for university staff (Fisher, 1994), occurring not only in increasing levels in the United Kingdom (UK) (Kinman & Jones, 2003), but also in Australia and New Zealand (Boyd & Wylie, 1994; Gillespie, Walsh, Winefield, Dua & Stough, 2001; Winefield, et al. in press). Winefield et al. (in press) in their longitudinal study of occupational stress in 17 Australian universities, found that 43% of academic staff ( $N = 3711$ ), compared to 37% of general staff ( $N = 4655$ ), were classified as

possible 'cases' of psychological illness using the General Health Questionnaire ((GH)-12, Goldberg & Williams, 1988). This compared to a 12% case rate in the Australian population overall. Kinman (2001) also reported a 53% 'case' rate among academic staff at a university in the UK.

In South Africa the landscape of higher education is also changing. Since 1994, the post-apartheid government of South Africa has been aiming to redress the ethos and struggles of the apartheid era and move toward a democratic society. One of the focus areas of redress is the education system (Cross, Mungadi & Rouhani, 2002). This has resulted in a restructuring of the broad higher education system, which implies consequences for the governance of all tertiary institutions (Dlamini, 1995; Hugo, 1998). At the same time, the realities of globalisation are forcing structural changes and adjustments on higher education institutions to create a new organisational reality that has second-order effects in its human impact (Du Toit, 2000; Quick, Nelson & Quick, 2001).

Meyerson (1994) and Handy (1988) point out that an important consideration in terms of stress research should be that stress occurs in a particular context, since individuals differ in the meaning they attribute to stressful experiences. Therefore the influence of the social construction of stressful experiences should be taken into account. According to Spielberger and Vagg (1999), the identification of major sources of stress at work offers a twofold benefit for both management and employees, firstly by resulting in work environment changes that reduce stress and increase productivity, and secondly by facilitating the development of effective interventions that could reduce the debilitating effects of occupational stress.

The objectives of this study were as follows: To validate a suitable instrument for the early identification of stressors experienced by employees of tertiary education institutions; to pinpoint stressors endemic to tertiary institutions and its effect on the wellness of employees; to determine whether organisational commitment will have a moderating effect on occupational stress; and to determine whether employees with different biographical profiles regarding gender, age, job category, language and years of experience at the institution will experience significant differences in occupational stress.

## Occupational stress

There is no consensus on the precise meaning of the term 'stress' (Jex, Bechr & Roberts, 1992). To occupational and organisational psychologists, work-related stress is now generally considered to be the product of an imbalance between environmental demands and individual capabilities (Lazarus & Folkman, 1984). However, most researchers adopt the fairly common practice of using the term 'stress' to describe either the external *stimulus* from the environment or the *response* of the individual, or sometimes both meanings simultaneously. In an attempt to minimise semantic difficulties as well as theoretical confusion, this article will endeavour to use the terms 'stressors' or 'sources of pressure' to apply to characteristics of the external environment (i.e. job characteristics and working conditions) and the term 'strains' to describe any response of the individual to these (i.e. physical and psychological ill health, job satisfaction and impaired job performance). "However, the term 'stress' will be used to indicate participants' responses to direct questions, for example, when enquiring whether they perceive a low, moderate or severe level of stress at work. Whilst it is, of course, acknowledged that stressors do not inevitably lead to strains, and a wide range of individual differences (such as personality and coping styles) moderate this relationship, such issues will not be explored in this article.

Lu (1999) argues that stress has become one of the most serious health issues, a problem not just for individuals but also for employers. Research over the past three decades has shown that the experience of occupational stress is closely related to the health and safety of individuals and has definite implications for the well-being of organisations or institutions (Rees, 1995; Rees & Redfern, 2000). According to Sadri (1997, p. 1), "stress may be defined as a situation wherein factors interact with a person to change (i.e. disrupt or enhance) his/her psychological and/or physiological condition, such that the person is forced to deviate from normal functioning". A recent epidemiological survey conducted in the United Kingdom (Jones & Hodgson, 1998) concluded that stress was the second most frequently reported condition of individuals who disclosed a work-related illness. Moreover, occupational stress has now become one of the commonest reasons for medical retirement (Cooper & Cartwright, 1994). It is evident, however, that in order for any organisation to address stress-related issues and implement effective interventions, it is necessary to diagnose the job characteristics and working conditions that the workforce perceive to be stressful, investigate

the outcomes of any stressors that are experienced and establish whether any particular subgroup of the working population is at greater risk (Kinman, 2001).

Many studies have shown that occupational stressors may result in mental, physical and behavioural stress reactions, such as burnout, depression and psychosomatic diseases (Houkes, Janssen, de Jonge & Nijhuis, 2001). According to the findings of Mills and Huebner (1998), there is significant evidence that occupational stress could influence considerably the experience of burnout. The link between unmanaged stress and the negative impact on health and well-being are well-demonstrated in stress research and are linked to severe physical consequences, some of which may be fatal (Winefield, Gillispie, Stough, Dua & Hapuararchchi, 2002).

Mullins (1999, p. 316) argued that "stress is individually defined; one person's stress can be another's excitement or energizer". Although stress may activate some people and result in possible positive behavioural consequences, for others it may be immobilising. The physiological impact upon the person, regardless of positive or negative stress, should not be forgotten. In other words, people bring along individual differences in terms of their personality and life experience (i.e. coping strategies) that will make their responses prone to stress (Rees, 1995). It depends on the person appraising the situation to determine whether the situation is a stressor or not. For instance, if a person thinks or feels that he/she is unable to cope with a large workload, then workload becomes a stressor or something that causes a person to feel stressed. For this reason, Cooper, Dewe and O'Driscoll (2001) argued that the transactional perspective emphasises three important aspects or themes: A dynamic cognitive state; a disruption of enhancement in normal functioning; and the resolution of that disruption or imbalance.

In the literature many approaches exist towards the understanding of the stress response in occupational settings, such as the Person-Environment Fit model (French et al. 1982) and the Demand-Control Model (Fox, Dwyer & Ganster, 1993). Where the former views psychological and physical stress consequences as a result of an incongruent person-environment fit, the Demand-Control Model looks at the interaction between the demands of the situation and the individual's decisional freedom in terms of meeting the job requirements. The transactional approach as offered by Lazarus (1991) views the interaction between the individual and his or her environment as a transaction, allowing for the

individual's cognitive appraisal of stressful situations and the selective identification and utilisation of coping resources.

According to Dewe, Cox and Ferguson (1993), stress is not a factor that resides in either the individual or the environment; rather it is viewed as a dynamic cognitive state where the individual interaction with the environment can be described as an ongoing transaction. The term *transaction* implies "that stress is neither in the person nor in the environment but in the relationship between the two" (Cooper et al. 2001, p. 12). Therefore Siu (2002) argued that a stressful transaction occurs when persons both exert an impact on and respond to their environment. Following a transactional perspective, stress arises when the demands of a particular encounter (as appraised by the individual) is about to exceed the resources available, thereby threatening the well-being (Lazarus, 1991) and bringing about change in the person's psychological and/or physiological condition in order to cope with the encounter (Cooper et al. 2001; Sadri, 1997; Siu, 2002). Stress is therefore an ongoing process that involves the individual transacting with his/her environment, while assessing the encounter and trying to cope with the issues that arise.

According to Lazarus and Folkman (1984), job stress occurs when job demands tax or exceed the person's adaptive resources. Stress is thus a generic term that refers to the temporary adaptation process that is accompanied by mental and physical symptoms and is caused by an imbalance between job demands and the response capability of the worker.

Research has demonstrated that work-related stressors may have a wide-ranging negative impact on the individual. Strain is observable at several different levels:

- Cognitive (e.g. poorer quality decision-making, lower levels of creativity, impaired memory);
- Behavioural (e.g. absenteeism, poor time management, substance abuse, irritability);
- Physical (e.g. headaches, digestive disorders, cardiovascular disease);
- Psychological (e.g. depression, anxiety, low self-esteem);
- Inter-personal (e.g. reduced levels of sensitivity, warmth, consideration, altruism and tolerance).

For the purposes of this study, strain will be focused on in terms of physical and psychological health.

According to Siu (2002) and Winefield et al. (2002) there is significant evidence to suggest that chronic and high levels of occupational stress, left unchecked, is related to mental and physical well-being, job dissatisfaction, absenteeism, stress-related injuries turnover and intention to quit. They have shown significant correlations between higher levels of psychological strain and incidences of self-reported stress-related health symptoms, such as sleeping difficulties, headaches, colds and other viral infections. Furthermore these symptoms are significantly associated with stress-related medical conditions reported by staff members, such as migraines, hypertension and coronary heart disease. Lu (1999) estimate that occupational stress causes half of absenteeism, 40% of turnover and 5% of total lost productivity.

Recently, organisational commitment has been identified as a significant moderator of stress (Siu, 2002) and was linked to work engagement (Lee, Carswell & Allen, 2000). Siu's (2002) results showed that organisational commitment was not only related to most of the physical and psychological outcomes among workers, but also to the moderating affects on the stressor-health relationship. Organisational commitment therefore interacts with sources of stress at work to determine its outcomes. Siu (2002) argues that this indirect or moderating effect of commitment protects individuals from the negative effect of stress, due to the fact that it enables them to see direction in and attach meaning to their work. Organisational commitment can also provide people with stability and a feeling of belonging.

Two approaches can be followed when defining organisational commitment (Blau & Boal, 1987, p. 290): "In the first approach, commitment is seen as a behaviour during which the individual is viewed as committed to an organisation because it is too costly for him or her to leave. In the second approach the individual is committed to the organisation because of shared goals and the wish to maintain membership". However, organisational commitment has recently been expanded to a more comprehensive view, consisting of three components, namely affective, continuance and normative commitment (Meyer, Stanley, Herscovitch & Topolnytsky, 2002; Siu, 2002). According to Meyer et al. (2002), affective commitment denotes an emotional attachment to, identification with and involvement in the organisation. Continuance commitment denotes the perceived cost associated with leaving the

organisation, and normative commitment reflects a perceived obligation to remain in the organisation. A person participates in an organisation because he or she 'wants to' (affective commitment). Because a person has invested much time and energy in the organisation or may not be able to find another job, the person feels that he or she "needs to participate" (continuance commitment). Normative commitment boils down to the fact that the person believes it is the right thing to do or that he or she "ought to participate". Affective commitment seems therefore to buffer stressful situations, while continuance and normative commitment may contribute to the stressful situation, because persons would probably feel they have no choice.

Cooper et al. (Siu, 2002) categorised six sources of stress or occupational stressors: Factors intrinsic to the job, managements' role, relationships with others, career and achievement, organisational structure and climate, and home/work interference. Cooper et al. (2001) state that these stressors could be grouped into the following three major categories: job-specific sources, organisational sources and individual or personal sources. In a study done by Tytherleigh (2002) on occupational stress in higher education institutions in the UK, she tested work relations, work-life balance, overload, job security, control, resources and communication, job overall, pay and benefits as potential sources of stress. It was discovered that work relationships, job security, and resources and communication caused the highest levels of strain. The impact of occupational stress and burnout on employees' physical well-being, mental health, work engagement and related behaviours (i.e. absenteeism and turnover) are well documented (Taris, Schreurs & Van Iersel-van Silfhout, 2001).

Research has also linked occupational stress to exhaustion and burnout (Maslach & Leiter, 1997; Taris et al. 2001). These factors represent "demands" on employees (also referred to as job stressors) that are included in most models of burnout (Schaufeli & Enzmann, 1998). Maslach and Leiter (1997, p. 21) argue that burnout in individual workers says quite a lot about them, but also about the organisation. They stated that: "Contrary to popular opinion, it's not the individual, but the organisation that needs to change, especially in the present work environment". However, one of the most sustained organisational factors still seems to be occupational stress, which is normally caused by job stressors.

A recent nationwide study of all categories of employees working in 14 higher education institutions in England suggests that, despite the gradual erosion of job factors that once

appeared to 'buffer' academics, high levels of job satisfaction remain (Tytherleigh, Webb, Cooper & Ricketts, 2003). This study used the *ASSET* (Cartwright & Cooper, 2002), which recognises that job dissatisfaction can be the outcome of work-related stress as well as a source of stress. It found that, whilst commitment levels were lower and levels of occupational stress were significantly higher in relation to work relationships, control and resources and communication compared to other occupational groups, higher education institution staff (non-academic as well as academic staff) reported statistically significantly lower levels of stress in relation to work-life balance, overload and job overall. They also reported statistically significantly lower levels of physical ill health outcomes of stress and normative levels of psychological outcomes.

Similar high levels of satisfaction with certain aspects of their work, together with high levels of perceived stressors and strains, were also identified by Doyle and Hind (1998) in their study of psychology lecturers. More recently, Kinman and Jones (2003) also found that several respondents thrived on the fact that their jobs were stressful, although they acknowledge 'that it is going too far at the moment' (p. 26).

In terms of the research of this study, occupational stress at a higher education institution in South Africa was studied. Not only was it regarded as important to establish reliable and valid methods of measurement with regard to perceived stress, but based on the findings, the aim was also to understand stress as an organisational phenomenon so that it could be tackled at the organisation level.

Studies reviewed above highlight the relationships between perceptions of stressful working conditions and strains such as impaired job performance, job satisfaction, and physical and psychological ill health. Whilst it is undoubtedly important to isolate the stressful features of any occupation and the extent of strain experienced by the workforce, in order to inform policy and practice regarding stress at work, it is also necessary to isolate the stressors which have the strongest relationship with strains. These factors will provide the focus for an extensive wellness programme.

Consequently the following research hypothesis can be formulated:

- H1: That the *ASSET* is an internally consistent and valid measuring instrument of occupational stress of employees at a higher education institution.
- H2: High levels of perceived occupational stress will be negatively associated with employee wellness.
- H3: Significant differences based on biographical characteristics such as gender, age, language, job category, and years of experience at the institution exists regarding stress levels of employees at a higher education institution in South Africa.
- H4: Organisational commitment will have a moderating effect on occupational stress.

## **METHOD**

### **Research design**

A survey was used to achieve the research objective. The specific design was the cross-sectional survey design, by means of which a sample is drawn from a population at a particular point in time (Shaughnessy & Zechmeister, 1997).

### **Study population**

The study population consisted of academic and administrative staff at a tertiary institution in South Africa. A total of 820 questionnaires were sent out: academic staff ( $N = 320$ ); administrative staff ( $N = 500$ ). A total of 372 completed questionnaires were received back. This comprised 175 academic and 197 administrative staff members. This gives a total response rate of 45,36% (47,04% for academic staff and 52,96% for administrative staff).

Females constituted 63% of the participants. Different language groups were included in the study. A total of 55% of the participants were Afrikaans-speaking; 19% English-speaking; 11% Setswana-speaking; and 15% spoke other indigenous languages. The minority (16%) of the participants were single. In total, 25% of the population had obtained a Master's (or

related) and/or a higher qualification. 47% indicated that they were improving their qualifications. 34% of the participants had been at the institution for 10+ years of service. 66% reported to have had no opportunity to be promoted during their years of service. The characteristics of the participants are shown in Table 1.

Table 1  
*Characteristics of Participants*

| Item                      | Category                | Percentage |
|---------------------------|-------------------------|------------|
| Employment category       | Academic                | 47,04      |
|                           | Administrative          | 52,96      |
| Gender                    | Male                    | 37,12      |
|                           | Female                  | 62,88      |
| Language                  | Afrikaans               | 54,59      |
|                           | English                 | 19,46      |
|                           | Setswana                | 10,81      |
|                           | Other                   | 15,14      |
| Education                 | Highest grade/standard  | 21,95      |
|                           | 3-year qualification    | 23,04      |
|                           | 4-year qualification    | 30,08      |
|                           | Master's                | 19,24      |
|                           | Doctoral                | 5,69       |
| Marital status            | Single/Divorced         | 15,76      |
|                           | Engaged/in relationship | 37,77      |
|                           | Married                 | 44,29      |
| Years of service          | 0–5 years               | 31,29      |
|                           | 5,1–10 years            | 35,19      |
|                           | 10,1+ years             | 33,52      |
| Opportunity for promotion | none                    | 65,71      |
|                           | 1                       | 23,49      |
|                           | 2+                      | 10,80      |
| Studying further          | Yes                     | 47,28      |
|                           | No                      | 52,72      |
| Age distribution          | 23–30                   | 19,94      |
|                           | 31–40                   | 37,19      |
|                           | 41–50                   | 26,21      |
|                           | 51–60                   | 15,95      |

### Measuring battery

A *biographical questionnaire* was designed to gather data on gender, position, education and marital status.

The ASSET was developed by Cartwright and Cooper (2002) as an initial screening tool to help organisations assess the risk of occupational stress in their workforce. It measures potential exposure to stress in respect to a range of common workplace stressors. It also provides important information on current levels of physical health, psychological well-being and organisational commitment and provides data to which the organisation can be compared. The ASSET is divided into four questionnaires. The first questionnaire (37 items) measures the individual's perception of his or her job. The second questionnaire (9 items) measures the individual's attitude toward his or her organisation. The third questionnaire (19 items) focuses on the individual's health. The fourth questionnaire (24 items) focuses on supplementary information. These items are customised specifically for higher education institutions. The first three questionnaires of the ASSET is scored on a six-point scale with 1 (*strongly disagree*) to 6 (*strongly agree*). The fourth questionnaire is scored on a four-point scale with 1 (*never*) to 4 (*often*).

The ASSET has an established set of norms from a database of responses from 9188 workers in public- and private-sector (non-higher education institutions) organisations in the UK. Validity is still to be completed (Cartwright & Cooper, 2002). Reliability is based on the Guttman split-half coefficient. All but two factors returned coefficients in excess of 0,70 ranging from 0,60 to 0,91 (Cartwright & Cooper, 2002). Johnson and Cooper (2003) found that the Psychological Well-Being subscale has good convergent validity, with an existing measure of psychiatric disorders, the General Health Questionnaire (GHQ – 12; Goldberg & Williams, 1988). Tytherleigh (2003) used the ASSET as an outcome measure of job satisfaction in a nationwide study of occupational stress levels in 14 English higher education institutions. A series of Cronbach alphas was carried out on each of the questions for the five ASSET subscales to identify the reliability of the ASSET questionnaire with these data. The results ranged from 0,64–0,94, showing good reliability.

### **Statistical analysis**

Structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 1997) were used. Data analysis was conducted in three stages. In the first stage the following goodness-of-fit indices were used to summarise the degree of correspondence between the implied and observed covariance matrices: (1) The  $\chi^2$  - a large  $\chi^2$  relative to the degrees of freedom indicates a need to modify the model to better fit the data; (2) The  $\chi^2/\text{degrees of}$

freedom ratio (CMIN/DF) (Wheaton, Muthén, Alwin & Summers, 1977); (3) The Goodness of Fit Index (FGI) indicates the relative amount of the variances/co-variances in the sample predicted by the estimates of the population. It usually varies between 0 and 1, and a result of 0,90 or above indicates a good model fit; (4) The Adjusted Goodness-of-Fit Index (AGFI) is a measure of the relative amount of variance accounted for by the model, corrected for the degrees of freedom in the model relative to the number of variables; (5) The parsimony goodness-of-fit index (PGFI) takes into account the complexity of the hypothesised model in the assessment of overall model fit and provides a more realistic evaluation of the hypothesised model. Byrne (2001) suggested values > 0,80 are considered to be appropriate; (6) The Normed Fit Index (NFI) represents the point at which the model being evaluated falls on a scale running from a null model to perfect fit. This index is normed to fall on a 0 to 1 continuum; (7) The Comparative Fit Index (CFI) represents the class of incremental fit indices in that it is derived from the comparison of a restricted model with that of an independence (or null) model in the determination of goodness-of-fit; (8) The Tucker-Lewis Index (TLI) (Tucker & Lewis, 1973), which is a relative measure of covariation explained by the model that is specifically developed to assess factor models. For NFI, CFI and TLI, it is more or less generally accepted that a value of less than 0,90 indicates that the fit of the model can be improved (Hoyle, 1995), although a revised cut-off value close to 0,95 has recently been advised (Hu & Bentler, 1999); (9) The Root Mean Square Error of Approximation (RMSEA) estimates the overall amount of error; it is a function of the fitting function value relative to the degrees of freedom. Hu and Bentler (1999) suggested a value of 0,06 to be indicative of good fit between the hypothesised model and the observed data.

In the second stage of analysis descriptive statistics (means, standard deviations, skewness and kurtosis) were computed to describe the data. Cronbach alpha coefficients and inter-item correlations were used to determine the internal consistency, homogeneity and unidimensionality of the measuring instruments (Clark & Watson, 1995). Coefficient alpha contains important information regarding the proportion of variance of the items of a scale in terms of the total variance explained by that particular scale. According to Clark and Watson (1995) the mean inter-item correlation (which is a straightforward measure of internal consistency) provides useful information in conjunction with the alpha coefficient of a scale (which is an indication of homogeneity of a scale), but as such cannot ensure unidimensionality of a scale.

In terms of statistical significance, it was decided to set the value at a 95% confidence interval level ( $p \leq 0,05$ ). Effect sizes (Steyn, 1999) were used to decide on the practical significance of the findings. Pearson product-moment correlation coefficients were used to specify the relationship between the variables. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

One-way analysis of variance (ANOVA) was used to determine the differences between the subgroups of the sample. Tukey's Standardised Range t-tests were used to determine the statistical significance of differences obtained during ANOVAs. Practical significance of the differences in means between two groups was computer with the following formula (Cohen, 1988; Steyn, 1999):

$$d = \frac{Mean_A - Mean_B}{SD_{MAX}}$$

where

$Mean_A$  = Mean of the first group

$Mean_B$  = Mean of the second group

$SD_{MAX}$  = Highest standard deviation of the two groups

The following formula was used to determine the practical significance of means of more than two groups (Steyn, 1999):

$$d = \frac{Mean_A - Mean_B}{Root \quad MSE}$$

where

$Mean_A$  = Mean of the first group

$Mean_B$  = Mean of the second group

$Root \quad MSE$  = Root Mean Square Error

According to Cohen (1988),  $0,10 \leq d \leq 0,50$  indicates a small effect;  $0,50 \leq d \leq 0,80$  indicates a medium effect and  $d \geq 0,80$  indicates a large effect. In terms of the current research, a cut-

off point of 0,50 (medium effect) was set for the practical significance of the differences between group means.

The third stage of analysis utilised stepwise multiple regression analysis to determine the proportion of the total variance of stress as explained by the dimensions of the ASSET. Effect sizes for each dimension were estimated using  $R^2$ . The following formula (Steyn, 1999) was used:

$$f^2 = \frac{R^2}{1 - R^2}$$

A cut-off point of  $f^2 = 0,35$  (large effect) was set (Steyn, 1999).

## RESULTS

Structural equation modelling (SEM) methods as implemented by AMOS (Arbuckle, 1997) were used to test the hypothesised relationships of the dimensions of the ASSET for goodness of fit with the sample data.

The obtained  $\chi^2$  goodness-of-fit statistic, degrees of freedom and probability or significant level were studied. Comparative fit indices, such as the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Parsimony Goodness-of-Fit Index (PGFI), the Normed Fit Index (NFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Mean Square Error of Approximation (RMSEA), were used for the global assessment of the model fit. Table 2 presents the fit statistics for the hypothesised ASSET Model.

*Hypothesised model: ASSET*

Table 2

*The Goodness-of-Fit Statistics for the Hypothesised ASSET Model*

| Variables                   | $\chi^2$ | $\chi^2/df$ | GFI  | AGFI | PGFI | NFI  | TLI  | CFI  | RMSEA |
|-----------------------------|----------|-------------|------|------|------|------|------|------|-------|
| Resources and Communication | 0,06     | 0,06        | 1,00 | 1,00 | 0,10 | 1,00 | 1,03 | 1,00 | 0,00  |
| Job Security                | 3,61     | 1,81        | 1,00 | 0,98 | 0,20 | 0,97 | 0,96 | 0,99 | 0,05  |
| Work-Life Balance           | 3,93     | 1,96        | 0,99 | 0,97 | 0,20 | 0,99 | 0,98 | 0,99 | 0,05  |
| Control                     | 5,59     | 2,80        | 0,99 | 0,96 | 0,20 | 0,99 | 0,98 | 0,99 | 0,07  |
| Overload                    | 13,28    | 6,64        | 0,98 | 0,92 | 0,20 | 0,97 | 0,91 | 0,97 | 0,12  |
| Job Characteristics         | 29,79    | 2,48        | 0,98 | 0,95 | 0,42 | 0,91 | 0,91 | 0,95 | 0,06  |
| Work Relationships          | 63,05    | 3,50        | 0,96 | 0,92 | 0,48 | 0,92 | 0,91 | 0,94 | 0,08  |
| Commitment                  | 96,02    | 4,36        | 0,95 | 0,89 | 0,46 | 0,95 | 0,94 | 0,96 | 0,10  |
| Health                      | 404,60   | 3,11        | 0,89 | 0,86 | 0,68 | 0,87 | 0,89 | 0,91 | 0,08  |

The statistically significant  $\chi^2$  value indicates an overall satisfactory fit with the original model, except for the Health dimension that was adjusted by correlating four pairs of errors in the Psychological Health Questionnaire (Item 8 and Item 9; Item 10 and Item 13; Item 12 and Item 13; Item 13 and Item 16). The GFI and AGFI can be classified as absolute indices of fit because they basically compare the hypothesised model with no model at all (Hu & Bentler, 1999). In this case both indices range from zero to 1,00, with values close to 1,00 indicative of good fit (Jöreskog & Sörbom, 1993). Although the PGFI values are lower than 0,80, the other fit statistics indicate a satisfactory fit of the measurement model to the data. The NFI and TLI values of the Health dimension are lower than the original cut-off value of > 0,90 (Bentler, 1992). Bentler (1990) suggested that the CFI should be the index of choice and most of the CFI values (except Health) are >0,95 as suggested by Hu and Bentler (1999).

According to Hu and Bentler (1999), an RMSEA value of 0,05–0,06 is indicative of good fit between the hypothesised model and the observed data. This is valid for three dimensions: Job Security; Work-Life Balance; Job Characteristics (after errors on Item 7 and Item 8 and on Item 10 and Item 25 were allowed to correlate). An RMSEA of 0,80–0,10 indicates average fit. This is valid for four dimensions, namely Control; Work Relationships (after errors on Item 9 and Item 23 and on Item 19 and Item 23 were allowed to correlate); Commitment (after errors on Item 1 and Item 6; Item 2 and Item 3; Item 4 and Item 6; and

Item 6 and Item 7 were allowed to correlate); and Health (after four pairs of errors as indicated above were allowed to correlate). Only the dimensions of Resources and Communication (after errors on Item 30 and Item 31 were allowed to correlate) and Work Overload indicate poor fit based on the RMSEA values. The other goodness-of-fit statistics on these dimensions are satisfactory.

These results serve as confirmation of hypothesis 1 of this study.

Consequently the descriptive statistics of the ASSET items are given. Based on the assertion of West, Finch and Curran (1995) of possible inflation of the  $\chi^2$  goodness-of-fit statistic, the frequency distribution of the items was inspected to identify deviations of skewness and kurtosis. In interpreting the means and sten scores of the ASSET items, a sten score below 3 indicate very low levels of the stressor; sten scores below 4 indicate low levels of the stressor; sten scores between 4 and 7 are average; sten scores above 7 indicate high levels of the stressor; and sten scores above 8 indicate very high levels of the stressor. It is important however to note that low scores for perceptions of your job and your health are indicative of the fact that these aspects are a low source of stress to the respondent, but high scores for attitudes towards your organisation are indicative of the fact that this dimension is a low source of stress for the respondent.

Table 3

*Descriptive Statistics, Alpha Coefficients and Inter-Item Correlations of the ASSET*

| Dimension/Item                                         | Sten | Mean  | SD   | Skewness | Kurtosis | r(Mean) | $\alpha$ |
|--------------------------------------------------------|------|-------|------|----------|----------|---------|----------|
| <b>Work-Life Balance</b>                               | 2    | 10.20 | 4.28 | 0.53     | -0.36    | 0.33    | 0.68     |
| Work longer hours than choose/want to                  | 4    | 3.18  | 1.68 | 0.27     | -1.26    | -       | -        |
| Work unsocial hours                                    | 3    | 2.35  | 1.51 | 1.08     | -0.03    | -       | -        |
| Too much time travelling                               | 3    | 1.90  | 1.22 | 1.90     | 3.5      | -       | -        |
| Work interferes with my home/personal life             | 1    | 2.77  | 1.53 | 0.52     | -0.84    | -       | -        |
| <b>Resources and Communication</b>                     | 4    | 12.06 | 4.20 | 0.17     | 0.62     | 0.29    | 0.62     |
| Not informed about what goes on in organisation        | 5    | 3.51  | 1.54 | 0.14     | -1.15    | -       | -        |
| Never told I am doing a good job                       | 6    | 3.39  | 1.74 | 0.18     | -1.42    | -       | -        |
| Not adequately trained for job                         | 2    | 2.19  | 1.28 | 1.39     | 1.32     | -       | -        |
| Do not have proper equipment/resources                 | 5    | 2.96  | 1.56 | 0.54     | -0.93    | -       | -        |
| <b>Work Relationships</b>                              | 5    | 21.74 | 7.24 | 0.64     | 0.15     | 0.31    | 0.78     |
| Boss intimidating/bullying                             | 5    | 2.34  | 1.51 | 1.04     | 0.04     | -       | -        |
| Lack of support from boss/colleagues                   | 5    | 3.02  | 1.56 | 0.39     | -1.09    | -       | -        |
| Feel isolated at work                                  | 4    | 2.60  | 1.39 | 0.79     | -0.35    | -       | -        |
| Not sure of expectations from boss                     | 4    | 2.49  | 1.47 | 0.85     | -0.44    | -       | -        |
| Colleagues are not pulling their weight                | 10   | 4.11  | 1.58 | -0.48    | -0.98    | -       | -        |
| Boss is forever finding fault                          | 4    | 2.14  | 1.29 | 1.44     | 1.65     | -       | -        |
| Others take credit for what I have achieved            | 9    | 3.08  | 1.52 | 0.35     | -1.03    | -       | -        |
| Relationships with colleagues are poor                 | 4    | 1.95  | 1.13 | 1.80     | 3.51     | -       | -        |
| <b>Overload</b>                                        | 5    | 11.15 | 4.41 | 0.50     | -0.45    | 0.44    | 0.76     |
| Technology in job is overloading                       | 4    | 2.34  | 1.36 | 1.01     | 0.12     | -       | -        |
| Unrealistic deadlines                                  | 6    | 2.73  | 1.39 | 0.83     | -0.27    | -       | -        |
| Unmanageable workloads                                 | 6    | 2.97  | 1.43 | 0.49     | -0.89    | -       | -        |
| Not enough time to do job properly                     | 5    | 3.11  | 1.59 | 0.41     | -1.09    | -       | -        |
| <b>Job Security</b>                                    | 4    | 11.12 | 3.98 | 0.65     | 0.31     | 0.27    | 0.59     |
| Job is insecure                                        | 5    | 2.93  | 1.57 | 0.52     | -0.94    | -       | -        |
| Job is not permanent                                   | 3    | 1.93  | 1.38 | 1.70     | 2.01     | -       | -        |
| My job is likely to change in future                   | 5    | 3.55  | 1.60 | -0.17    | -1.29    | -       | -        |
| My skills may become redundant                         | 6    | 2.71  | 1.37 | 0.63     | -0.65    | -       | -        |
| <b>Job Characteristics</b>                             | 2    | 21.14 | 6.04 | 0.21     | 0.12     | 0.21    | 0.64     |
| Same job for next 5–10 years                           | 7    | 4.05  | 1.74 | -0.51    | -1.15    | -       | -        |
| Physical work conditions are unpleasant                | 7    | 3.21  | 1.72 | 0.21     | -1.33    | -       | -        |
| Job involves risk of physical violence                 | 4    | 2.23  | 1.33 | 1.32     | 1.18     | -       | -        |
| Work performance closely monitored                     | 7    | 3.67  | 1.52 | -0.15    | -1.23    | -       | -        |
| Organisation is constantly changing for sake of change | 7    | 3.40  | 1.62 | 0.09     | -1.32    | -       | -        |
| Work is dull and repetitive                            | 6    | 2.66  | 1.46 | 0.73     | -0.48    | -       | -        |
| Deal with difficult customers/clients                  | 5    | 3.62  | 1.56 | -0.17    | -1.17    | -       | -        |
| Do not enjoy job                                       | 4    | 2.36  | 1.50 | 1.00     | -0.16    | -       | -        |

Table 3 (continued)

*Descriptive Statistics, Alpha Coefficients and Inter-Item Correlations of the ASSET*

| Dimension/Item                                                | Stem | Mean  | SD   | Skewness | Kurtosis | r(Mean) | $\alpha$ |
|---------------------------------------------------------------|------|-------|------|----------|----------|---------|----------|
| <b>Control</b>                                                | 5    | 12.64 | 4.82 | 0.26     | -0.78    | 0.53    | 0.81     |
| Little control over many aspects of job                       | 4    | 3.37  | 1.60 | 0.07     | -1.13    | -       | -        |
| Not involved in decisions affecting my job                    | 6    | 3.37  | 1.60 | 0.17     | -1.26    | -       | -        |
| My ideas/suggestions are not taken into account               | 6    | 2.94  | 1.35 | 0.53     | -0.70    | -       | -        |
| Little/no influence over performance targets                  | 4    | 2.97  | 1.45 | 0.66     | -0.50    | -       | -        |
| <b>Pay and Benefits</b>                                       | -    | -     | -    | -        | -        | -       | -        |
| Pay & benefits not as good as those of others in similar jobs | 6    | 3.55  | 1.75 | -0.01    | -1.44    | -       | -        |
| <b>Commitment from Organisation</b>                           | 3    | 18.73 | 5.97 | -0.30    | -0.68    | 0.52    | 0.84     |
| Valued and trusted by organisation                            | 4    | 3.44  | 1.62 | -0.03    | -1.25    | -       | -        |
| Not seeking work elsewhere                                    | 6    | 4.03  | 1.54 | -0.61    | -0.77    | -       | -        |
| Proud of organisation                                         | 2    | 3.75  | 1.56 | -0.27    | -0.65    | -       | -        |
| Interested in aspect of organisation outside my job           | 4    | 3.67  | 1.42 | 0.21     | -0.92    | -       | -        |
| Overall happy with organisation                               | 4    | 3.84  | 1.47 | -0.39    | -0.91    | -       | -        |
| <b>Commitment from Individual</b>                             | 6    | 16.28 | 4.75 | -0.54    | -0.33    | -0.49   | 0.80     |
| Willing to put myself out for organisation                    | 4    | 4.05  | 1.49 | -0.58    | -0.74    | -       | -        |
| Prepared to take more responsibility                          | 5    | 4.25  | 1.46 | -0.80    | -0.41    | -       | -        |
| Worthwhile working hard for organisation                      | 5    | 3.84  | 1.58 | -0.42    | -0.99    | -       | -        |
| Committed to organisation                                     | 7    | 4.14  | 1.50 | -0.63    | -0.65    | -       | -        |
| <b>Physical Health</b>                                        | 9    | 15.11 | 4.34 | -0.21    | -0.88    | 0.39    | 0.80     |
| Lack of appetite/over-eating                                  | 6    | 2.53  | 1.03 | -0.19    | -0.83    | -       | -        |
| Indigestion/heartburn                                         | 6    | 2.38  | 1.11 | 0.01     | -1.37    | -       | -        |
| Insomnia/sleep loss                                           | 7    | 2.45  | 1.08 | -0.02    | -1.28    | -       | -        |
| Headaches                                                     | 8    | 2.80  | 0.92 | -0.43    | -0.61    | -       | -        |
| Muscular tension/aches/pains                                  | 9    | 2.81  | 1.07 | -0.42    | -1.08    | -       | -        |
| Feeling nauseous/sick                                         | 8    | 2.14  | 0.96 | 0.35     | -0.89    | -       | -        |
| <b>Psychological Health</b>                                   | 10   | 25.36 | 7.61 | 0.22     | 0.74     | 0.41    | 0.90     |
| Panic/anxiety attacks                                         | 10   | 2.12  | 1.07 | 0.45     | -1.11    | -       | -        |
| Drink more alcohol than usual                                 | 1    | 1.47  | 0.78 | 1.67     | 2.01     | -       | -        |
| Smoke more than usual                                         | 1    | 1.42  | 0.83 | 1.87     | 2.30     | -       | -        |
| Constant irritability                                         | 6    | 2.42  | 0.95 | 0.00     | -0.93    | -       | -        |
| Difficulty in making decisions                                | 4    | 2.14  | 0.84 | 0.17     | -0.77    | -       | -        |
| Loss of sense of humour                                       | 4    | 2.11  | 0.87 | 0.19     | -0.92    | -       | -        |
| Feeling/becoming angry easily                                 | 10   | 2.45  | 0.96 | -0.10    | -0.98    | -       | -        |
| Constant tiredness                                            | 10   | 2.72  | 1.09 | -0.32    | -1.19    | -       | -        |
| Feeling unable to cope                                        | 7    | 2.27  | 0.97 | 0.25     | -0.93    | -       | -        |
| Avoiding contact with other people                            | 9    | 2.14  | 0.93 | 0.24     | -0.98    | -       | -        |
| Mood swings                                                   | 7    | 2.17  | 0.94 | 0.36     | -0.79    | -       | -        |
| Unable to listen to other people                              | -    | 1.95  | 0.89 | 0.64     | -0.39    | -       | -        |

Table 3 shows that the 12 dimensions of the ASSET are normally distributed in the sample, with low skewness and kurtosis. Most of the items have relatively normal distributions, with low skewness and kurtosis. The Cronbach alpha coefficients, varying from 0,59–0,90, compare reasonably well with the guideline of 0,70, demonstrating that a large portion of the variance is explained by the dimensions (internal consistency of the dimensions). The Cronbach alpha coefficients below 0,70 for work-life balance, resources and communication, job security and job characteristics, still prove to be acceptable measured against the norm of 0,55 that is set for basic research. (Nunnally & Bernstein, 1994). The mean inter-item correlations of the dimensions are, with the exception of two ASSET dimensions (Control and Individual Commitment), within the guideline of  $0,15 \leq r \leq 0,50$  (Clark & Watson, 1995).

The sten scores above 8 for the Physical Health and Psychological Health dimensions indicate very high levels of these stressors. On the physical level it seems as though four items are perceived as high levels of concern among the population, namely "Insomnia/sleep loss", "Headaches", "Muscular tension/aches/pains", and "Feeling nauseous/sick". On the psychological level the following items are identified as major sources of concern: "Panic/anxiety attacks", "Feeling/becoming angry easily", "Constant tiredness", "Feeling unable to cope", "Avoiding contact with other people", and "Mood swings". The fact that the population indicates that it does not revert to smoking and drinking in order to alleviate stress is reassuring.

Commitment from Organisation and Commitment from Individual are negatively related to all the other dimensions (see Table 4). The sten of 3 scored on the dimension Commitment from Organisation indicates that the population experiences the perceived commitment of the organisation as a major source of stress. An item that indicates a source of stress in this dimension is that the population feels that it cannot be "Proud of the organisation". The sten of 6 on the dimension of Commitment from the Individual indicates that, in spite of the fact that employees feel that the organisation is failing them, they perceived their own levels of commitment to the organisation as acceptable (sten of 6, i.e. a little above average). On this dimension the outstanding item "Committed to organisation" (sten of 7) indicates that the population perceives its commitment to the organisation as high.

The sten scores of lower than 3 of Work-Life Balance and Job Characteristics of the ASSET indicate that these two dimensions are perceived as low sources of stress among the population. In spite of the low score of the Work-Life Balance dimension, it seems as if the item that gives an indication of the assurance that "I will have the same job for the next 5–10 years" reflects this aspect as a high source of stress. The low scores on "Work unsocial hours", "Too much time travelling" and "Work interferes with my home/personal life" are reassuring, indicating that job demands *per se* are not experienced as major sources of stress.

Three items of the Job Characteristic scale (as measured by the ASSET) also give indications of high levels of stress perceived in these areas, namely "Physical work conditions are unpleasant", "Work performance are closely monitored", and "Organisation is constantly changing for changes sake". Under the dimension of Work Relationships two-stress provoking areas are reflected by these items, namely "Colleagues are not pulling their weight" and "Others take credit for what I have achieved" The low sten on "not adequately trained for job" reflects that the population perceived themselves as qualified to do their respective jobs, and it also seems as if the low score on "Job is not permanent" is indicative of feelings of job security among the population. The other dimensions and items with sten scores of 4–6 indicate average sources of stress.

In spite of the fact that five of the ASSET dimensions had been re-specified by correlating errors in the quest for a better fit, these results provide support for hypothesis 1 in terms of internal consistency and validity of the ASSET for employees of a higher-education institution.

The product moment correlation coefficients between the ASSET dimensions are given in Table 4.

Table 4

*Product-Moment Correlation Coefficients of the ASSET dimensions*

| Dimensions                      | 1       | 2       | 3       | 4      | 5       | 6       | 7      | 8       | 9      | 10      | 11 |
|---------------------------------|---------|---------|---------|--------|---------|---------|--------|---------|--------|---------|----|
| 1. Work-Life Balance            | -       | -       | -       | -      | -       | -       | -      | -       | -      | -       | -  |
| 2. Resources and Communication  | 0,32**  | -       | -       | -      | -       | -       | -      | -       | -      | -       | -  |
| 3. Work Relationships           | 0,35**  | 0,61*** | -       | -      | -       | -       | -      | -       | -      | -       | -  |
| 4. Overload                     | 0,56*** | 0,50*** | 0,54*** | -      | -       | -       | -      | -       | -      | -       | -  |
| 5. Job Security                 | 0,19*   | 0,45**  | 0,51*** | 0,43** | -       | -       | -      | -       | -      | -       | -  |
| 6. Job Characteristics          | 0,28*   | 0,48**  | 0,59*** | 0,47** | 0,40**  | -       | -      | -       | -      | -       | -  |
| 7. Control                      | 0,36**  | 0,72*** | 0,66*** | 0,46** | 0,50*** | 0,58*** | -      | -       | -      | -       | -  |
| 8. Commitment from Individual   | -0,26*  | -0,50*  | -0,55*  | -0,39* | -0,35*  | -0,49*  | -0,55* | -       | -      | -       | -  |
| 9. Commitment from Organisation | -0,16*  | -0,40*  | -0,36*  | -0,36* | -0,20*  | -0,38*  | -0,45* | 0,78*** | -      | -       | -  |
| 10. Physical Health             | 0,24*   | 0,18*   | 0,35**  | -0,21* | 0,33**  | 0,35**  | 0,15*  | -0,27*  | -0,19* | -       | -  |
| 11. Psychological Health        | 0,33**  | 0,35**  | 0,46**  | 0,47** | 0,37**  | 0,45**  | 0,32** | -0,46*  | -0,40* | 0,70*** | -  |

\*  $p \leq 0,05$  – statistically significant+  $r > 0,30$  – practically significant (Medium effect)++  $r > 0,50$  – practically significant (Large effect)

Inspection of Table 4 indicates that Physical Health is positively (statistically significantly) related to Work-Life Balance, Resources and Communication, and Control, and practically significantly (medium effect) related to Work Relationships, Job Security and Job Characteristics. Physical Health is negatively related to Overload, Commitment from Individual, and Commitment from Organisation. Psychological Health is positively related (large effect) to Physical Health, and positively related (medium effect) to Work-Life Balance, Resources and Communication, Work relationships, Overload, Job Security, Job Characteristics and Control. Psychological Health is negatively related (statistically significantly) to Commitment from the Individual and Commitment from the Organisation.

Commitment from Individual and Commitment from Organisation are negatively related (statistically significantly) to all the dimensions of the ASSET, but it is positively related (practically significant, large effect) to each other.

The results as reflected in Tables 3 and 4 serve as partial confirmation of hypothesis 2 and 4.

The differences for various biographical groups of employees at a higher education institution were analysed in terms of perceived stress as reflected by the results of the ASSET. The difference in stress levels of the different language groups are given in Table 5.

Table 5

*ANOVAs – Differences in Stress Levels (as measured by the ASSET) of Different Language Groups*

| Dimension                    | Afrikaans          | English            | Indigenous | <i>p</i>          | Root MSE |
|------------------------------|--------------------|--------------------|------------|-------------------|----------|
| Work-Life Balance            | 8,44               | 9,07               | 7,47       | 0,03              | 3,92     |
| Resources and Communication  | 10,16              | 9,97               | 9,14       | 0,10              | 3,64     |
| Work Relationships           | 15,55              | 16,21              | 15,22      | 0,61              | 6,31     |
| Overload                     | 11,34 <sup>a</sup> | 11,93 <sup>a</sup> | 9,80       | 0,01 <sup>*</sup> | 4,37     |
| Job Security                 | 11,01              | 11,18              | 11,16      | 0,93              | 4,01     |
| Job Characteristics          | 14,32              | 13,97              | 12,93      | 0,10              | 5,04     |
| Control                      | 12,69              | 12,81              | 11,99      | 0,46              | 4,81     |
| Commitment from Individual   | 15,82 <sup>a</sup> | 15,24 <sup>b</sup> | 17,85      | 0,00 <sup>*</sup> | 4,64     |
| Commitment from Organisation | 18,19 <sup>b</sup> | 17,11 <sup>b</sup> | 21,15      | 0,00 <sup>*</sup> | 5,75     |
| Physical Health              | 15,27              | 15,61              | 14,56      | 0,29              | 4,33     |
| Psychological Health         | 26,66 <sup>b</sup> | 25,70 <sup>a</sup> | 22,42      | 0,00 <sup>*</sup> | 7,34     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from group (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

According to Table 5, both the Afrikaans- and English speaking language groups scored practically significantly higher on Overload (practically significant difference, small effect) than the indigenous language groups. Indigenous language groups scored significantly higher on Commitment from the Individual in comparison to the Afrikaans-speaking language group (practically significant difference, small effect) as well as the English-speaking language group (practically significant difference, medium effect). The indigenous language group also scored significantly higher (practically significant, medium effect) than both the English- and Afrikaans-speaking language groups on Commitment from the Organisation. On Psychological Health the English-speaking (practically significant difference, small effect) as well as the Afrikaans-speaking language group (practically significant difference, medium effect) scored significantly higher than the indigenous language groups.

Table 6 shows the ANOVAs of differences in stress levels for different age groups.

Table 6

*ANOVAs – Differences in Stress Levels of Different Age Groups*

| Dimension                    | 23 – 30 years | 31 – 50 years     | 51 – 60 years     | <i>p</i>          | Root MSE |
|------------------------------|---------------|-------------------|-------------------|-------------------|----------|
| Work-Life Balance            | 6,84          | 8,64 <sup>a</sup> | 8,36 <sup>a</sup> | 0,00 <sup>*</sup> | 3,82     |
| Resources and Communication  | 9,61          | 10,04             | 9,62              | 0,59              | 3,68     |
| Work Relationships           | 14,54         | 16,28             | 15,02             | 0,09              | 6,35     |
| Overload                     | 10,76         | 11,15             | 11,24             | 0,72              | 0,40     |
| Job Security                 | 11,16         | 11,09             | 11,42             | 0,87              | 4,06     |
| Job Characteristics          | 12,67         | 14,17             | 14,40             | 0,07              | 5,04     |
| Control                      | 11,84         | 13,04             | 12,24             | 0,16              | 4,88     |
| Commitment from Individual   | 17,47         | 15,92             | 16,05             | 0,05              | 4,73     |
| Commitment from Organisation | 19,74         | 18,45             | 18,49             | 0,27              | 5,97     |
| Physical Health              | 14,64         | 15,26             | 15,38             | 0,54              | 4,34     |
| Psychological Health         | 24,57         | 25,37             | 26,78             | 0,26              | 7,57     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from division (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

Table 6 indicated that employees in the age group 23–30 years scored practically significantly lower (small effect) on the Work-Life dimension of the ASSET than those older than 30 years.

The differences in stress levels of groups with different years of experience at the institution are given in Table 7.

Table 7

*ANOVAs – Differences in Stress Levels (as measured by the ASSET) of Years of Experience Categories*

| Dimension                    | 0 – 5 years | 5,1 – 10 years     | 10,1 – 34 years    | <i>p</i>          | Root MSE |
|------------------------------|-------------|--------------------|--------------------|-------------------|----------|
| Work-Life Balance            | 7,58        | 8,13               | 8,88               | 0,10              | 3,89     |
| Resources and Communication  | 8,69        | 10,12              | 9,89               | 0,05              | 3,66     |
| Work Relationships           | 14,17       | 15,93              | 15,75              | 0,22              | 6,32     |
| Overload                     | 10,35       | 10,91              | 11,95              | 0,05              | 4,41     |
| Job Security                 | 10,58       | 11,01              | 11,42              | 0,43              | 3,98     |
| Job Characteristics          | 11,42       | 14,19 <sup>b</sup> | 14,18 <sup>b</sup> | 0,00 <sup>*</sup> | 4,93     |
| Control                      | 10,29       | 12,96 <sup>b</sup> | 12,82 <sup>b</sup> | 0,00 <sup>*</sup> | 4,73     |
| Commitment from Individual   | 18,21       | 15,71 <sup>b</sup> | 15,82 <sup>b</sup> | 0,00 <sup>*</sup> | 4,67     |
| Commitment from Organisation | 21,35       | 18,45 <sup>b</sup> | 17,77 <sup>b</sup> | 0,00 <sup>*</sup> | 5,85     |
| Physical Health              | 14,56       | 14,77              | 16,09              | 0,02              | 4,26     |
| Psychological Health         | 23,40       | 24,99              | 27,23 <sup>b</sup> | 0,00 <sup>*</sup> | 7,49     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from category (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

According to Table 7 employees with more than five years experience at the institution scored significantly higher (practically significant difference, medium effect) on Job Characteristics and Control than those with less than five years experience. The employees with fewer than five years experience at the institution scored significantly higher on Commitment from Individual than the two groups with more than five years experience at the institution (practically significant difference, medium effect). They also scored significantly higher on Commitment from Organisation than the two groups with more than five years experience at the institution (practically significant, medium effect). The employees with more than 10 years experience at the institution scored significantly higher on Psychological Health than those with fewer than five years experience at the institution (practically significant, medium effect).

Table 8 gives an indication of differences in stress levels based on job category as indicated by t-test procedures.

Table 8

*T-Tests – Differences in Stress Levels (as measured by the ASSET) based on Job Category*

| Dimension                    | Academic           |           | Administration     |           | <i>t</i> | <i>p</i>          | <i>d</i> |
|------------------------------|--------------------|-----------|--------------------|-----------|----------|-------------------|----------|
|                              | <i>Mean</i>        | <i>SD</i> | <i>Mean</i>        | <i>SD</i> |          |                   |          |
| Work-Life Balance            | 9,35 <sup>b</sup>  | 3,86      | 7,37               | 3,71      | 5,04     | 0,00 <sup>*</sup> | 0,51     |
| Resources and Communication  | 10,38 <sup>a</sup> | 3,58      | 9,41               | 3,64      | 2,58     | 0,01 <sup>*</sup> | 0,27     |
| Work Relationships           | 16,10              | 6,38      | 15,31              | 6,24      | 1,21     | 0,23              | 0,12     |
| Overload                     | 11,91 <sup>a</sup> | 4,17      | 10,47              | 4,51      | 3,21     | 0,00 <sup>*</sup> | 0,32     |
| Job Security                 | 11,14              | 3,38      | 11,11              | 4,45      | 0,06     | 0,95              | 0,01     |
| Job Characteristics          | 14,52 <sup>a</sup> | 4,59      | 13,25              | 5,30      | 2,47     | 0,01 <sup>*</sup> | 0,24     |
| Control                      | 13,06              | 4,45      | 12,27              | 5,11      | 1,60     | 0,11              | 0,15     |
| Commitment from Individual   | 15,89              | 4,66      | 16,62              | 4,81      | -1,49    | 0,14              | 0,15     |
| Commitment from Organisation | 17,63              | 5,97      | 19,70 <sup>a</sup> | 5,81      | -3,38    | 0,00 <sup>*</sup> | 0,36     |
| Physical Health              | 14,69              | 3,97      | 15,48              | 4,62      | -1,77    | 0,08              | 0,17     |
| Psychological Health         | 25,73              | 6,78      | 25,04              | 8,29      | 0,89     | 0,37              | 0,08     |

\* Statistically significant difference:  $p \leq 0,01$

a Practically significant differences from category (in row) where b (medium effect,  $d \geq 0,5$ ) or c (large effect,  $d \geq 0,8$ ) are indicated

Table 8 indicates that there is a statistically and practically significant difference between academic and administrative employees regarding the dimensions of Work-Life Balance (medium effect), Resources and Communication, Overload, Job Characteristics and

Commitment from Organisation. No other significant differences between stress dimensions and job category were observed.

The results as reflected in Tables 5–8 serve as confirmation of the third hypothesis of this study.

Consequently a series of stepwise regression analyses were carried out to identify the predictors of Commitment from Organisation, Commitment from Individual, Physical Health and Psychological Health dimensions as measured by the ASSET. For these analyses, all ASSET sources of stress (other ASSET dimensions) were entered separately.

Table 9 presents the regression analysis of Commitment from Organisation (as measured by the ASSET) and the other ASSET dimensions.

Table 9

*Regression Analysis of Commitment from Organisation*

| VARIANCE ANALYSIS           |                    |                     |                |             |
|-----------------------------|--------------------|---------------------|----------------|-------------|
| $F = 63,89$                 | Source of Variance | Degrees of Freedom  | Sum of Squares | Mean Square |
| $f^2 = 0,69^*$              | Model              | 4                   | 5425,95        | 1356,49     |
| $R = 0,64$                  | Error              | 367                 | 7792,08        | 21,23       |
| $R^2 = 0,41$                |                    |                     |                |             |
| VARIABLES IN THE EQUATION   |                    |                     |                |             |
| Independent Variables       | B                  | Standard Error of B | F              | P           |
| Intercept                   | 30,73              | 0,79                | 1510,21        | < 0,0001    |
| Control                     | -0,18              | 0,08                | 4,52           | 0,0342      |
| Job Characteristics         | -0,35              | 0,06                | 30,05          | < 0,0001    |
| Work Relationships          | -0,14              | 0,05                | 6,30           | 0,0125      |
| Resources and Communication | -0,28              | 0,10                | 7,47           | 0,0066      |

\* Practically significant:  $f^2 \geq 0,35$  (large effect)

Table 9 indicates that 41% of the variance with regard to Commitment from Organisation (as measured by the ASSET) could be explained by the ASSET dimensions of Control, Job Characteristics, Work Relationships, and Resources and Communication. The multiple correlation of 0,64 is practically significant (large effect) with  $f^2 = 0,69$ . Table 10 further indicates that Job Characteristics (32%) and Resources and Communication (6%) are the best

indicators of Commitment from Organisation. The dimensions of Work Relationships (2%) and Control (1%) also contributed.

Table 10 reports the regression analysis of Commitment from the Individual (as measured by the ASSET) on the one hand and the other dimensions of the ASSET on the other hand.

Table 10

*Regression Analysis of Commitment from Individual*

| VARIANCE ANALYSIS         |                    |                     |                |             |
|---------------------------|--------------------|---------------------|----------------|-------------|
| $F = 62,05$               | Source of Variance | Degrees of Freedom  | Sum of Squares | Mean Square |
| $f^2 = 0,333$             | Model              | 2                   | 2104,33        | 1052,16     |
| $R = 0,50$                | Error              | 369                 | 6256,59        | 16,96       |
| $R^2 = 0,25$              |                    |                     |                |             |
| VARIABLES IN THE EQUATION |                    |                     |                |             |
| Independent Variables     | B                  | Standard Error of B | F              | p           |
|                           |                    | 0,67                |                |             |
| Intercept                 | 23,39              | 0,06                | 1202,42        | < 0,0001    |
| Control                   | -0,28              | 0,05                | 24,49          | < 0,0001    |
| Job Characteristics       | -0,26              |                     | 22,33          | < 0,0001    |

\* Practically significant:  $f^2 \geq 0,35$  (large effect)

The statistics in Table 10 indicate that 25% of the variance with regard to Commitment from Individual (as measured by the ASSET) can be predicted by Control and Job Characteristics (as measured by the ASSET). The multiple correlation (R) is 0,50 with  $f^2 = 0,33$ . Results further indicate that Control (21%) and Job Characteristics (5%) are the best predictors of Commitment from the Individual.

Table 11 gives the regression analysis Physical Health and the other positively related ASSET dimensions.

Table 11

*Regression Analysis of Physical Health and ASSET Dimensions*

| VARIANCE ANALYSIS         |                    |                     |                |             |
|---------------------------|--------------------|---------------------|----------------|-------------|
| $F = 21.17$               | Source of Variance | Degrees of Freedom  | Sum of Squares | Mean Square |
| $f^2 = 0.28$              | Model              | 5                   | 1569,74        | 313,95      |
| $R = 0.47$                | Error              | 366                 | 5426,74        | 14.83       |
| $R^2 = 0.22$              |                    |                     |                |             |
| VARIABLES IN THE EQUATION |                    |                     |                |             |
| Independent Variables     | B                  | Standard Error of B | F              | p           |
|                           |                    | 0,72                |                |             |
| Criterion                 | 9.14               | 0,06                | 160.97         | < 0,0001    |
| Overload                  | 0.17               | 0,06                | 9,28           | 0,0025      |
| Job Security              | 0.24               | 0,06                | 15,18          | 0,0001      |
| Control                   | -0.29              | 0,05                | 21.87          | < 0,0001    |
| Job Characteristics       | 0.22               | 0,05                | 16,86          | < 0,0001    |
| Work Relationships        | 0.13               |                     | 7,67           | 0,0059      |

\* Practically significant:  $f^2 \geq 0,35$  (large effect)

Table 11 indicates that 22% of the variance with regard to Physical Health (as measured by the ASSET) can be predicted by Overload, Job Security, Control, Job Characteristics and Work Relationships (as measured by the ASSET). The multiple correlation (R) is 0,47 with  $f^2 = 0.28$ . Table 12 further indicates that Job Characteristics (11%) are the best predictor of Physical Health. Job Security (4%), Control (2%), Overload (2%) and Work Relationships (1%) contribute minimally.

Table 12 indicates the regression analysis between Psychological Health (as measured by the ASSET) on the one hand and the other positively related ASSET dimensions on the other hand.

Table 12

*Regression Analysis of Psychological Health and ASSET Dimensions*

| VARIANCE ANALYSIS         |                    |                     |                |             |
|---------------------------|--------------------|---------------------|----------------|-------------|
| $F = 33,38$               | Source of Variance | Degrees of          | Sum of Squares | Mean Square |
| $f^2 = 0,54^*$            | Model              | Freedom             | 7621,29        | 1270,21     |
| $R = 0,59$                | Error              | 5                   | 13889          | 38,05       |
| $R^2 = 0,35$              |                    | 365                 |                |             |
| VARIABLES IN THE EQUATION |                    |                     |                |             |
| Independent Variables     | B                  | Standard Error of B | F              | P           |
| Criterion                 | 10,35              | 1,19                | 75,77          | < 0,0001    |
| Overload                  | 0,35               | 0,10                | 12,15          | 0,0006      |
| Job Security              | 0,29               | 0,10                | 8,47           | 0,0038      |
| Control                   | -0,29              | 0,10                | 8,54           | 0,0037      |
| Job Characteristics       | 0,50               | 0,09                | 33,53          | < 0,0001    |
| Work Relationships        | 0,16               | 0,07                | 4,57           | 0,0332      |
| Work-Life Balance         | 0,25               | 0,10                | 6,58           | 0,0107      |

\* Practically significant:  $f^2 \geq 0,35$  (large effect)

Table 12 indicates that 35% of the variance with regard to Psychological Health (as measured by the ASSET) can be explained by Overload, Job Security, Control, Job Characteristics, Work Relationships and Work-Life Balance (as measured by the ASSET). The multiple correlation ( $R = 0,59$ ) is practically significant (large effect) with  $f^2 = 0,54$ . Table 15 further indicates that Job Characteristics (24%) and Overload (8%) are the best predictors of Psychological Health. Work-Life Balance (1%), Control (1%) and Work Relationships (1%) contribute a little bit.

## DISCUSSION

The aim of this study was to investigate the construct validity and internal consistency of the ASSET for employees of a higher education institution, to determine indicators and moderators of occupational stress, as well as in-group differences in stress responses of the population based on language, age, gender, job category and years of experience at the institution. The results obtained using the structural equation modelling approach indicated a satisfactory fit with the original model after five of the ASSET dimensions (Resources and Communication, Job Characteristics, Work Relationships, Commitment, and Health) had

been respecified by correlating errors. Reliability analysis revealed that all the dimensions were sufficiently internally consistent.

This was the first study in South Africa to use the ASSET as a stress assessing tool, and to compare the findings to established normative data in order to determine a stress profile of employees within a specific tertiary institution. The results reveal that the stressors which the respondents were most troubled by were the lack of commitment that they perceived from the organisation, and the disconcertingly high levels of perceived physical and psychological stress.

An interesting observation is the fact that the highest cause of organisational stress is that employees feel that they cannot be proud of the organisation. This is even more significant in the light of the fact that employees perceived themselves as highly committed to the organisation. The only direct comparison that can be made of the results of this study is to the study of Tytherleigh et al. (2003), who used the same measuring instrument in their study of 14 United Kingdom universities and colleges. Levels of commitment, both perceived from and felt toward their organisations, were also an area of concern for higher education staff. Commitment levels, and the potential effect that they may have specifically on the institution researched in this study, can result in reduced levels of productivity and unwillingness to assume responsibility (Chow, 1990).

Physical and psychological outcomes of stress provided alarming results and proved to be major sources of stress for employees. This is in line with the findings of Winefield et al. (2002), who found that approximately 50% of Australian university staff in their study were at risk of psychological illness, compared to only 19% of the Australian population. Several physical (e.g. headaches, nausea, muscular tension/pains, and insomnia) and psychological symptoms (panic attacks, constant irritability/anger, mood swings, tiredness, inability to cope and avoidance of other people) were perceived, to such an extent that it could have a detrimental effect on work performance. This finding is even more alarming in the light of the results of Tytherleigh et al. (2003) of their study in the United Kingdom that found lower levels of physical outcomes of stress and normative levels of psychological well-being for their population. Certainly this is definite warnings that, in their own interest as well as the interest of their client (mainly students), the institution being investigated dare not ignore.

Compared to normative data the employees of this institution were more stressed by aspects of work relationships (in particular some people not pulling their weight, and others taking credit for what is not their own achievements). They were also stressed by job characteristics (constant changes within the organisation, physical working conditions, and the way work performance is measured), work-life balance (possibility of doing the same job for the next 5-10 years). These indicators could, if not attended to, in the longer run result in corrosion of organisational commitment.

These results indicate that occupational stress within this institution is a major problem and lend further support to the growing evidence that higher education institutions no longer provide the low-stress working environments they once did (Tytherleigh et al. 2003; Winnefield et al. 2002). Furthermore they support the findings of a national survey of Britain's professional workforce carried out in 1996 which found that university lecturers and researchers reported lower levels of perceived commitment from their organisation, compared to 20 other occupational groups (Millward-Brown, 1996). Organisational commitment is an established indicator of motivation (Brown, 1996; Mayer & Schoorman, 1992) and a moderator of stress (Siu, 2002), particularly during periods of organisational change. Keeping in mind that most of the respondents feel that they 'cannot be proud of the organisation' and that the organisation is only 'changing for the sake of change' these findings suggest that the issue of perceived commitment is a serious concern that needs to be addressed.

Evaluation of the Pearson correlations of the ASSET dimensions showed that physical health is negatively related to overload, commitment from the organisation, and commitment from the individual. Psychological health is also negatively related to commitment from the organisation and commitment from the individual. These findings are supported by the literature (Schaufeli & Bakker, 2002) that suggests that work demands (in this instance reflected by the Overload dimension of the ASSET) require sustained effort and are therefore associated with certain physical and/or psychological costs. It can therefore also be linked with the findings of Siu (2002) that suggested that organisational commitment is related to most of the physical and psychological outcomes among workers.

An analysis of the impact of the biographical characteristics of the population on perceived stress levels reveals that higher levels of commitment from the individual were reflected by

the indigenous language speaking group (26% of the population) in comparison to the English (19% of the population) and Afrikaans (55% of the population) language groups. The Indigenous language speaking groups also perceived significantly higher commitment from the organisation in comparison to the other two groups. Both the English-speaking and the Afrikaans-speaking (even more than the English-speaking group) groups gave indications of significantly higher perceived psychological stress in comparison to the indigenous speaking language groups. These two groups also experienced significantly higher levels of overload.

These observations might be understood if radical transformation of the institution during the past eight years is taken into account. The Afrikaans- and English-speaking groups are mainly white staff who has been at the institution for more than five years. They had to adapt to changes like a new transformed management team, new organisational climate and culture, a transformed student population, as well as a different official language at the institution over a relatively short period of time. Difficulty in adapting to and integrating the impact of these changes might be reflected in the lower levels of commitment and higher levels of overload and psychological stressors perceived by these groups in comparison to the black indigenous language speaking groups.

These observations are further confirmed by the fact that employees with more than five years of experience at the institution (68% of the population) are perceiving characteristics of their jobs and control as a big sources of stress, are perceiving the organisation as less committed to them, and are showing signs of being less committed to the organisation in comparison to those with fewer than five years of experience at the institution. Employees with more than 10 years experience at the institution also show significantly higher indications of psychological ill health. As highlighted before, most of the employees with more than five years of experience are result from of transformation as indicated, white, academic appointments, and in the Afrikaans-speaking language group.

Looking at the stressors perceived by different job categories, it is interesting to note that academics are experiencing work-life balance, resources and communication, overload and job characteristics as sources of stress. This aspect is confirmed by the literature with regard to the fact that working in academia is becoming more stressful and will have a secondary effect on the work-life balance of academics (Rose, 1999; Kinmann & Jones, 2003). Administrative staff perceived the lack of commitment from the organisation as a bigger

stressor than the academic staff. A speculative explanation for this can be that administrative staff is more involved in procedural aspects of the organisation and as a result aware of organisational proceedings and possible gossip, while academics can more easily distance themselves from this and concentrate only on the educational aspects of their jobs leading to bigger apathy.

If one looks at differences in age, only one stressor, namely work-life balance, has a larger impact on employees older than 30 years. Being married with children might contribute to this stressor. Based on gender, females reported significantly higher levels of physical as well as psychological stress than males. This finding correlates with most of the empirical research on gender differences in higher education staff, which suggests that women appear to experience higher levels of stress in comparison to males (Kinman, 1996; McInnis, 1999).

Regression analysis of the ASSET dimensions indicated that the best indicator of commitment from the organisation is job characteristics (32%). The regression equation of Commitment from Organisation (as measured by the ASSET) can be formulated as:  $\text{Commitment from Organisation} = 30,73 - 0,18 (\text{Control}) - 0,35 (\text{Job Characteristics}) - 0,14 (\text{Work Relationships}) - 0,28 (\text{Resources and Communication})$ . These variables predict 64% of the variance in Commitment from Organisation.

The best indicator of commitment from the individual (as measured by the ASSET) is control (21). The regression equation of Commitment from Individual =  $23,39 - 0,28(\text{Control}) - 0,26 (\text{Job Characteristics})$ . These variables predict 25% of the variance in Commitment from Individual.

Based on regression analysis, the best indicator of the Physical Health dimension of the ASSET is Job Characteristics (11%). The regression equation of Physical Health can be formulated as:  $\text{Physical Health} = 9,14 + 0,17 (\text{Overload}) + 0,24 (\text{Job Security}) - 0,29 (\text{Control}) + 0,22 (\text{Job Characteristics}) + 0,13 (\text{Work Relationships})$ . These variables predict 22% of the variance in Physical Health. Commitment from Organisation predicts 7% of the variance of Physical Health.

Based on regression analysis, the best indicator of the Psychological Health dimension of the ASSET is Job Characteristics (24%). The regression equation of Psychological Health can be

formulated as: Psychological Health = 10,35 + 0,35 (Overload) + 0,29 (Job Security) - 0,29 (Control) + 0,50 (Job Characteristics) + 0,16 (Work Relationships) + 0,25 (Work-Life Balance). These variables predict 35% of the variance in Psychological Health. Commitment from Organisation predicts 21% of the variance of Psychological Health.

Based on regression analysis it can be concluded that job characteristics is the best predictor of commitment perceived from the organisation, physical and psychological health. This is in line with the literature that states that job characteristics are directly related to the level of commitment that is perceived from the organisation (Cooper et al. 2001), seeing that employees perceive the employer as the party who is ultimately responsible for the characteristics of their jobs. Not being satisfied with these characteristics will lead to elevated occupational stress levels that will inevitably impact on physical and psychological well-being (Taris et al. 2001). The best predictor of commitment from the individual is job control. This finding correlates with literature on the Demand-Control Model (Fox et al. 1993) and indicates that if individuals feel that they have decisional freedom in terms of meeting the job requirements (i.e. control), they will automatically be more committed to the job and the organisation.

The lack of commitment that employees perceive from the organisation is also contributing 7% to the elevated levels of physical ill health and 21% to psychological ill health. From an organisational perspective this certainly calls for serious consideration regarding the well-being of the workforce.

Limitations of the present study include sample size ( $N = 372$ ) and the sampling procedure. Both these aspects have an impact on the possibility of generalisation of the findings to the total study population. Future studies could benefit hugely in terms of a stratified random-sample design which would ensure sufficient representation of the different groups in the total population. Future studies should also focus on longitudinal designs where inferences in terms of cause and effect could be drawn. A further limitation of this study is its reliance solely on self-reporting measures. According to Schaufeli, Enzman and Girault (1993) the exclusive use of self-reporting measures in validation studies increases the likelihood that at least part of the shared variances between measures can be attributed to method variance. Future studies should also consider extending the sample to include employees of all the

higher education institutions in South Africa in order to standardise the ASSET for employees of higher education institutions in South Africa.

## **RECOMMENDATIONS**

Given the pervasive nature of occupational stress, this study is a first step towards the validation of the ASSET as an organisational stress screening tool that can be used in higher education institutions in South Africa. The current study only considered one higher education institution and it is recommended that the study be expanded to all the other higher education institutions in South Africa, and if possible to other African higher education institutions as well, specifically with the aid of a randomised sampling design. Further refining and testing of the ASSET are needed. In stress research in general and in higher education specifically it is important to take a holistic approach in terms of stress and strain of the employee (Cooper et al. 2001) in order to minimise the negative consequences of occupational stress.

Secondly, according to Kompier and Kristensen (2001), primary interventions may, in the first place, be directed at either the work situation or the coping capacity of the employee. Work-oriented interventions aim to improve the fit between an individual and the workplace. Worker-oriented interventions aim at teaching employees to deal more effectively with experienced stress, or to modify their appraisal of a stressful situation so that the perceived stress threats are reduced. If the physical and psychological stressors especially are allowed to continue unattended, the organisation can expect to find negative costs associated with continued elevated levels of stress, such as burnout, absenteeism, employee turnover and lowered levels of service. The organisation is therefore advised to take note of the impact of rapid transformation and drastic changes in the working environment and the psychological contact of employees in order to protect both the employee and the organisation. Interventions may be aimed at eliminating, reducing or altering stressors. Possible interventions include: Provision of a more supportive climate; changes in decision-making processes; tangible evidence of commitment from the organisation; and establishment of a more equitable system of reward and resource distribution. Secondary level interventions can be implemented to prevent employees and specific groups who are already showing signs of stress from getting sick and to increase their coping capacity. Examples of this strategy would include coping strategies, especially with regard to dealing with change and transformation,

cognitive restructuring, relaxation techniques and physical activity enhancement programmes, conflict resolution and emotional and psychological support. Tertiary level stress management interventions would be concerned with the rehabilitation of individuals who have suffered ill health or reduced well-being as a result of strain in the workplace.

In terms of the experience of strain by the population, the low perceived level of commitment from the organisation is a concern. With regard to the motivation of employees and the building of credibility by and co-operation in the organisation, interventions aimed at maximising group effectiveness, increasing a sense of belonging and shared vision; rebuilding trust relationships ("Walk the talk"); and an organisational commitment to fairness and equity should be considered. A leadership skills intervention aimed at first-line management could be considered in this regard.

Finally, it is recommended that with regard to the perceived occupational stress of South African employees of higher education institutions specifically and organisations in general, the current findings based on the results of the ASSET be validated with regard to the equal comparison of the perceived strain construct across cultural groups in order to be able to generalise findings in the multi-cultural South African context.

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## **CHAPTER 5**

### **RESEARCH ARTICLE 4**

# **A MODEL FOR WELLNESS OF EMPLOYEES AT A HIGHER EDUCATION INSTITUTION IN SOUTH AFRICA\***

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## **ABSTRACT**

The objective of this study was to develop and test a causal model of wellness for employees of a higher education institution in South Africa. A cross-sectional survey design ( $N = 372$ ) was used. An adapted version of the Maslach Burnout Inventory – General Survey, Utrecht Work Engagement Scale, Job Characteristics Scale, the Health subscales of the *ASSET*, and the Affectometer 2 were administered. The results showed that engagement can be considered a positive indicator of employee wellness and job resources and positive affectivity contribute to engagement. Burnout, and physical and emotional strain are negative indicators of employee wellness and overload, negative affectivity and low levels of positive affectivity contribute to burnout.

## **OPSOMMING**

Die doelstelling van hierdie navorsing was om 'n oorsaaklike model van welstand vir werknemers van 'n hoërsonderwysinstansie in Suid-Afrika te ontwikkel en te toets. 'n Dwarsnede-opnameontwerp ( $N = 372$ ) is gebruik. 'n Aangepaste weergawe van die Maslach Uitbrandingsvraelys – Algemene Opname, Utrecht-werksbegeesteringskaal (UWES), Werkkarakteristiekieskaal, die Gesondheidssubskale van die *ASSET* en die Affektometer 2 is afgeneem. Die resultate het getoon dat werkbegeestering 'n positiewe aanduiding van werknemerwelstand is, en dat werks hulpbronne en positiewe affektiwiteit bydra tot werksbegeestering. Uitbranding en fisieke- en emosionele ooreising is negatiewe aanduiders van werknemerwelstand en oorbelading, negatiewe affektiwiteit en lae vlakke van positiewe affektiwiteit dra by tot uitbranding.

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Workplace health promotion programmes have grown exponentially over the past 20 years (Coxey, 2003; Sperry, 1984; Schabracq, Winnubst & Cooper, 1996). Western business and industry have increased their awareness initially of the importance of physical fitness and later holistic well-being/wellness in the workplace. The belief has grown that an organisation should take responsibility for the welfare of the worker, the human capital. In the past, attention to the health of employees in the work situation was mainly directed at working conditions that were physically too aggravating (Moos, 1988). In recent years the so-called 'human factor' has become more and more important. This is the reason why attention has come to be focused on the total well-being/wellness of employees (Ryff & Singer, 1998; Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001; Snyder, 2000). This refers not only to the absence of health problems, but also to the promotion of health (wellness) of the total human being, i.e. a shift toward what Seligman and Csikszentmihalyi (2000) referred to as "positive psychology".

The wellness model has its philosophical underpinnings in the salutogenic (Antonovsky, 1979, 1984, 1987) as opposed to pathogenic paradigm. The refrain that positive health is "more than the absence of illness" has long been heard. More than 50 years ago, the World Health Organisation (WHO, 1948) defined health as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Explicit efforts to move beyond medical and disease (pathogenic) models of health, such as attempts to measure multidimensional aspects of functioning like physical, mental and social functioning (Engel, 1977; Machenbach, Van den Bos, Joung, Van de Mheen & Stronks, 1994; Steward & Ware, 1992) and quality of life (Bowling, 1991) provide important steps in the direction of defining health as states of well-being rather than ill-being.

Ryff and Singer (1998) conclude that positive human health is best construed as a multi-dimensional dynamic process rather than a discrete end state. That is, human well-being is ultimately an issue of engagement in living, involving expression of a broad range of human potentialities. Van Sant (1991, p. 1) defined wellness as a state of being which helps us clarify values, find purpose in our life, and enhance the quality of everything we do that is influenced not only by our individual behaviour, but also by events and circumstances in our private and professional lives. Robbins, Powers and Burgess (1999, p. 5) defined wellness as an "integrated and dynamic level of functioning oriented toward maximising potential, dependent upon self-responsibility".

Myers, Sweeney and Witmer (2000, p. 252) gave the following comprehensive definition of wellness: "Wellness is a way of life oriented toward optimal health and well-being in which body, mind and spirit are integrated by the individual to live more fully within the human and natural community. Ideally it is the optimum state of health and well-being that each individual is capable of achieving." Wellness thus involves a lifestyle with an integrated pattern of living focused on seven dimensions: *emotional, intellectual, career, environmental, physical, spiritual and social* (Ardell & Tager, 1982; MacGuire & Snow, 1994; Morris & de Vane, 1994; Robbins et al., 1999). For the purposes of this research, wellness will be confined to work.

### **Wellness and work**

Work is a fundamental life task that provides economic, psychological and social benefits to the well-being of the individual and to others (Adler, 1954). Herr and Cramer (1988) summarised the different purposes that work can serve: Psychological purposes include self-esteem, self-efficacy (control), identity, feelings of mastery or competence and commitment (meaning in life); social benefits include a place to meet people, a feeling of being valued or needed by others, social status and potential friendships; and economic purposes include the obvious resources to purchase goods and services, evidence of success and assets to purchase leisure or free time.

Combined with leisure, work provides an opportunity for pleasurable experiences that are intrinsically satisfying and provide a sense of accomplishment (McDaniels & Gysbers, 1992). It challenges or engages our senses, skills and interests, frequently absorbing us in a state of consciousness called "flow". This is an optimal state in which an individual loses awareness of self and time while being highly engaged in the task at hand. Excitement and joy are enhanced while anxiety and boredom are minimised (Csikszentmihalyi, 1990). Those who are unable to engage in work activities struggle psychologically and economically for survival. Persons unwilling to work usually are discouraged individuals who have given up on achieving life satisfaction through this life task.

Pelletier (1994, p. 129) reported that: "During periods of economic slump there is a marked increase in murder, suicide, mental illness, heart disease, alcoholism, divorce, domestic violence, family fights and childhood abuse". Although unemployment may not be the direct

cause of disease and mental illness, it undoubtedly exacerbates the factors that trigger such conditions. On the other hand, work as a significant life domain has been well documented through research, *inter alia* by Campbell (1981), who found that work was one of several major domains that contributed to the overall quality of life.

The meaning of work and time commitments related to work must be balanced in a healthy individual with time, energy and general life satisfaction (Davidson & Gilbert, 1993). For example, in a study of working women, Napholz (1995) found that those whose work had first or equal priority to their home life, had higher depression and role conflict scores than those who put their relationships first. Job flexibility is positively correlated with overall emotional well-being for both men and women (Ulione, 1996). The following also correlate positively with emotional well-being: having a valued social position at work, experiencing clarity with regard to work assignments and feeling a sense of control in relation to one's environment and assignments (Warr, 1994). In addition, job security is essential to the psychological well-being of employed individuals (Kuhnert & Palmer, 1991).

A holistic wellness model focuses not only on individual lifestyle, but includes a clear recognition of the importance of the context in which the individual functions (Ardell, 1995; Hettler, 1986; Schabracq et al., 1996; Witmer & Sweeney, 1992). Changes initiated in unsupportive cultural environments have been found to tend to be of a temporary nature, while changes that are supported by the prevailing culture are likely to be enduring (Sperry, 1984). An open environment in which concerns can be brought out into the open goes a long way towards creating an overall culture and environment that are conducive to wellness (Deal & Kennedy, 1982). However, it starts with a simple commitment to treat people with dignity and respect (Leuchars, Harrington & Erickson, 2003). Both the motivation to attempt change and the probability of sustaining behavioural changes have been found to correlate positively with environmental support (Allen & Leutzinger, 1999). Therefore, in order to achieve sustainable results, wellness programmes need to address individual change, as well as the creation of more supportive organisational contexts. The human resource is, to a large extent, the engine of organisations, and it is through a well-functioning work force that organisations can drive their objectives (Matlala, 1999).

Recently, Demerouti, Bakker, de Jonge, Janssen and Schaufeli (2001) went one step beyond all of the above by successfully testing the so-called Job Demand-Resources (JD-R) model

that posits that job demands (e.g. physical demand, time pressure, shift work) are associated with exhaustion, whereas lacking job resources (e.g. feedback, control, participation in decision-making, supervisory support) is associated with disengagement. Theoretically speaking, the JD-R model assumes two processes: (1) An energetic process of overtaking and wearing out in which high job demands exhaust the employee's energy backup; (2) A motivational process in which lacking resources preclude dealing effectively with high job demands and fosters mental withdrawal or disengagement.

Schaufeli and Bakker (2002, in press) extended the JD-R model as proposed by Demerouti et al. (2001) by including engagement – as measured independently from burnout – and by adding indicators for health impairment and organisational withdrawal as possible consequences of burnout and engagement respectively. They proposed the Comprehensive Burnout and Engagement (COBE) model (Schaufeli & Bakker, 2002), which integrates burnout and engagement, and links both concepts with job demands, job resources and potential individual and organisational costs.

The COBE-model assumes two psychological processes, namely an energetic process and a motivational process. The energetic process links job demands with health problems via burnout. The motivational process links job resources via engagement with organisational outcomes. Job resources may play either an intrinsic motivational role (by fostering the employee's growth, learning and development), or they may play an extrinsic motivational role (by being instrumental in achieving work goals). Schaufeli and Bakker (2002) confirmed the model in an empirical study in the Netherlands. Job demands were associated with exhaustion, whereas job resources were associated with engagement. Burnout was related to health problems as well as to turnover intentions, and mediated the relationship between job demands and health problems, while engagement mediated the relationship between job resources and turnover intentions.

### **Work wellness in tertiary education**

The world is changing and so are higher education institutions, if they are to survive (Gilbert, 2000). All over the globe these institutions have been confronted with a series of complex changes challenging their mandates, traditional practices, authority and organisational structures (Doyle & Hind, 1998; Hugo, 1998; Nixon, Marks, Rowland & Walker, 2001). A

stable and productive support system in terms of higher education and training is of vital importance to any country in order to ensure sustainable economic, social and political reconstruction and development (Gorshkov, 1998). In South Africa the landscape of higher education is also changing (Dlamini, 1995; Hugo, 1998). Since 1994 the post-apartheid government of South Africa has aimed to redress the legacy of the previous government. One of the focus areas of redress is the education system (Cross, Mungadi & Rouhani, 2002). This resulted in a restructuring of the broad higher education system in South Africa, which holds consequences for the governance of all tertiary institutions.

These organisational changes pose the following challenges to the management as well as the employees of tertiary institutions: New organisational cultures have to be introduced; values, cultural norms and organisational support systems are subjected to ongoing changes; peer support within the organisation is challenged with issues like equity, diversity and resistance; establishing an organisational climate is continuously and inevitably influenced by ongoing change. These challenges, added to the increasing work load caused by massification of student numbers (Gilbert, 2000; Kistan, 1999; Kraak, 2000), life-long learning and adult learning (Shortlidge, 2003; Kraak, 2000), new trends in teaching and learning (Kistan, 1999; Kraak, 2000), changes in the market place (Blackmore, 2001; Lomas, 1997; Rowley, 2000) and globalisation (Brown, 1999), will certainly have an impact on the well-being of employees at tertiary institutions.

Seldin (1991, p. 14) has already explained that "levels of stress of staff on campuses have risen appreciably in recent years and are likely to get worse". This is relevant for lecturers and administrators as well as support personnel, including para-professionals, secretaries and custodial staff who contribute to the daily operations and success of a tertiary institution.

Administrators, lecturers/teachers, and support staff comprise the human resource dimension of an education institution and as such it is important to care for all these groups of people (Sackney, Noonan & Miller, 2000). For higher education to make a valuable contribution to the reconstruction and development of South Africa, it will be of utmost importance to look after the staff employed at tertiary institutions for they are the "human capital" that will enable service delivery to all stakeholders, including students, government and the community.

Leafgren (1986) and Douglas (1992) asserted that campus wellness programmes should be directed at changing those aspects of the existing culture that restrict or are detrimental to human growth and development. Deal and Kennedy (1982) and Cunningham (1982) focused not only on the elimination of negative contextual factors, but also on the positive cultivation of a supportive environment. Shein (1993) stated that one of the objectives of any campus wellness programme should be to create an environment that encourages wellness and is supportive of behavioural changes associated with wellness. Sperry (1984, p. 410) proposes that: "If external stressors (within the corporate climate /culture) are not identified, reduced and eliminated, stress management programs – geared to internal stressors – and more elaborated wellness programs become a sham". Most of the wellness promotion literature emphasises attention to the broader context (e.g. Allen & Leutzinger, 1999; Antonovsky, 1987; Champy & Hammer, 1993; Leafgren, 1986). This is also relevant within the promotion of workplace wellness in general (Blake, 1995).

The aim of this study was to investigate work wellness as depicted by burnout and engagement and the potential moderating effects of job characteristics, general sense of well-being (affect) and subjective perception of personal health for employees at a tertiary institution in South Africa. A review of the literature, combining these factors in a causal model of wellness for employees at a tertiary institution in South Africa, could not be found. Therefore, it was the objective of this study to develop and test a causal model of wellness of employees at a tertiary institution in South Africa based on engagement, burnout, job characteristics and dispositional optimism, general sense of well-being (affect) and subjective perception of personal health.

### **Affectivity and wellness**

Although it is generally accepted that dispositional and situational factors interact in the shaping of work and organisational attitudes, there is still debate about the relative weight attached to dispositional and situational aspects. Those leaning towards the dispositional side have contended that work attitudes are determined by, or are at least directly linked to, individual attributes, whereas those leaning to the situational side have argued that job characteristics, organisational situations and economic conditions affect attitudes more strongly than individual differences (Strümpfer, Danana, Gouws & Viviers, 1998).

According to Cooper, Dewe and O'Driscoll (2001) there has been a recent rekindled interest in the moderating effects of personality variables and dispositions in the prediction of employee attitudes, affective reactions and behaviours in terms of the individual stressful experience. Edwards (1996) proposed two possible mechanisms whereby dispositional factors influence the stressor-strain relationship on an individual level, namely: (a) The *differential exposure* perspective, whereby personality dispositions might influence the individual's exposure to stressful events or (b) The *differential reactivity* perspective where certain personality dispositions might influence individual reactivity to stressful events. This indicates that the impact of stressful experiences would vary for individuals who score high or low on a specific moderator variable (Bolger & Zuckerman, 1995; Cohen & Edwards, 1989; Cooper et al., 2001). In this study, positive and negative affectivity are investigated as possible moderating variables in the employees of a higher education institutions' experience of burnout, strain and engagement.

Kamman and Flett (1983) indicated that the emotional experience of general well-being can be seen as the balance of two largely independent factors, namely positive affect and negative affect in recent experience. These two broad dimensions have been identified in both intra- and inter-individual analyses, and they emerge consistently across diverse descriptor sets, time frames, response formats, language and culture (Mayer & Gaschke, 1988; Watson & Clark, 1997). The negative affect dimension represents the extent to which an individual experiences negative emotional states such as fear, anger, sadness, guilt, contempt and disgust; conversely, positive affect reflects the extent to which one experiences positive states such as joy, interest, confidence and alertness (Watson, 2000). Both of these dimensions can be assessed either as a short-term state or as a long-term trait, in which case they typically are referred to as 'negative affectivity' and 'positive affectivity', respectively. Negative affectivity reflects neuroticism, a low level of self-esteem, and frequent negative emotionality. It represents a predisposition to focus on the negative aspects of the self, others and the world, as well as a tendency to experience a high level of stress (Parkes, 1990; Watson & Clark, 1984). People high in trait negative affectivity tend to experience and report high levels of subjective stress and strain outcomes (Burke, Brief & George, 1993; Spector & O'Connell, 1994). Dispositional positive affectivity is consistent with such personality traits as hardiness and dispositional optimism (Roskies, Louis-Guerin & Fournier, 1993), and reflects the extent to which a person is characterised by high energy levels, full concentration and pleasurable engagement (Watson, Clark & Tellegen, 1988).

In some stress research there are concerns that negative affectivity is likely to inflate the association between stressors and strain and the researchers recommend that, as a variable, it should be controlled for investigations (Brief, Burke, George, Robinson & Webster, 1988; Burke et al., 1993). Other researchers have argued that negative affectivity may serve as a moderator (vulnerability) factor (Schaubroeck, Ganster & Fox, 1992). Using Cohen's (1988) moderated regression analysis procedure, Parkes (1990) identified negative affectivity to be a moderator variable. She found that work demand only maintained a significant relationship with psychological adjustment among individuals high on negative affectivity, but not among those with lower levels of negative affectivity.

The moderator model suggests that individuals who exhibit negative affectivity are more likely to react adversely to perceived stressors than individuals with low negative affectivity perceiving the same stressor, and that negative affectivity may interact with the perceived stressor to intensify the strain response (Bolger & Zuckerman, 1995). According to Parkes (1994), both confounding and moderator effects of negative affectivity are relevant in studies of work stress. A growing body of recent research evidence shows that dispositional negative affectivity can play a moderating role in the negative aspects of work wellness (Bolger & Zuckerman, 1995; Cassar & Tattersall, 1998; Decker & Borgen, 1993; Parkes, 1990; Terry, Nielsen & Perchard, 1993). Other studies have found mainly independent effects and nil or very few interaction effects involving negative affectivity (Callan, Terry & Schweitzer, 1994; Israel, House, Schurman, Heaney & Mero, 1989). In terms of causal relationships, a recent study successfully tested a causal model of burnout in a healthcare worker sample ( $N = 478$ ) (Iverson, Olekalns & Erwin, 1998). Negative affectivity predicted low social support and job satisfaction and high levels of emotional exhaustion and depersonalisation. Positive affectivity was associated with higher levels of personal accomplishment, greater autonomy and lower absenteeism. In terms of moderating effects, it was found that those with high negative affectivity experience more depersonalisation from co-worker support compared to those with low negative affectivity (Iverson et al., 1998).

On the other hand there are indications that for some individuals the possession of positive affectivity, personal control beliefs, dispositional optimism and hardiness could be more effective than coping resources in dealing with workplace stressors (Kobasa, 1979; McCrae & Costa, 1987). It is possible that positive affectivity could directly affect the reporting of strain and/or play a significant stress-buffering or moderating role, and it is associated with

high generalised self-efficacy, subjective well-being and positive social relationships (Church, 1994; Spielberger, Gorsuch & Lushene, 1970).

In a study of work stress that included both trait anxiety and dispositional optimism (conceptually similar to negative and positive affectivity, respectively), Jex and Spector (1996) found that partialling out both of these personality dispositions only reduced the magnitude of work stressor-strain correlations a little. Most research, however, concluded that positive affectivity is a significant predictor of job satisfaction (Iverson et al., 1998; Watson 2000; Watson & Slack, 1993). On the basis of these data, one can conclude that trait affectivity plays an important etiological role in the experience of work wellness. Therefore, negative affectivity is expected to be negatively related to subjective perceptions of personal health, while positive affectivity is expected to be positively related. Consequently in the present study negative affectivity is expected to predict exhaustion and cynicism, while positive affectivity is expected to predict professional efficacy as well as engagement (vigour, dedication and absorption) – the positive antithesis of burnout.

### **Burnout and ill health**

Literature on the seven dimensions of wellness (Ardell & Tager, 1982; MacGuire & Snow, 1994; Robbins et al., 1999) define the physical dimension as inclusive of regular physical activity, nutritional responsibility, sufficient relaxation and sleep, self-care, health and safety awareness. This also implies the non-abuse of alcohol, drugs, tobacco and medication, the practice of safe traffic measures and safe and responsible sexual practices (Blaise, 1996).

There is research evidence that consistently links occupational stress with certain physical health symptoms and diseases. Heart disease, ulcers, some forms of cancer, allergies, migraine, back problems, depression and an increased frequency of minor ailments such as colds and flu have been associated with stress (Ho, 1997; Ryff & Singer, 1998; Sethi & Schuler, 1990).

Barkhuizen, Rothmann and Tytherleigh (2003) in their study of burnout of academic staff ( $N = 279$ ) in a higher education institution in South Africa, found that exhaustion and low professional efficacy were related to health problems; overload was associated with high exhaustion and low professional efficacy; job resources were negatively related to

exhaustion and cynicism and positively related to professional efficacy; and optimism moderated the effects of lack of resources on exhaustion and the effects of job resources on professional efficacy.

The Health subscales of the ASSET ("An Organizational Stress Screening Evaluation Tool") were developed by Cartwright and Cooper (2002) to assess the respondents' level of health. It can be hypothesised that employees' subjective positive perception of their personal physical and emotional health (strain) will correlate directly with positive affectivity, as well as with engagement.

Consequently the following research hypotheses can be formulated:

- H1: Engagement will be positively related to job resources, positive affectivity, and professional efficacy, and negatively related to exhaustion, cynicism, cognitive weariness and physical- and psychological strains. Job resources and trait positive affectivity will play a contributing role to engagement levels of employees.
- H2: Burnout will be positively related to job demands (i.e. work overload). Positive affectivity will be associated with lower levels of exhaustion, cognitive weariness and cynicism and higher levels of professional efficacy. Physical- and psychological strains will be positively associated with exhaustion, cognitive weariness and cynicism, and negatively related to professional efficacy. Job demands and trait negative affectivity will play a contributing role to exhaustion, cognitive weariness and cynicism levels of employees.
- H3: Wellness of the employees at a higher education institution in South Africa will be depicted by positive indicators like engagement, positive affectivity, and job resources on the one side, and burnout, overload, strain and intention to resign as negative indicators of employee wellness on the other side.

## METHOD

### Research design

To achieve the research objectives a cross-sectional design, with a survey of the population at a particular point in time (Shaughnessy & Zechmeister, 1997), was used as technique of data collection.

### Study population

The population comprised academic and administrative staff at a tertiary institution in South Africa. A total of 820 questionnaires were sent out (academic:  $n = 320$ ; administrative:  $n = 500$ ) and 372 participants responded (academic:  $n = 175$ ; administrative:  $n = 197$ ). This give a 45.36% response percentage. Of those who responded, 47.04% were academic staff and 52.96 administrative staff. Females constituted 63% of the participants. Different language groups were included in the study. A total of 55% of the participants were Afrikaans-speaking; 19% English-speaking; 11% Setswana-speaking and 15% spoke other indigenous languages. The minority (16%) of the participants were single. In total, 25% of the population had obtained a Master's (or related) and/or a higher qualification. 47% indicated that they were improving their qualifications. 34% of the participants had been at the institution for 10 or more years of service. 66% reported to have had no opportunity to be promoted during their years of service.

### Measuring instruments

The following measuring instruments were used in this study:

An adapted version of the *Maslach Burnout Inventory – General Survey (MBI-GS)* (Maslach, Jackson & Leiter, 1996) was used to measure burnout. The original MBI-GS consists of 16 items and has three subscales: *Exhaustion* (Ex) (five items; e.g. "I feel used up at the end of the workday"), *Cynicism* (Cy) (five items; e.g. "I have become less enthusiastic about my work") *Professional Efficacy* (PE) (six items; e.g. "In my opinion, I am good at my job"). The fourth subscale, the *Cognitive Weariness Scale (CWS)* (six items; e.g. "I have trouble concentrating") was developed by Van Horn, Taris, Schaufeli and Scheuers (in press) to

measure cognitive well-being. Together the sub-scales of the MBI-GS provide a four-dimensional perspective on burnout (Coetzee & Rothmann, in press (a)). The items of the MBI-GS are phrased as statements about personal feelings and attitudes which are self-scored on a seven-point frequency scale, ranging from 0 (*never*) to 6 (*every day*). Internal consistencies for the MBI-GS found by Leiter and Schaufeli (1996) and Schaufeli, Van Diederendonck and Van Gorp (1996) range from 0,73 (Cynicism) to 0,91 (Exhaustion). Van Horn et al. (in press) reported a Cronbach alpha coefficient of 0,92 (Cognitive Weariness). In four South African samples alpha coefficients ranging from 0,69–0,89 were reported for the MBI-GS (Rothmann, Jackson & Kruger, 2003; Rothmann & Jansen van Vuuren, 2002; Rothmann & Malan, 2003; Storm & Rothmann 2003). Coetzee and Rothmann (in press (a)) reported internal consistencies of 0,85 (Exhaustion), 0,76 (Cognitive Weariness), 0,70 (Cynicism) and 0,66 (Professional Efficacy) and confirmed a four-factor structure of burnout.

The *Utrecht Work Engagement Scale* (UWES) was developed by Schaufeli et al. (2002) as a measure of engagement. The UWES includes three dimensions: *Vigour* (six items; e.g. "I am bursting with energy in my work". *Dedication* (five items; e.g. "I find my work full of meaning and purpose". *Absorption* (six items; e.g. "When I am working, I forget everything else around me". The questionnaire consists of 17 questions and is scored on a seven-point frequency rating scale, varying from 0 (*never*) to 6 (*every day*). The alpha coefficients for the three subscales varied between 0,68 and 0,91 (Schaufeli et al., 2002). The alpha coefficient could be improved ( $\alpha$  varies between 0,70 and 0,88 for the three subscales) by eliminating a few items without substantially decreasing the scale's internal consistency (Coetzee & Rothmann, in press (b)). Two recent studies using confirmative factor analysis demonstrated the factorial validity of the UWES (Schaufeli, Bakker, Hoogduin, Schaap & Kladler, 2001; Schaufeli et al., 2002). The fit of the hypothesised three-factor model to the data was superior to a one-factor solution (Maslach, Schaufeli & Leiter, 2001; Schaufeli et al., 2002; Coetzee & Rothmann, in press (b)).

The *Health subscales of ASSET* were developed by Cartwright and Cooper (2002) to assess the respondents' level of health. The Health subscales consist of 19 items arranged on two subscales: Physical health and Psychological well-being. All items on the Physical health subscale relate to physical symptoms of stress, and on the Psychological well-being subscale to symptoms of stress-induced mental ill health. The role of these subscales are to give an insight into physical and psychological health, not an in-depth clinical diagnosis. Johnson and

Cooper (2003) found that the Psychological well-being subscale has good convergent validity with an existing measure of psychiatric disorders, the General Health Questionnaire (GHQ – 12, Goldberg & Williams, 1988).

The *Job Characteristics Scale* (JCS) was developed by Barkhuizen et al. (2003) to measure job demands and job resources for employees. The JCS consists of 48 items. The questions are rated on a four-point scale ranging from 1 (*never*) to 4 (*always*). The dimensions of the JCS include pace and amount of work, mental load, work variety, opportunities to learn, work independence, relationships with colleagues, relationships with immediate supervisor, ambiguities of work, information, communication, participation, contact possibilities, uncertainty about the future, remuneration and career possibilities. The JCS was found to have adequate internal consistency with Cronbach alphas ranging from 0,74–0,92.

The *Affectometer 2* (AFM) (Kamman & Flett, 1983) was used to measure the general well-being or sense of well-being in recent experience. The AFM (shortened version) is a 20 item scale that gives a bottom-line indication of quality of life as experienced on an affective and emotional level. The overall level of well-being or happiness is conceptualised as the extent to which positive feelings dominate over negative feelings. The AFM subscales measure three dimensions, namely Positive Affectivity, Negative Affectivity and Positive-Negative Affect Balance. Respondents evaluate themselves on a five-point frequency scale, ranging from 1 (*not at all*) to 5 (*all the time*). Kamman and Flett (1983) and Wissing and Van Eeden (1994) reported alpha reliabilities of 0,81 to 0,93 as well as indications of validity. Wissing et al. (1999) indicated the validity of this scale for use in an African group and reported reliability coefficients of 0,68 (Positive Affectivity) and 0,77 (Negative Affectivity).

### **Statistical analysis**

The statistical analysis was carried out with the help of the SAS program (SAS Institute, 2000) and the AMOS program (Arbuckle, 1997). To evaluate the construct validity of the JCS and the affectometer, principal factors extraction with varimax rotation was performed through SAS FACTOR on 48 items of the JCS and 20 items of the Affectometer. Principal components extraction was used prior to principal factors extraction to estimate the number of factors, presence of outliers and factorability of the correlation matrices. Eigenvalues (> 1)

and the scree plot was used to decide on the number of factors of the JCS and the Affectometer.

Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were computed to describe the data. Internal consistency, homogeneity and unidimensionality of the measuring instruments were assessed by Cronbach alpha coefficients and inter-item correlation coefficients (Clark & Watson, 1995). Pearson product-moment correlations were used to specify the relationships between the variables. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

In terms of statistical 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. Pearson product-moment correlation was used to specify the relationship between the variables. A cut-off point of 0,30 (medium effect, Cohen, 1988) was set for the practical significance of correlation coefficients.

The last stage of analysis utilised stepwise multiple regression analysis to determine the proportion of the total variance of stress as explained by the dimensions of the ASSET. Effect-sizes for each dimension were estimated using  $R^2$ . The following formula (Steyn, 1999) was used:

$$f^2 = \frac{R^2}{1 - R^2}$$

A cut-off point of  $f^2 = 0,35$  (large effect) was set (Steyn, 1999).

## RESULTS

The results of the factor analysis on the JCS are shown in Table 1. Loading of variables on factors, commonalties and percent of variance and covariance are shown. Variables are ordered and grouped by size of loading to facilitate interpretation. Zeros represent loadings that are below 0,45 (20% of variance). Labels for each factor are suggested in a footnote.

Table 1

*Factor Loadings, Communalities ( $h^2$ ), Percentage Variance and Covariance for Principal Factor Extraction and Varimax Rotation on the JCS*

| Item                                                               | F <sub>1</sub> | F <sub>2</sub> | F <sub>3</sub> | F <sub>4</sub> | F <sub>5</sub> | F <sub>6</sub> | F <sub>7</sub> | F <sub>8</sub> | $h^2$ |
|--------------------------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|
| 27. Know exactly what direct supervisor thinks of performance      | 0.82           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.75  |
| 30. Receive information from direct supervisor on work performance | 0.81           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.69  |
| 24. Feel appreciated by supervisor                                 | 0.78           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.68  |
| 24. Discuss work problems with direct supervisor                   | 0.77           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.70  |
| 22. Rely on supervisor when facing difficulties in work            | 0.71           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.73  |
| 29. Receive sufficient information on work results                 | 0.70           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.59  |
| 28. Receive sufficient information on the purpose of work          | 0.69           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.62  |
| 23. Get on well with supervisor                                    | 0.65           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.64  |
| 35. Participate in decisions about nature of work                  | 0.64           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.67  |
| 31. Kept adequately up-to-date about important issues              | 0.61           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.58  |
| 25. Know exactly what other people expect of work                  | 0.57           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.55  |
| 32. Clear decision-making process                                  | 0.57           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.49  |
| 36. Have influence on management decisions                         | 0.50           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.51  |
| 26. Clear responsibilities                                         | 0.47           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.40  |
| 33. Clear reporting lines                                          | 0.47           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.49  |
| 15. Possibility of independent thought and action                  | 0.40           | 0.71           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.65  |
| 17. Influence in planning work activities                          | 0.00           | 0.58           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.50  |
| 18. Participation in decision-making in piece work                 | 0.00           | 0.56           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.46  |
| 12. Variety in work                                                | 0.40           | 0.55           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.46  |
| 11. Work makes sufficient demands on all skills and capabilities   | 0.00           | 0.52           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.40  |
| 16. Freedom in carrying out work activities                        | 0.00           | 0.51           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.46  |
| 14. Feeling of work achievement                                    | 0.00           | 0.51           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.55  |
| 2. Time pressure                                                   | 0.00           | 0.00           | 0.71           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.59  |
| 1. Too much work to do                                             | 0.00           | 0.00           | 0.65           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.53  |
| 4. Attentive to many things at the same time                       | 0.00           | 0.00           | 0.59           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.40  |
| 8. Contact with difficult clients                                  | 0.00           | 0.00           | 0.57           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.38  |
| 9. Exposed to emotionally upsetting situations                     | 0.00           | 0.00           | 0.55           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.50  |
| 7. Confronted with issues that affect employee personally          | 0.00           | 0.00           | 0.49           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.28  |
| 5. Have to give continuous attention to work                       | 0.00           | 0.00           | 0.43           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.38  |
| 44. Live comfortably on pay                                        | 0.00           | 0.00           | 0.00           | 0.80           | 0.00           | 0.00           | 0.00           | 0.00           | 0.68  |
| 45. Enough pay                                                     | 0.00           | 0.00           | 0.00           | 0.73           | 0.00           | 0.00           | 0.00           | 0.00           | 0.62  |
| 43. Institution pays good salaries                                 | 0.00           | 0.00           | 0.00           | 0.73           | 0.00           | 0.00           | 0.00           | 0.00           | 0.61  |
| 46. Possibility to progress financially                            | 0.00           | 0.00           | 0.00           | 0.51           | 0.00           | 0.00           | 0.00           | 0.00           | 0.51  |
| 41. Secure in keeping current job in the next year                 | 0.00           | 0.00           | 0.00           | 0.00           | 0.93           | 0.00           | 0.00           | 0.00           | 0.91  |
| 40. Secure in still be working in one year's time                  | 0.00           | 0.00           | 0.00           | 0.00           | 0.85           | 0.00           | 0.00           | 0.00           | 0.75  |
| 42. Secure in keeping the current level of functioning             | 0.00           | 0.00           | 0.00           | 0.00           | 0.81           | 0.00           | 0.00           | 0.00           | 0.68  |
| 20. Ask colleagues for help                                        | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.72           | 0.00           | 0.00           | 0.63  |
| 19. Rely on colleagues when facing difficulties in work            | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.67           | 0.00           | 0.00           | 0.55  |
| 21. Get on well with colleagues                                    | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.57           | 0.00           | 0.00           | 0.40  |
| 48. Opportunity to be promoted                                     | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.55           | 0.00           | 0.39  |
| 13. Opportunities for personal growth and development              | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.54           | 0.00           | 0.61  |
| 47. Opportunities for training                                     | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.45           | 0.00           | 0.38  |
| 38. Chat with colleagues during working hours                      | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.70           | 0.58  |
| 39. Contact with colleagues as part of work                        | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.66           | 0.50  |
| Squared multiple correlation (SMC)                                 | 0.92           | 0.83           | 0.83           | 0.85           | 0.94           | 0.80           | 0.72           | 0.77           |       |
| Percentage variance                                                | 16.22          | 8.16           | 6.02           | 5.37           | 5.18           | 4.83           | 4.04           | 3.60           |       |
| Percentage covariance                                              | 30.35          | 15.27          | 11.26          | 10.05          | 9.70           | 9.04           | 7.56           | 6.74           |       |

a Factor labels: Factor<sub>1</sub> Management; Factor<sub>2</sub> Task characteristics; Factor<sub>3</sub> Overload; Factor<sub>4</sub> Rewards; Factor<sub>5</sub> Job security;

Factor<sub>6</sub> Social Support; Factor<sub>7</sub> Advancement Factor<sub>8</sub> Contact: Colleagues

The eight extracted factors accounted for 53.42% of the total variance in the data. With a cutoff of 0.45 for inclusion of a variable in interpretation of a factor, four of 48 variables did not load on the three factors.

The first factor was labelled *Management*. Items loading on this factor relate to management in the institution. It involves perceptions of the relationship with supervisor, the receiving of sufficient information regarding responsibilities, work results, purpose of work and work performance, clear expectations from superiors and peers, as well as involvement in the decision-making processes. The second factor was labelled *Task Characteristics* and involves feelings of work achievement, independent thoughts and action, participation in planning work, work variety and freedom to use own initiative. The third factor was labelled *Overload*. The items that loaded on this factor include aspects such as time pressure, attentiveness to too many things at the same time, too much work to do and exposure to difficult clients and situations. The fourth factor was labelled *Rewards*. It involved perceptions of pay and the ability to progress financially. The fifth factor was labelled *Job security*. This factor reflected respondents' indications that they were secure in keeping their current job in the next year, that they would still be working in one year's time and would keep the current level of functioning. The sixth factor was labelled *Social support* and included items such as relying on colleagues and the supervisor when facing difficulties at work, asking colleagues for help and getting on well with colleagues. The seventh factor was labelled *Advancement* and included opportunities for growth, development and promotion. Factor eight was labelled *Contact: Colleagues* and measured whether sufficient contact opportunities with colleagues existed in the work context. Due to the fact that only two items loaded on this factor it was decided to eliminate it from the subsequent statistical analysis of the JCS in this study.

The results of the factor analysis for the Affectometer are shown in Table 2. Loadings of variables on factors, communalities and percentage of variance and covariance are shown. Variables are ordered and grouped by size of loading to facilitate interpretation. Loadings under 0,45 (20% of variance are replaced by zero's. Labels for each factor are indicated in a footnote.

Table 2

*Factor Loadings, Communalities ( $h^2$ ), Percentage Variance and Covariance for Oblique Factor Extraction and Promax Rotation on the Affectometer*

| Item                                                   | $F_1^a$ | $F_2$ | $h^2$ |
|--------------------------------------------------------|---------|-------|-------|
| 19. I think clearly and creatively                     | 0,74    | 0,00  | 0,56  |
| 17. I smile and laugh a lot                            | 0,69    | 0,00  | 0,48  |
| 5. I like myself                                       | 0,63    | 0,00  | 0,40  |
| 15. I have energy to spare                             | 0,58    | 0,00  | 0,34  |
| 1. My life is on the right track                       | 0,70    | 0,00  | 0,51  |
| 11. I feel close to people around me                   | 0,63    | 0,00  | 0,41  |
| 13. I feel I can do whatever I want to                 | 0,56    | 0,00  | 0,32  |
| 3. My future looks good                                | 0,65    | 0,00  | 0,45  |
| 9. I feel loved and trusted                            | 0,66    | 0,00  | 0,48  |
| 7. I can handle problems that come up                  | 0,54    | 0,00  | 0,29  |
| 18. Nothing seems very much fun anymore                | 0,00    | 0,67  | 0,45  |
| 12. Lost interest and don't care about other people    | 0,00    | 0,61  | 0,38  |
| 4. I feel as though the best years of my life are over | 0,00    | 0,64  | 0,42  |
| 2. I wish I can change some part of my life            | 0,00    | 0,61  | 0,38  |
| 16. I can't be bothered about anything                 | 0,00    | 0,46  | 0,25  |
| 14. Life feels stuck in a rut                          | 0,00    | 0,69  | 0,59  |
| 8. I feel like a failure                               | 0,00    | 0,64  | 0,48  |
| 10. I seem to be left alone when I don't want to be    | 0,00    | 0,51  | 0,27  |
| 6. I feel there must be something wrong with me        | 0,00    | 0,61  | 0,44  |
| 20. My thoughts go around in circles                   | 0,00    | 0,51  | 0,27  |

|                                           |       |       |
|-------------------------------------------|-------|-------|
| <b>Squared Multiple Correlation (SMC)</b> | 0,88  | 0,84  |
| <b>Percentage variance</b>                | 28,65 | 24,60 |
| <b>Percentage covariance</b>              | 53,80 | 46,20 |

<sup>a</sup> Factor labels:

$F_1$  Positive Affectivity;  $F_2$  Negative Affectivity

Principal components extraction through SAS FACTOR was used to estimate the number of factors of the Affectometer 2 from eigenvalues. Inspection of Table 2 shows that two factors were extracted. As indicated by the SMC's, both factors were internally consistent and well defined by the variables. Communality values, as seen in Table 2, tended to be moderate. With a cut-off point of 0,45 for inclusion of a variable in the interpretation of a factor, all 20 variables load on the two factors. When oblique rotation was requested, factors interpreted as Positive Affectivity and Negative Affectivity correlated -0,46. An oblique rotation (using Promax) was subsequently carried out on the two factors.

In Table 3 the descriptive statistics, Cronbach alpha coefficients and the inter-item correlation coefficients of the MBI-GS, UWES, ASSET (Physical and psychological health), JCS, and the Affectometer 2 are given.

Table 3

*Descriptive Statistics, Alpha Coefficients and Inter-Item Correlations of the Measuring Instruments*

| Item                    | Mean  | SD    | Skewness | Kurtosis | r(Mean) | A    |
|-------------------------|-------|-------|----------|----------|---------|------|
| <b>MBI-GS</b>           |       |       |          |          |         |      |
| Exhaustion              | 11,32 | 6,37  | 0,13     | -0,90    | 0,58    | 0,85 |
| Cynicism                | 8,03  | 5,46  | 0,41     | -0,20    | 0,37    | 0,70 |
| Professional Efficacy   | 23,34 | 5,03  | -0,80    | 0,25     | 0,28    | 0,66 |
| Cognitive Weariness     | 9,50  | 6,10  | 0,47     | -0,38    | 0,39    | 0,76 |
| <b>UWES</b>             |       |       |          |          |         |      |
| Vigour (VI)             | 19,63 | 6,90  | -0,53    | -0,51    | 0,51    | 0,84 |
| Dedication (DE)         | 21,54 | 7,13  | -0,62    | -0,56    | 0,59    | 0,88 |
| Absorption (AB)         | 19,66 | 6,10  | -0,47    | -0,12    | 0,33    | 0,70 |
| <b>Health Subscales</b> |       |       |          |          |         |      |
| Physical Health         | 15,11 | 4,34  | -0,21    | -0,88    | 0,39    | 0,80 |
| Psychological Health    | 25,36 | 7,61  | 0,22     | -0,74    | 0,41    | 0,90 |
| <b>JCS</b>              |       |       |          |          |         |      |
| Management              | 41,31 | 10,51 | -0,15    | -0,93    | 0,50    | 0,94 |
| Task Characteristics    | 19,60 | 4,64  | -0,22    | -0,68    | 0,44    | 0,84 |
| Overload                | 19,27 | 3,73  | 0,12     | -0,23    | 0,33    | 0,80 |
| Rewards                 | 7,90  | 2,80  | 0,65     | -0,11    | 0,54    | 0,82 |
| Job Security            | 8,15  | 9,10  | -0,18    | -1,10    | 0,78    | 0,91 |
| Social Support          | 9,13  | 2,10  | -0,37    | -0,50    | 0,56    | 0,79 |
| Advancement             | 6,95  | 2,18  | 0,42     | -0,51    | 0,39    | 0,65 |
| <b>Affectometer</b>     |       |       |          |          |         |      |
| Positive Affectivity    | 35,79 | 7,10  | -0,19    | -0,50    | 0,41    | 0,87 |
| Negative Affectivity    | 21,16 | 6,90  | 0,58     | -0,04    | 0,37    | 0,85 |

Table 3 shows that acceptable Cronbach alpha coefficients were obtained for most of the scales, except for the Professional Efficacy scale of the MBI-GS and Advancement of the JCS, which were below the 0,70 guideline provided by Nunnally and Bernstein (1994). The mean inter-item correlations of most of the scales are acceptable ( $0,15 \leq r \leq 0,50$ , Clark & Watson, 1995). The inter-item correlations of six scales, namely Exhaustion, Vigour, Dedication, Rewards, Job Security and Social Support are somewhat high. It is evident from Table 3 that most of the scales of the measuring instruments have relatively normal distributions, with low skewness and kurtosis. It appears that the MBI-GS, UWES, ASSET

(two scales), JCS and Affectometer 2 have acceptable internal consistency and could therefore be viewed as suitable for use in the current research.

The product-moment correlation coefficients between burnout, engagement, job characteristics, health and affectivity are given in Table 4.

Table 4

*Product-Moment Correlation Coefficients of the MBI-GS, UWES, JCS, Health Subscales of ASSET and Affectometer*

| Burnout                 | 1       | 2       | 3      | 4       | 5       | 6      | 7      | 8       | 9       | 10     | 11      | 12    | 13      | 14     | 15      | 16     | 17     |
|-------------------------|---------|---------|--------|---------|---------|--------|--------|---------|---------|--------|---------|-------|---------|--------|---------|--------|--------|
| 1 Exhaustion            |         |         |        |         |         |        |        |         |         |        |         |       |         |        |         |        |        |
| 2 Cynicism              | 0.66**  |         |        |         |         |        |        |         |         |        |         |       |         |        |         |        |        |
| 3 Professional Efficacy | -0.09** | 0.45**  |        |         |         |        |        |         |         |        |         |       |         |        |         |        |        |
| 4 Cognitive Weariness   | 0.29**  | 0.54**  | 0.21** |         |         |        |        |         |         |        |         |       |         |        |         |        |        |
| 5 Strain                | -0.63** | -0.67** | 0.64** | -0.67** |         |        |        |         |         |        |         |       |         |        |         |        |        |
| 6 Dedication            | -0.26*  | 0.39**  | 0.30** | -0.43** | 0.19**  |        |        |         |         |        |         |       |         |        |         |        |        |
| 7 Absorption            | 0.01    | -0.12*  | 0.06** | -0.26*  | 0.63**  | 0.63** |        |         |         |        |         |       |         |        |         |        |        |
| 8 Physical Health       | 0.23**  | 0.23**  | -0.17* | 0.66**  | -0.35** | 0.24*  | 0.06   |         |         |        |         |       |         |        |         |        |        |
| 9 Psychological Health  | 0.64**  | 0.49**  | 0.52** | 0.67**  | -0.58** | 0.62** | -0.17* | 0.76**  |         |        |         |       |         |        |         |        |        |
| 10 Management           | -0.35** | -0.46** | 0.16*  | 0.30*   | 0.50**  | 0.37** | 0.25** | -0.36** |         |        |         |       |         |        |         |        |        |
| 11 Task Characteristics | 0.20*   | -0.30** | 0.51** | 0.26*   | 0.50**  | 0.65** | 0.46** | 0.01    | -0.23*  | 0.42** |         |       |         |        |         |        |        |
| 12 Overload             | 0.50**  | 0.22*   | 0.14*  | 0.30**  | 0.13*   | -0.03  | 0.14*  | 0.05**  | 0.34**  | -0.26* | 0.09    |       |         |        |         |        |        |
| 13 Reward               | 0.23*   | 0.21*   | 0.06   | 0.09    | 0.15*   | 0.31*  | 0.13*  | 0.30*   | -0.13*  | 0.17*  | 0.24*   | 0.19* |         |        |         |        |        |
| 14 Job Involvement      | 0.13*   | 0.24*   | -0.14* | 0.13*   | -0.23*  | -0.14* | 0.14*  | 0.22*   | 0.16*   | -0.15* | -0.12*  | 0.14* | -0.21*  |        |         |        |        |
| 15 Social Support       | 0.25*   | 0.30**  | 0.14*  | -0.23*  | 0.44**  | 0.34*  | 0.14*  | 0.24*   | -0.36** | 0.41** | 0.13*   | 0.11* | 0.30*   | 0.02   |         |        |        |
| 16 Satisfaction         | 0.14*   | -0.26*  | 0.20*  | -0.17*  | 0.20*   | 0.43** | 0.19*  | -0.05   | -0.14*  | 0.48** | 0.30**  | 0.05  | 0.40**  | 0.05   | 0.21*   |        |        |
| 17 Positive Affectivity | 0.23**  | 0.30**  | 0.42** | -0.61** | 0.60**  | 0.44** | 0.26*  | 0.40**  | -0.63** | 0.33** | 0.13**  | 0.24* | 0.20*   | -0.43* | 0.44**  | 0.23*  |        |
| 18 Negative Affectivity | 0.41**  | 0.57**  | 0.34** | 0.45**  | -0.51** | 0.44** | 0.26*  | 0.45**  | 0.53**  | 0.37** | -0.36** | 0.22* | -0.11** | 0.13** | -0.31** | -0.36* | 0.50** |

\*  $p \leq 0.05$  – statistically significant

+  $r > 0.30$  – practically significant (Medium effect)

++  $r > 0.50$  – practically significant (Large effect)

\* See Appendix 1 for enlarged version of Table 4

Upon inspection of Table 4, it is evident that as far as the burnout scales are concerned, Exhaustion, Cynicism and Cognitive Weariness are positively related to each other, strain (Physical Health and Psychological Health) and Negative Affectivity and on one subscale to Overload, but negatively related to Professional Efficacy, Positive Affectivity and job resources (e.g. Management, Social Support, Task Characteristics). Professional Efficacy is significantly positively related to engagement (Vigour, Dedication, Absorption), job resources (Task Characteristics, Management, Social Support) and Positive Affectivity, and negatively related to Psychological Health, and Negative Affectivity.

Focusing on the engagement scales it become evident that Vigour, Dedication and Absorption are significantly positively related to job resources (Management, Task

Characteristics, Social Support, Advancement) and Positive Affectivity and significantly negatively related to strain (Physical Health and Psychological Health) and Negative Affectivity.

In this study strain is portrayed by Physical and Psychological Health, which are significantly positively related to each other and Negative Affectivity, and positively related to Positive Affectivity and Overload. Psychological Health is also negatively related (medium effect) to job resources (Management, Social Support).

Next, a model based upon the results of the product-moment correlations as well as consensus of findings based on a review of the wellness literature with specific bearing on the higher education context was tested with SEM analysis. After various attempts and all possible measures to achieve better fit statistics were exhausted, only mediocre fit for the revised model could be attained. The researchers then decided to revert back to stepwise regression analysis.

Consequently a series of stepwise regression analyses were carried out to identify the predictors of burnout and engagement of employees at a higher education institution. For these analyses, the three dimensions of burnout that are reflective of the negative impact of burnout, namely Exhaustion, Cynicism, and Cognitive Weariness, were used as indicators of burnout. The Professional Efficacy dimension of the MBI-GS was combined with the three dimensions of the UWES, namely Vigour, Dedication, and Absorption, to give a comprehensive view of engagement. Table 5 presents the regression analysis of the burnout dimensions and their relation to each other, strain (Physical and Psychological Health) affectivity (Positive and Negative Affectivity), job demands (Overload), and job resources (Management, Task Characteristics, Social Support, Rewards and Job Security). Based on the Cronbach Alpha Coefficients reflected in Table 3 it was decided to eliminate the Advancement dimension ( $\alpha = 0,65$ ) of the JCS.

**Table 5**  
*Regression Analysis of Burnout*

| <b>VARIANCE ANALYSIS: EXHAUSTION</b>          |                           |                            |                       |                     |
|-----------------------------------------------|---------------------------|----------------------------|-----------------------|---------------------|
| $F = 131,55$                                  | <b>Source of Variance</b> | <b>Degrees of Freedom</b>  | <b>Sum of Squares</b> | <b>Means Square</b> |
| $f^2 = 1,08^*$                                | Model                     | 3                          | 7788,41               | 2596,14             |
| $R = 0,72$                                    | Error                     | 368                        | 7262,52               | 19,74               |
| $R^2 = 0,52$                                  |                           |                            |                       |                     |
| <b>VARIABLES IN THE EQUATION</b>              |                           |                            |                       |                     |
| <b>Independent Variables</b>                  | <b>B</b>                  | <b>Standard Error of B</b> | <b>F</b>              | <b>p</b>            |
| Intercept                                     | 10,22                     | 2,03                       | 25,23                 | < 0,0001            |
| Management                                    | -0,07                     | 0,02                       | 9,06                  | 0,0028              |
| Overload                                      | 0,82                      | 0,06                       | 164,38                | < 0,0001            |
| Positive Affectivity                          | -0,33                     | 0,04                       | 84,22                 | < 0,0001            |
| <b>VARIANCE ANALYSIS: CYNICISM</b>            |                           |                            |                       |                     |
| $F = 88,00$                                   | <b>Source of Variance</b> | <b>Degrees of Freedom</b>  | <b>Sum of Squares</b> | <b>Means Square</b> |
| $f^2 = 0,96^*$                                | Model                     | 4                          | 5419,29               | 1354,82             |
| $R = 0,70$                                    | Error                     | 367                        | 5650,32               | 15,40               |
| $R^2 = 0,49$                                  |                           |                            |                       |                     |
| <b>VARIABLES IN THE EQUATION</b>              |                           |                            |                       |                     |
| <b>Independent Variables</b>                  | <b>B</b>                  | <b>Standard Error of B</b> | <b>F</b>              | <b>p</b>            |
| Intercept                                     | 5,98                      | 1,41                       | 18,12                 | < 0,0001            |
| Exhaustion                                    | 0,21                      | 0,04                       | 34,67                 | < 0,0001            |
| Task Characteristics                          | -0,38                     | 0,05                       | 65,16                 | < 0,0001            |
| Job Security                                  | 0,19                      | 0,07                       | 7,06                  | 0,0082              |
| Negative Affectivity                          | 0,26                      | 0,04                       | 55,07                 | < 0,0001            |
| <b>VARIANCE ANALYSIS: COGNITIVE WEARINESS</b> |                           |                            |                       |                     |
| $F = 85,77$                                   | <b>Source of Variance</b> | <b>Degrees of Freedom</b>  | <b>Sum of Squares</b> | <b>Means Square</b> |
| $f^2 = 0,69^*$                                | Model                     | 3                          | 5591,61               | 1863,87             |
| $R = 0,64$                                    | Error                     | 368                        | 7997,39               | 21,73               |
| $R^2 = 0,41$                                  |                           |                            |                       |                     |
| <b>VARIABLES IN THE EQUATION</b>              |                           |                            |                       |                     |
| <b>Independent Variables</b>                  | <b>B</b>                  | <b>Standard Error of B</b> | <b>F</b>              | <b>p</b>            |
| Intercept                                     | 18,07                     | 2,61                       | 47,82                 | < 0,0001            |
| Overload                                      | 0,25                      | 0,07                       | 13,71                 | 0,0002              |
| Positive Affectivity                          | -0,43                     | 0,04                       | 103,12                | < 0,0001            |
| Negative Affectivity                          | 0,10                      | 0,04                       | 5,43                  | 0,0203              |

\* Practically significant:  $f^2 \geq 0,35$  (large effect)

Table 5 indicate that 52% of the variance with regard to Exhaustion (as measured by the adapted MBI-GS) was explained by the JCS dimensions of Management and Overload, and the Positive Affectivity dimension of the Affectometer 2. The multiple correlation of 0,72 is practically significant ( $f^2 = 1,08$ , large effect). Table 5 further indicate that Overload

(34,91%), low Positive Affectivity (15,65%), and poor Management (1,19%) are the best indicators of exhaustion (as measured by the MBI).

Table 5 further indicate that 49% of the variance with regard to Cynicism (as measured by the adapted MBI-GS) was explained by exhaustion (as measured by the MBI) and the JCS dimensions of Task Characteristics and Job Security, and the Negative Affectivity dimension of the Affectometer 2. The multiple correlation of 0,70 is practically significant ( $f^2 = 0,96$ , large effect). Negative Affectivity (33%), Task Characteristics (10%), Exhaustion (5%) and Job Security (1%) are the best indicators of cynicism.

With regard to Cognitive Weariness (as measured by the adapted MBI-GS), Table 5 indicate that 41% of the variance was explained by Overload, and Positive and Negative Affectivity. The multiple correlation of 0,64 is practically significant ( $f^2 = 0,69$ , large effect). Low Positive Affectivity (37%), Overload (3%), and Negative Affectivity (1%) are the best predictors of Cognitive Weariness (as measured by the MBI).

Table 6 presents the regression analysis of the engagement dimensions as reflected by Professional Efficacy (as measured by the adapted MBI-GS), Vigour, Dedication and Absorption (as measured by the UWES) and their relation to strain (Physical and Psychological Health), affectivity (Positive and Negative Affectivity), job demands (Overload), and job resources (Management, Task Characteristics, Social Support, Rewards and Job Security).

Table 6  
*Regression Analysis of Engagement*

| VARIANCE ANALYSIS: PROFESSIONAL EFFICACY                  |                    |                     |                |              |
|-----------------------------------------------------------|--------------------|---------------------|----------------|--------------|
| $F = 48.80$                                               | Source of Variance | Degrees of Freedom  | Sum of Squares | Means Square |
| $f^2 = 0,54$                                              | Model              | 4                   | 3261,20        | 815,30       |
| $R = 0,59$                                                | Error              | 367                 | 6131,80        | 16,71        |
| $R^2 = 0,35$                                              |                    |                     |                |              |
| VARIABLES IN THE EQUATION                                 |                    |                     |                |              |
| Independent Variables                                     | B                  | Standard Error of B | F              | p            |
| Intercept                                                 | 7,42               | 1,32                | 31,54          | < 0,0001     |
| Task Characteristics                                      | 0,45               | 0,05                | 79,96          | < 0,0001     |
| Rewards                                                   | -0,18              | 0,08                | 5,36           | 0,0211       |
| Social Support                                            | 0,23               | 0,12                | 4,05           | 0,0448       |
| Positive Affectivity                                      | 0,18               | 0,04                | 25,85          | < 0,0001     |
|                                                           |                    |                     |                |              |
| VARIANCE ANALYSIS: VIGOUR                                 |                    |                     |                |              |
| $F = 53.63$                                               | Source of Variance | Degrees of Freedom  | Sum of Squares | Means Square |
| $f^2 = 1,04$                                              | Model              | 7                   | 8841,72        | 1263,10      |
| $R = 0,71$                                                | Error              | 364                 | 8572,56        | 23,55        |
| $R^2 = 0,51$                                              |                    |                     |                |              |
| VARIABLES IN THE EQUATION                                 |                    |                     |                |              |
| Independent Variables                                     | B                  | Standard Error of B | F              | p            |
| Intercept                                                 | 1,09               | 2,77                | 0,15           | 0,6956       |
| Management                                                | 0,09               | 0,03                | 7,97           | 0,0050       |
| Task Characteristics                                      | 0,31               | 0,07                | 18,65          | < 0,0001     |
| Rewards                                                   | -0,20              | 0,10                | 4,06           | 0,0445       |
| Job Security                                              | -0,20              | 0,09                | 4,92           | 0,0272       |
| Social Support                                            | 0,42               | 0,14                | 8,75           | 0,0033       |
| Positive Affectivity                                      | 0,31               | 0,05                | 43,19          | < 0,0001     |
| Negative Affectivity                                      | -0,15              | 0,05                | 9,04           | 0,0028       |
|                                                           |                    |                     |                |              |
| VARIANCE ANALYSIS: DEDICATION                             |                    |                     |                |              |
| $F = 100.98$                                              | Source of Variance | Degrees of Freedom  | Sum of Squares | Means Square |
| $f^2 = 1,08$                                              | Model              | 4                   | 9870,28        | 2467,57      |
| $R = 0,72$                                                | Error              | 367                 | 8968,03        | 24,44        |
| $R^2 = 0,52$                                              |                    |                     |                |              |
| VARIABLES IN THE EQUATION                                 |                    |                     |                |              |
| Independent Variables                                     | B                  | Standard Error of B | F              | p            |
| Intercept                                                 | -1,62              | 2,61                | 0,39           | 0,5352       |
| Management                                                | 0,13               | 0,03                | 15,22          | 0,0001       |
| Task Characteristics                                      | 0,66               | 0,07                | 83,32          | < 0,0001     |
| Positive Affectivity                                      | 0,20               | 0,05                | 19,48          | < 0,0001     |
| Negative Affectivity                                      | -0,10              | 0,05                | 4,68           | 0,0311       |
|                                                           |                    |                     |                |              |
| * Practically significant: $f^2 \geq 0.35$ (large effect) |                    |                     |                |              |

\* Practically significant:  $f^2 \geq 0.35$  (large effect)

Table 6 (continued)  
*Regression Analysis of Engagement*

| VARIANCE ANALYSIS: ABSORPTION |                    |                     |                |              |
|-------------------------------|--------------------|---------------------|----------------|--------------|
| $F = 54,18$                   | Source of Variance | Degrees of Freedom  | Sum of Squares | Means Square |
| $f^2 = 0,28$                  | Model              | 2                   | 3131,40        | 1565,70      |
| $R = 0,47$                    | Error              | 369                 | 10664          | 28,90        |
| $R^2 = 0,22$                  |                    |                     |                |              |
| VARIABLES IN THE EQUATION     |                    |                     |                |              |
| Independent Variables         | B                  | Standard Error of B | F              | p            |
| Intercept                     | 11,42              | 1,82                | 39,15          | < 0,0001     |
| Task Characteristics          | 0,54               | 0,06                | 71,91          | < 0,0001     |
| Negative Affectivity          | -0,12              | 0,04                | 7,02           | 0,0084       |

\* Practically significant:  $f^2 \geq 0,35$  (large effect)

The statistics in Table 6 indicates that 35% of the variance with regard to Professional Efficacy (as measured by the adapted MBI-GS) was explained by Task Characteristics, Rewards and Social Support (as measured by the JCS) and Positive Affectivity (as measured by the Affectometer 2). The multiple correlation of 0,59 is practically significant ( $f^2 = 0,54$ , large effect). Task Characteristics (26%), Positive Affectivity (7%), Social Support (1%), negative perceptions regarding Rewards (1%) are the best predictors of Professional Efficacy (as measured by the adapted MBI-GS).

Table 6 further shows that 51% of the variance with regard to Vigour (as measured by the UWES) was explained by the JCS dimensions of Management, Task Characteristics, Rewards, Job Security and Social Support, and Positive and Negative Affectivity (as measured by the Affectometer 2). The multiple correlation of 0,71 is practically significant ( $f^2 = 1,04$ , large effect). Positive Affectivity (36%), Task Characteristics (9%), Management (2%), low levels of Negative Affectivity (2%) Social Support (1%), lack of Rewards (0,5%), lack of Job Security (0,5%) are the best predictors of Vigour (as measured by the UWES).

With regard to Dedication (as measured by the UWES), Table 6 indicates that 52% of the variance was explained by the JCS dimensions of Management, Task Characteristics, and Positive and Negative Affectivity (as measured by the Affectometer 2). The multiple correlation of 0,72 is practically significant ( $f^2 = 1,08$ , large effect). Task Characteristics (42%), Positive Affectivity (7%), Management (2%), and low levels of Negative Affectivity (1%) are the best predictors of Dedication (as measured by the UWES).

With regard to Absorption (as measured by the UWES), Table 6 shows that 22% of the variance was explained by the JCS dimension of Management, and Negative Affectivity (as measured by the Affectometer 2). The multiple correlation of 0,47, is practically significant (medium effect,  $f^2 = 0,28$ ). Task Characteristics (21%), and low levels of Negative Affectivity (1%) are the best predictors of Absorption (as measured by the UWES).

Based on these findings, support was found for Hypothesis 1, 2 and 3. Unfortunately specifics regarding the interactivity of the different variables as depicted by a causal model could not be verified due to the difficulty experienced with the goodness of fit statistics of the hypothesised model.

## DISCUSSION

It was the objective of this study to develop and test a causal model of wellness for employees of a higher education institution in South Africa, comprising of engagement, burnout, strain, job characteristics, and affectivity.

The analysis of Pearson correlations in this study showed that, as far as burnout is concerned, exhaustion, cynicism and cognitive weariness are positively related to each other, to strain (physical- and psychological health) and to negative affectivity, but negative related to professional efficacy and positive affectivity. Professional efficacy is negatively related to the psychological health dimension of strain. Exhaustion and cognitive weariness is positively related to job demands (overload). Findings in the literature seem to support the notion that stressful job demands are related to exhaustion, while occupational stress due to a lack of job resources is related to cynicism (Demerouti et al. 2001, Storm & Rothmann, 2003). It is interesting to note that both cynicism and professional efficacy were not related to job demands (overload). Based on the findings of Jansen, Schaufeli and Houkes (1999), this result could be attributed to the fact that the burnout process evolves differently as far as the three burnout dimensions are concerned.

As far as burnout and job resources are concerned, exhaustion and cognitive weariness is negatively related to management and cynicism to three of the job resources dimensions (task characteristics, management and social support). In this regard, Van Emmerick (2002) found that coping assistance from both the supervisor and colleagues, together with a supportive

departmental climate and practical assistance in the department reduced both exhaustion and dissatisfaction. Professional efficacy is significantly positively related to three job resource dimensions (task characteristics, management, and social support). Exhaustion, cynicism and cognitive weariness are positively related to negative affectivity and negatively related to positive affectivity, while exactly the opposite relations is valid regarding professional efficacy and positive- and negative affectivity. This finding can be suspected if compared to the literature (Church, 1994; Spielberger et al., 1970).

The three engagement scales (vigour, dedication, absorption) is positively related to each other and to professional efficacy. This is in line with the findings of Schaufeli et al. (2002) Three job resources dimensions (management, task characteristics, social support) were positively related to vigour, four (management, task characteristics, social support, advancement) to dedication, and two (management, task characteristics) to absorption. Vigour and dedication were positively related to positive affectivity and negatively to negative affectivity. Vigour was also negatively related to ill health, while dedication was negatively related to only the psychological health dimension. These results confirm the findings of Schaufeli and Bakker (2002) that job resources are related to work engagement.

The two strain scales, physical and psychological health, are positively related to each other and to exhaustion, cynicism, cognitive weariness, overload and negative affectivity, and negatively related to professional efficacy, vigour and positive affectivity. Psychological Health was negatively related to two job resources dimensions (Management, Social Support). These findings seem to correlate with literature that associated occupational stress with physical as well as psychological ill-health (Ho, 1997; Ryff & Singer, 1998). Research also indicates that high levels of negative affectivity increase susceptibility to the experience of psychological strain and other negative outcomes of stress such as negative emotions and adversarial social relationships (Burke et al., 1993; Spector & O'Connell, 1994), whereas positive affectivity is associated with high generalized self-efficacy, subjective well-being and positive social relationships (Church, 1994; Spielberger et al., 1970).

Regression analysis of the burnout dimensions Exhaustion, Cynicism, and Cognitive Weariness indicated that Overload was the best predictor of Exhaustion. The regression equation of Exhaustion can be writtend as:  $10,22 - 0,07 (\text{Management}) + 0,82 (\text{Overload}) - 0,33 (\text{Positive Affectivity})$ . These variables predicted 52% of the variance of Exhaustion.

Negative affectivity (33%) was the best indicator of Cynicism. The regression equation of Cynicism =  $5,98 + 0,21$  (Exhaustion)  $- 0,38$  (Task Characteristics)  $+ 0,19$  (Job Security)  $+ 0,26$  (Negative Affectivity). These variables predicted 49% of the variance in Cynicism. The regression equation of Cognitive Weariness can be formulated as:  $18,07 + 0,25$  (Overload)  $- 0,43$  (Positive Affectivity)  $+ 0,10$  (Negative Affectivity). These variables predicted 41% of the variance of Cognitive Weariness. The best indicator of Cognitive Weariness was low Positive Affectivity (37%).

Based on the regression analysis of the burnout dimensions that reflect the enervating side of employee wellness, it can be concluded that burnout as depicted by Exhaustion and Cognitive Weariness of employees at a higher education institution can be best predicted by Overload, Negative Affectivity and lack of Positive Affectivity. These findings are in line with the literature that suggested that job demands (Overload) leads to higher levels of the two exhaustion dimensions of burnout (i.e. Exhaustion and Cognitive Weariness) (Demerouti et al., 2001; Schaufeli & Bakker, 2002). The low levels of Positive Affectivity that contribute to these two dimensions also concur with the literature that suggested that high levels of Positive Affectivity will serve a buffering effect in dealing with workplace stressors (Kobasa, 1979; McCrae & Costa, 1987), i.e. low levels of Positive Affectivity will aggravate the effect of workplace stressors on the individual. Dissatisfaction regarding Management also play a contributing role.

If an employee experience problems regarding the way he/she is managed, it can also contribute to exhaustion because of lack of clear goals set by those in managerial positions resulting in additional work that again contribute to overload and the vicious circle of exhaustion, cognitive weariness and burnout. Cynicism is mainly the result of problems regarding Negative Affectivity, Task Characteristics, and Exhaustion of employees. Job Security does also seem to play a minor role. Based on the findings of Jansen, Schaufeli and Houkes (1999), this result could be attributed to the fact that the burnout process evolves differently as far as the three burnout dimensions are concerned, and as a result cynicism might rather be the result of dissatisfaction with job resources and exhaustion and cognitive weariness the result of job demands. People high in trait Negative Affectivity tend to experience and report high levels of subjective stress and strain outcomes (Burke, Brief & George, 1993; Spector & O'Connell, 1994), therefore the contributing effect of this aspect to Cognitive Weariness can be expected.

In the literature Negative Affectivity predicted low social support and job satisfaction and high levels of emotional exhaustion and depersonalisation. In this study it was found that mainly Cynicism and to a lesser extent Cognitive Weariness were the result of Negative Affectivity. Dissatisfaction with Task Characteristics (i.e. the content of the job), Exhaustion and Job Security also played a contributing role in the development of Cynicism. Interesting is that a generally positively perceived aspect such as Job Security, contribute to Cynicism, which indicate that job security combined with the aggravating effects of aspects such as lack of job satisfaction, negative affectivity, and exhaustion can contribute to cynical emotions. This is important to note because it indicate that negative aspects not only contribute to burnout, but that it is also important to look at the relation of and interplay between those negatives and other seemingly positive aspects. These results leave a strong confirming suspicion regarding the possible moderating effects of affectivity on burnout, but due to the problems experienced with the fit statistics of the model, this aspect cannot be proven in this research.

Regression analysis of the engagement dimensions namely Professional Efficacy, Vigour, Dedication, and Absorption indicated that the best indicator of Professional Efficacy is Task Characteristics (26%). The regression equation of Professional Efficacy can be formulated as:  $7,42 + 0,45 (\text{Task Characteristics}) - 0,18 (\text{Rewards}) + 0,23 (\text{Social Support}) + 0,18 (\text{Positive Affectivity})$ . These variables predict 35% of the variance of Professional Efficacy.

The best indicator of Vigour is Positive Affectivity (35%). The regression equation of Vigour =  $1,09 + 0,09 (\text{Management}) + 0,31 (\text{Task Characteristics}) - 0,20 (\text{Rewards}) - 0,20 (\text{Job Security}) + 0,42 (\text{Social Support}) + 0,31 (\text{Positive Affectivity}) - 0,15 (\text{Negative Affectivity})$ . These variables predicted 51% of the variance of Vigour. The regression equation of Dedication can be formulated as:  $-1,62 + 0,13 (\text{Management}) + 0,66 (\text{Task Characteristics}) + 0,20 (\text{Positive Affectivity}) - 0,10 (\text{Negative Affectivity})$ . These variables predicted 52% of the variance of Dedication. The best indicator of Dedication was Task Characteristics (42%). The best indicator of Absorption was Task Characteristics (21%). The regression equation of Absorption =  $11,42 + 0,54 (\text{Task Characteristics}) - 0,12 (\text{Negative Affectivity})$ . These variables predicted 22% of the variance of Absorption.

Based on the regression analysis of engagement (Vigour, Dedication and Absorption) and the one burnout dimension (Professional Efficacy) that reflect the positive side of employee wellness, it can be concluded that engagement is mainly a result of job resources (predominantly Task Characteristics, and to a lesser extent Social Support and Management) and high levels of trait positive affectivity. This concurs with the literature on the JD-R model (Demerouti et al., 2001) and the COBE model (Schaufeli & Bakker, 2002) that suggested that job resources will lead to higher levels of engagement. Dispositional positive affectivity on the other hand, is consistent with such personality traits as hardiness and dispositional optimism (Roskies, Louis-Guerin & Fournier, 1993), and reflects the extent to which a person is characterised by high energy levels, full concentration and pleasurable engagement (Watson, Clark & Tellegen, 1988). In the literature Positive Affectivity was associated with higher levels of personal accomplishment, greater autonomy and lower absenteeism (Iverson et al., 1998). This will also be the reason why this study reflects that low levels of Negative Affectivity can be associated with engagement. It is again interesting to note that lower levels of Job Security and Rewards contribute to engagement and in this research specifically the Vigour dimension of engagement. It can be concluded that the interplay between different job resources would present a better picture of engagement in total, and that aspects such as job security and reward might in some instances, especially where the enhancing aspects of Task Characteristics, Social Support and Management are present, result in the erosion of engagement rather than contributing to the enhancement thereof.

A first limitation of this study was the problems that were experienced with attempts to fit the data of the population with the proposed model. In the end the researchers had to revert back to regression analysis as an alternative to model building. Difficulty can be attributed to a few factors. The proposed model is very complex and all the correlations proved to be significant. The concept of engagement is also rather new and might need further refinement before it can be successfully included in a model. Another reason for this difficulty might be in the fact that quite a few items in the different questionnaires are very closely related in meaning. This repetition might have contributed to the mediocre fit statistics.

Other limitations of the present study include the use of a cross-sectional survey design, which makes it difficult to prove causal relationships. The use of other designs, such as longitudinal designs can aid in establishing causality. The use of advanced analytical procedures, such as structural equation modelling made the description of possible causal

relationships possible, but especially with the problems reported in the fit statistics of this research, the use of other analytical procedures like factor analysis could prove to be more useful in models of such complexity. Another limitation is the exclusive use of self-report measures, a strategy often associated with method variance. A further limitation is sample size and sampling method. In the present study, only employees of one higher education institution were included and an availability sampling method was used. Consequently, generalising the results to all higher education institutions cannot be done.

The present study seems to highlight the use of objective measurement of burnout, engagement, affectivity, job demands and job resources by measuring their objective qualities and strain separately. There was also a distinction between the objective experience of strain, namely physical and psychological health symptoms and between the objective demands of the job and the availability of resources. However, an aspect deserving attention concerns the causality of relationships described in the present study. The current findings cannot serve to explain the sequential process of the experience of employee wellness. Consequently, pressing issues about the place of the variables used in this study and their role in the transaction between employees and their environment are left unanswered. Transactional issues, however, add another dimension to the current research perspective. These variables could also be studied and validated according to specific situations – different situations might yield different responses and behavioural patterns regarding work wellness of employees. This approach could lead to a better understanding of the wellness of employees in higher education institutions.

## **RECOMMENDATIONS**

In order to promote the overall wellness of employees at this institution it is important that burnout and ill health should be carefully managed, and emphasis needs to be placed on enhancing the positive aspects of wellness like engagement. This is of the utmost importance for this institution seeing that it is not really high levels of burnout that is currently resulting in disengagement from the side of the workforce. This could rather be a result of transformation, restructuring and managerial style. Of concern, however, are the high levels of physical and psychological strain experienced by the population. It is recommended that the organisation provide adequate resources for employees to deal with occupational stress

more effectively and to encourage the use of approach-focused strategies which in turn would result in the positive evaluation of the work environment and prevent the onset of burnout.

According to Roberts and Davenport (2002) there are three areas that could be targeted to increase employees' work engagement, namely career development, identification with the organisation and a rewarding work environment. It is recommended that the institution provide adequate resources for the employees to elevate their engagement levels. The institution would also benefit from keeping a close eye on the high levels of physical and psychological strain that employees are experiencing. This can be done through primary and secondary interventions directed at either the work situation or the coping capacity of employees (Kompier & Kirstensen, 2001).

In terms of future research, the development of a causal model of wellness for employees of all higher education institutions in South Africa, and possibly also Southern Africa, can make a valuable contribution to positive psychology. Future studies should also aim to make use of larger and more representative samples. The causal model, as developed in this study, in spite of its limitations, may be considered a starting point in pursuit of work wellness. However, not only does it need to be validated in future studies, but also expanded to other occupations in order to further refine and expand our understanding of work wellness. Research should also be conducted to evaluate the effectiveness of interventions to enhance employee wellness. To date, little is known regarding wellness, seeing that the era of positive psychology, introduced by Seligman and Csikszentmihalyi (2000), is still very young.

The present study tried to form a picture of a balanced view on employee wellness by including the two antitheses, namely burnout and engagement in a wellness audit. Currently little is known with regard to the prevalence and dynamics of work engagement, in stark contrast to the development of negative work-related attitudes and behaviours such as burnout. In terms of future research, studies should also be conducted to evaluate the effectiveness of interventions to enhance employee wellness. The impact and implications of affectivity on the work wellness experience is also an aspect that warrants further investigation. It is recommended that causal models of wellness with longitudinal designs be utilised with the further inclusion of various dispositional, situational and social variables. Furthermore, future research should also focus on possible causes, outcomes and underlying processes of employee wellness.

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## **CHAPTER 6**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

In this chapter, conclusions are drawn regarding the specific objectives of this study. The limitations of the research are discussed, followed by recommendations for the institution and suggestions for future research.

#### **6.1 CONCLUSIONS**

The first objective of this study was to determine the reliability and validity of the Maslach Burnout Inventory – General Survey (MBI-GS) and the Cognitive Weariness Scale for employees of a higher education institution in South Africa. Reliability analysis confirmed sufficient internal consistency of two of the MBI-GS subscales, namely exhaustion and cynicism, as well as that of the cognitive weariness scale. Even though professional efficacy's alpha coefficient (0,66) is below the guideline of 0,70 it is consistent with the findings of previous South African studies (Rothmann, Jackson & Kruger, 2003; Storm & Rothmann, 2003a). In total the adapted version of the MBI-GS seems to satisfy the requirements of homogeneity and unidimensionality.

The second objective was to investigate the possibility of a four-dimensional construct of burnout consisting of exhaustion, cynicism, professional efficacy and cognitive weariness. The results obtained using the structural equation modelling approach supported a four factor structure for the MBI-GS with exhaustion, cynicism, professional efficacy and cognitive weariness as factors. This four-factor model of burnout is a first in South African research on burnout, and consistent with the findings of Van Horn, Taris, Schaufeli and Scheurs (in press). This finding seems to prove that burnout is a more comprehensive concept than that originally measured by the MBI-GS, and correlates with Schaufeli's (2003) prediction that "the MBI-concept should be supplemented by cognitive weariness, and perhaps also with distress symptoms". However, based on both conceptual and empirical grounds, items 4, 13 and 16 were eliminated from the original MBI-GS, resulting in a 13-item scale. In the 6-item Cognitive Weariness Scale item 27 ("I have problems processing new information", item 6 in the original CWS version of Van Horn et al., in press) proved problematic and was subsequently eliminated on conceptual and empirical grounds. Omission of most of these

items in post-hoc analysis might be explained by ambivalence and relevance of these particular items.

Regarding the reliability and validity of the Utrecht Work Engagement Scale (UWES) for employees of a higher education institution in South Africa, the internal consistency of the scales was found to be satisfactory and in line with reported findings in the literature. The results confirmed the three-dimensional factor structure for the three scales of the UWES, namely vigour, dedication and absorption, by means of structural equation modelling. This finding is supported by research in different samples, groups and countries (Naude & Rothmann, in press; Schaufeli, Martinez, Pinto, Salanova & Bakker, 2002a; Schaufeli, Salanova, González-Romá & Bakker, 2002b; Storm & Rothmann, 2003b). The elimination of items 4, 15, 16 and 17 can be validated on both conceptual and theoretical grounds, resulting in a 13-item UWES scale. Even though the decision to eliminate these items was partly based on previous research (Schaufeli et al., 2002b; Storm & Rothmann, 2003b; Naudé & Rothmann, in press), validation of the deletion of these items is needed in future studies. It is possible that these findings are reflective of the relatively small sample size and sampling procedure (subgroup representation) that can cause these findings to be obtained by pure chance. Furthermore, the possibility of semantic differences in meaning attributed to these items cannot be excluded, especially in view of the comparison between groups on the basis of linguistic groupings. Using language that can be easily interpreted might overcome problems with these items, or alternatively the tests can, where practicable, be translated into the first language of the participants.

The construct validity and internal consistency of the ASSET for employees of a higher education institution indicated a satisfactory fit with the original model after five of the ASSET dimensions (Resources and Communication, Job Characteristics, Work Relationships, Commitment, and Health) were re-specified by correlating errors. Reliability analysis revealed that all the dimensions were sufficiently internally consistent.

The next objective was to determine significant differences in burnout, engagement and stress levels of the population based on biographical characteristics like age, language group, gender, job category and years experience at the institution. With regard to burnout, no significant differences could be found among genders, age groups and job categories. However, it was found that Afrikaans (55% of the population) and English (19% of the

population) language groups experienced significantly higher levels of exhaustion and cognitive weariness than the indigenous language-speaking groups (26% of the population). Employees with more than 10 years of experience at the institution (34% of the population) also experience significantly higher levels of exhaustion, cynicism and cognitive weariness. These observations might be understood against the background of the radical and rapid transformation of this institution. Of concern is the fact that those employees adversely affected by exhaustion, cognitive weariness and cynicism represent, based on language groups, 74%, and based on years of experience, 34% of the population – figures that cannot be ignored if employee wellness is a priority in an organisation.

Significant differences in engagement levels of the population based on biographical characteristics were reflected by higher levels of the vigour dimension amongst the Indigenous language speaking group (26% of the population) in comparison to the Afrikaans language group (55% of the population). Again the recent fast-paced and radical transformation history of this institution in adherence to the equity legislation promulgated by the post-apartheid government of South Africa, might play a role in this observation. Only designated groups were appointed in vacant positions to ensure that the staff component reflects the demographics of the area. Consequently, the staff component was transformed within a relatively short period of time from predominantly white to representative of the area. The management of the institution was also transformed. As a result, the indigenous language speaking employees at the institution are black males and females. Keeping in mind the impact of the Apartheid legacy, especially concerning job reservation and promotion for selective groups, those with fewer years' experience (previously disadvantaged groups) might be more vigorously committed and engaged due to the joy of finding a job and the better possibility of promotion.

In contrast the Afrikaans-speaking, white employees reflected significantly lower levels of vigour. Vigour was also significantly higher among employees with 0-5 years experience (31,09% of the population) in comparison to those with more than 10 years experience at the institution (33,52% of the population). The administrative staff component (52,96% of the population) also showed significantly higher levels of vigour than the academic staff component (47,04% of the population). This might be attributed to the fact that employees in administrative positions are not as much affected by the recent radical changes in higher education and increased psychological stress that globally became the trademark of working

in academia. Another intra-institutional factor that might contribute to this finding is the fact that transformation of the administrative staff component was more drastic and accelerated than that of the academic staff component. For the black, administrative staff component with fewer than five years' experience this might have been an invigorating and challenging experience resulting in higher levels of engagement.

Significant differences in stress levels of the population based on biographical characteristics revealed that higher levels of commitment from the individual as well as higher perceived levels of commitment from the organisation were reflected by the indigenous language-speaking group (26% of the population) compared to the English (19% of the population) and Afrikaans (55% of the population) language groups. Both English- and Afrikaans-speaking groups gave indications of significantly higher perceived psychological stress and overload in comparison to the indigenous language-speaking groups. These observations might again be understood if the radical transformation of the institution is taken into account. Difficulty in adapting to and integrating the impact of the subsequent changes might be reflected in the lower levels of commitment and higher levels of overload and psychological stressors perceived by these groups in comparison to the black, indigenous language-speaking groups.

These observations are further confirmed by the fact that employees with more than five years experience at the institution (68% of the population) were perceiving characteristics of their jobs and control as major sources of stress, were perceiving the organisation as less committed to them, were showing signs of being less committed to the organisation and were also showing significantly higher indications of psychological ill-health. Most of the employees with more than five years experience are pre-transformation appointments, thus white, academic appointments and in the Afrikaans-speaking language group. Looking at the stressors perceived by different job categories, it is interesting to note that academics were experiencing work-life balance, resources and communication, overload and job characteristics as sources of stress.

Administrative staff perceived the lack of commitment from the organisation as a bigger stressor than the academic staff. A speculative explanation for this can be that administrative staff are more involved in procedural aspects of the organisation and as a result aware of organisational proceedings and possible gossip, while academics can distance themselves from this more easily and concentrate only on the educational aspects of their jobs, leading to

higher levels of apathy. With regard to differences in age, only one stressor, namely work-life balance, is having a larger impact on employees older than 30 years. Being married with children might contribute to this stressor. Based on gender, females reported significantly higher levels of physical as well as psychological stress than males. This finding correlates with most of the empirical research on gender differences in higher education staff, which suggests that women appear to experience higher levels of stress in comparison to males (Kinman, 1996; McInnis, 1999).

Another objective of the study was to determine the levels of occupational stress of employees at a higher education institution in South Africa and its impact on work wellness. This was the first study in South Africa to use the ASSET as a stress assessing tool, and to compare the findings with established international normative data in order to determine a stress profile of employees within a specific tertiary institution. The results revealed that the sources of stress which the respondents were most troubled by were the lack of commitment that they perceived from the organisation, and the high levels of physical and psychological outcomes of stress (i.e. strain). Physical health was negatively related to overload, commitment from the organisation and commitment from the individual. Psychological health was also negatively related to commitment from the organisation and commitment from the individual.

An interesting observation is that the highest cause of lack of organisational commitment is that employees feel that they cannot be proud of the organisation. This is even more significant in the light of the fact that employees perceived themselves as highly committed to the organisation. The only other study with which the results of this study can be directly compared is to that of Tytherleigh, Webb, Cooper and Ricketts (2003), who used the same measuring instrument in their study of 14 United Kingdom universities and colleges. Levels of commitment, both perceived from and felt toward their organisations, were also an area of concern for higher education staff. Commitment levels, and the potential effect that they can have specifically on the institution researched in this study, may result in reduced levels of productivity and unwillingness to assume responsibility (Chow, 1990).

Physical and psychological outcomes of stress provided alarming results and proved to be major sources of stress for employees. Several physical (e.g. headaches, nausea, muscular tension/pains, and insomnia) and psychological symptoms (panic attacks, constant

irritability/anger, mood swings, tiredness, inability to cope and avoidance of other people) were reported, to such an extent that they may have a detrimental effect on work performance. This finding is even more alarming in the light of the results of Tytherleigh et al. (2003) in their study in the United Kingdom, which found lower levels of physical outcomes of stress and normal levels of psychological well-being for their population. Certainly this is a definite warning that, in its own interest as well as the interest of its clients (mainly students), the institution where the research was carried out dare not ignore. Compared to normative data the employees of this institution were more stressed by aspects of work relationships (in particular some people not pulling their weight, and some taking credit for others' achievements). They were also stressed by job characteristics (constant changes within the organisation, physical working conditions, and the way work performance is measured) and work-life balance (possibility of doing the same job for the next 5-10 years). If not attended to, and if possible outbalanced by positive job characteristics and incentives, these indicators may in the longer run result in a total corrosion of organisational commitment.

Concerning occupational stress and its impact on work wellness, it can be concluded that job characteristics are the best predictor of commitment perceived from the organisation and of strain (i.e. physical and psychological ill health). This is in line with the literature that says that job characteristics are directly related to the level of commitment that is perceived from the organisation (Cooper, Dewe & O'Driscoll, 2001), seeing that employees perceive the employer to be the party who is ultimately responsible for the characteristics of their jobs. Not being satisfied with these characteristics will lead to elevated occupational stress levels that will inevitably impact on physical and psychological well-being (Taris, Scheurs & Van Iersel-van Silfhout, 2001).

The best predictor of commitment by an individual is job control. This finding correlates with literature on the Demand-Control Model (Fox, Dwyer & Ganster, 1982) and indicates that if individuals feel that they have decisional freedom in terms of meeting the job requirements (i.e. control), they will automatically be more committed to the job and the organisation. The lack of commitment that employees perceive from the organisation is also contributing 7% to the elevated levels of physical ill health and 21% to psychological ill health. From an organisational perspective, this certainly calls for serious consideration regarding the well-being of the workforce.

The next objective was to determine those aspects that enervated work wellness of employees at a higher education institution. Based on the regression analysis of the burnout dimensions that reflect the negative side of burnout and employee wellness, it can be concluded that burnout as depicted by exhaustion and cognitive weariness of employees at a higher education institution can be best predicted by overload, negative affectivity and low levels of positive affectivity. These findings are in line with the literature that suggested that job demands (overload) lead to higher levels of exhaustion and contribute to burnout (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Schaufeli & Bakker, 2004). Negativity regarding the managerial style of managers also plays a contributing role. Van Emmerick (2002) found that coping assistance from both supervisors and colleagues, together with a supportive departmental climate and practical assistance in the department, reduced both exhaustion and dissatisfaction. Cynicism is mainly the result of negative affectivity and the employees' negativity regarding their task characteristics. Exhaustion and job security also seem to play a minor role. Based on the findings of Jansen, Schaufeli and Houkes (1999), this result could be attributed to the fact that the burnout process evolves differently as far as the three burnout dimensions are concerned, and as a result cynicism might rather be the result of dissatisfaction with job resources, and exhaustion and cognitive weariness the result of job demands.

The low levels of positive affectivity that contribute to burnout also concur with the literature that suggested that high levels of positive affectivity will have a buffering effect in dealing with workplace stressors (McCrae & Costa, 1987), i.e. low levels of positive affectivity will aggravate the effect of workplace stressors on the individual. If an employee experiences problems regarding the way he/she is managed, it may also contribute to exhaustion because of a lack of clear goals set by those in managerial positions, which will result in additional work and which may again contribute to overload, and thus to the vicious circle of exhaustion, cognitive weariness and burnout.

People high in trait negative affectivity tend to experience and report high levels of subjective stress and strain outcomes (Burke, Brief & George, 1993; Spector & O'Connell, 1994), therefore the contributing effect of this aspect to cognitive weariness can be expected. In the literature negative affectivity also predicted low levels of social support and job satisfaction and high levels of emotional exhaustion and depersonalisation. In this study it was found that

cynicism specifically is a result of problems regarding negative affectivity and task characteristics (i.e. satisfaction with the content of the job) and that exhaustion and job security also play a contributing role. This is important to note because it indicates not only that negative aspects contribute to burnout, but also that it is important to look at the relation and interaction between such negatives and other seemingly positive aspects.

Regarding the positive side of employee wellness, namely engagement (vigour, dedication and absorption) and the one burnout dimension (professional efficacy), it can be concluded that engagement is mainly a result of job resources (task characteristics, social support, management), and of high levels of trait positive affectivity and low levels of trait negative affectivity. This concurs with the literature on the JD-R model (Demerouti et al., 2001) and the COBE model (Schaufeli & Bakker, 2004), which suggests that job resources will lead to higher levels of engagement. Dispositional positive affectivity on the other hand, is consistent with such personality traits as hardiness and dispositional optimism, and reflects the extent to which a person is characterised by high energy levels, full concentration and pleasurable engagement. In the literature positive affectivity was associated with higher levels of personal accomplishment, greater autonomy and lower absenteeism (Iverson, Olekalns & Erwin, 1998). This will also be the reason why this study reflects that low levels of negative affectivity can be associated with engagement. It was interesting to note that job security and rewards do not lead to engagement, and in this research specifically, to the vigour dimension of engagement. It can be concluded that a study of the interaction between different job resources would present a better picture of engagement in total, and that aspects such as job security and reward in some instances, where the enhancing aspects of task characteristics, social support and management are present, may result in the erosion of engagement, rather than contribute to its enhancement.

A matter of concern is the difficulty experienced with attempts to fit the data of the population with the proposed causal model of wellness. In the end the researchers had to resort to the utilisation of multiple regression analysis in order to ensure sound statistical procedures. However, these research findings may act as a springboard for future research on work wellness.

The last objective of this research was to make recommendations for a credible, sustainable and comprehensive wellness programme. Guidelines in this respect are addressed in detail

under the recommendations (6.3), and specifically under recommendations for the institution (6.3.1.).

## **6.2 LIMITATIONS OF THIS RESEARCH**

Firstly, the use of a cross-sectional design in the present research constitutes a limitation. Despite the use of advanced statistical techniques such as structural equation modelling, no causal inferences could be made with regards to the relationships between the constructs used in the present study. At best, these relationships could only be analysed and described, not established. Therefore, the establishment of relationships in the present study serves only to set up certain patterns consistent with previous theoretical research regarding the chronological relationships of the different variables being studied. Strictly speaking, the reference to causal relationships, as suggested in the present study, would be incorrect. It is therefore possible that the independent variables in the present study could be classified as symptoms of burnout, work engagement and occupational stress, rather than antecedents. However, longitudinal research seems to point to the fact that certain job characteristics, such as job demands, seem to demonstrate mainly a causal relationship in health outcomes, with the associated outcomes appearing only after the process of appraisal of the situation (Schaufeli & Buunk, 2002). Consequently future longitudinal and quasi-experimental designs are needed not only to validate hypothesised causal relationships between antecedents and possible consequences of constructs such as burnout, engagement and occupational stress, but also to expand our knowledge in terms of the inclusion of other variables in the study of human well-being.

A second limitation of the present research was the sample size. Although questionnaires were distributed to the total population, only 45,36% responded. This might have significant limitations in terms of the generalisation of the findings to the total study population, especially when keeping in mind that certain groups did not respond (service workers). This might be attributed to the possibility that they were not used to this kind of survey, or their literacy levels might have been a limitation. Be that as it may, information regarding this group could not be obtained and generalisation of findings, specifically to them, might pose problematic. Future studies could benefit in terms of a stratified random-sample design, which would ensure sufficient representation of the different groups in the total population. Future studies conducted should also consider extending the sample to include employees of

all the higher education institutions in South Africa, in order to provide a comprehensive wellness profile of work in higher education, especially during the current period of transformation.

A third limitation of this study is its reliance solely on self-report measures. According to Schaufeli, Enzmann and Girault (1993), the exclusive use of self-report measures in validation studies increases the likelihood that at least part of the shared variances between measures may be attributed to method variance. However, a review of self-report measures regarding perceptions and affective reactions to jobs and work environments revealed little evidence of common method variance (Spector, 1987). Similarly, other researchers have demonstrated that even if interactions between the constructs are found, they pose no real threat with regard to the findings obtained (Dollard & Winefield, 1998; Wall, Jackson, Mullarkey & Parker, 1996).

Another dimension to this argument is the relatively small number of alternative methods available in the place of self-report measures. However, research should aim to develop more objective means of measuring job characteristics, environmental aspects and the perceptions around these. In this regard, Dolan (1995) proposes that a multivariate approach be taken in the study of burnout and engagement by including numerous associated variables inherent to the job, the environment and the individual (e.g. individual traits). As far as literacy levels of the respondents pose a problem in self-report measures, focus groups (Krueger, 1994) might provide an answer, but then the language used must be the first language of the participants, and other problems inherent in the use of focus groups will have to be carefully kept in mind.

A fourth limitation consisted of the problems experienced with attempts to fit in the data of the population with a proposed model. As mentioned above, in the end the researchers had to resort to the utilisation of multiple regression analysis in order to ensure sound statistical procedures. As a result, an aspect deserving attention is the causality of relationships described in the present study. The current findings cannot serve to explain the sequential process of the experience of employee wellness. Consequently, pressing issues about the place of the variables used in this study and their role in the transaction between employees and their environment are left unanswered. Transactional issues, however, would add another dimension to the current research perspective. The results of this research, in spite of its limitations, may in future lead to a better understanding of the wellness of employees in

higher education institutions and may be considered a valid starting point in the quest for a causal model of work wellness.

A last limitation of this study is the possibility that some participants in this research did not totally trust the confidentiality statement set out in the covering letter which accompanied the questionnaires. This could even be aggravated by the fact that the research was done by a colleague within the same institution. Mistrust in this regard could have had an influence on some of the results.

### **6.3 RECOMMENDATIONS**

Consequently, recommendations for the institution as well as suggestions for future research are made.

#### **6.3.1 Recommendations for the institution**

In general, the first step in succeeding with the facilitation and enhancement of work wellness on individual, managerial and organisational level is to create and stimulate awareness at all levels of the organisation regarding the image of the work wellness phenomenon as a portrait by the employees of this specific organisation. Of importance will be the definition of wellness, its effects and implications, the causes and symptoms of unwellness, as well as processes and procedures to enhance employee wellness. Unconditional buy-in from both management and employees is also of the utmost importance in order to make such a programme and planned interventions viable and not only a window-dressing exercise. Skills should be expanded to enable both management and employees to identify both wellness and unwellness, and to take proactive action not only to prevent undue harm to both the employee and the organisation, but also to promote work wellness in general and reap the secondary benefits inherent to a healthy workplace.

In order to promote the overall wellness of employees at this institution it is important for burnout and strain to be carefully managed, and emphasis needs to be placed on enhancing the positive aspects of wellness, like engagement. This is especially of the utmost importance for this institution seeing that it is not really high levels of burnout that is recurrently resulting

in disengagement from the side of the workforce. This tendency might rather be attributed to transformation, restructuring and managerial style.

According to Roberts and Davenport (2002), there are three areas that could be targeted to increase employees' work engagement, namely career development, identification with the organisation and a rewarding work environment. Career development includes providing opportunities for employees to learn new skills and to develop themselves, as well as opportunities to advance in the organisation and helping them manage their careers. Identification with the organisation is enhanced when employees know that they will share in the success if the organisation is financially successful, they consider their departments' goals to be their own, they are satisfied with their involvement in decisions that affect their work, and they are proud of the quantity of work they do. A rewarding work environment is characterised by as being a positive, fun place to work, with employees having the decision-making authority to do their jobs well, recognition for contributions, encouragement to look for new and better ways of doing things, and supervisors who create a motivating climate. It is recommended that the institution provide adequate resources (physical as well as managerial support) for the engagement levels of employees to be increased.

Given the pervasive nature of both burnout and occupational stress, interventions should be planned to combat its prevalence. According to Kompier and Kristensen (2001), primary interventions may, in the first place, be directed at either the work situation or the coping capacity of the employee. In order for interventions to be effective in the long run, Schaufeli and Bakker (2004) recommended that these individual-based programmes be supported by organisation-based programmes. Organisational development interventions in general, but also interventions aimed at influencing the values and culture of the organisation specifically, should be considered. Work-oriented interventions aim to improve the fit between an individual and the workplace. Worker-oriented interventions aim at teaching employees to deal more effectively with experienced stress, or to modify their appraisal of a stressful situation, so that the perceived stress threats are reduced. If the physical and psychological stressors especially are allowed to continue unattended to, the organisation can expect to find negative costs associated with continued, elevated levels of stress, such as burnout, absenteeism, employee turnover and lowered levels of service.

The organisation is therefore advised to take note of the impact of rapid transformation and drastic changes in the working environment and the psychological contact of employees in order to protect both employees and the organisation. Interventions may be aimed at eliminating, reducing or altering stressors. Possible interventions include: Provision of a more supportive climate; changes in decision-making processes; tangible evidence of commitment from the organisation; and establishment of a more equitable system of reward and resource distribution. Secondary level interventions can be implemented to prevent employees and specific groups who are already showing signs of stress from getting sick and to increase their coping capacity. Examples of this strategy would include coping strategies especially with regard to dealing with change and transformation, cognitive restructuring, relaxation techniques and physical activity enhancement programmes, techniques such as self-monitoring, self-assessment, didactic stress management, promotion of a healthy life-style, conflict resolution and emotional- and psychological support. Stress management programmes that use a cognitive-behavioural approach are also effective in reducing stress reactions, such as burnout (Schaufeli & Enzmann, 1998). Tertiary level stress management interventions would be employed in the rehabilitation of individuals who have suffered ill health or reduced well-being as a result of strain in the workplace.

In terms of the experience of strain by the population, the low perceived level of commitment from the organisation is a concern. With regard to the motivation of employees and the building of credibility by and co-operation in the organisation, interventions aimed at maximising group effectiveness, increasing a sense of belonging and shared vision, rebuilding trust relationships ("Walk the talk") and an organisational commitment to fairness and equity should be considered. A leadership skills intervention aimed at first-line management could be considered in this regard.

Physical and psychological outcomes of stress provided alarming results and proved to be major sources of stress for employees. Several physical (e.g. headaches, nauseousness, muscular tension/pains, and insomnia) and psychological symptoms (panic attacks, constant irritability/anger, mood swings, tiredness, inability to cope and avoidance of other people) were reported, to such an extent that they may have a detrimental effect on work performance. Certainly this is a definite warning that, in its own interest as well as the interest of its clients (mainly students), the institution where the research was carried out dare not ignore. Compared to normative data the employees of this institution were more stressed by aspects

of work relationships (in particular some people not pulling their weight, and some taking credit for others' achievements). They were also stressed by job characteristics (constant changes within the organisation, physical working conditions, and the way work performance is measured) and work-life balance (possibility of doing the same job for the next 5-10 years). If not attended to, and if possible outbalanced by positive job characteristics and incentives, these indicators may in the longer run result in a total corrosion of organisational commitment.

It is also recommended that the institution should provide adequate resources (physical as well as managerial support) for the employees to elevate their engagement levels. As identified by Wilson (1996, p.1), 'an unmet need can frustrate an employee and will continue to influence their behaviour until it is satisfied; managers can therefore effectively work with an employee by identifying the level of need which s/he is trying to satisfy and by attempting to build opportunities in the work environment that will allow them to satisfy their own needs'. By doing this, higher education institutions specifically and organisations in general will provide a fortigenic atmosphere that will be conducive to employee wellness.

### **6.3.2 Recommendations for future research**

The findings of the present study might have important implications for future research and practice despite the limitations as mentioned. Firstly, burnout is a phenomenon now well established, not only outside the human service professions, but in this study specifically among higher education employees. According to the results obtained in this study, the use of the MBI-GS combined with the Cognitive Weariness Scale is recommended to assess burnout in higher education institutions in South Africa. This could stimulate further research in a wide range of occupations (Schutte, Toppinen, Kalimo & Schaufeli, 2000), and could also form part of comprehensive wellness audits at organisations.

Future South African research needs to determine the relative prevalence of burnout in higher education institutions, as well as in various other occupational groups, in order to make comparisons between standardised groups possible. High-risk occupational groups in terms of the development of burnout could provide valuable information, as could research into the aggravating effect of radical and rapid transformation in an organisation, and its impact on affected groups. Furthermore, norms regarding different occupations, professional groups and

even organisations and industries could be generated to enable meaningful comparisons within the South African context. Consequently, target groups could be identified to facilitate intervention research.

According to the results in this study, the use of the UWES is recommended to assess engagement of employees at a higher education institution in South Africa. It is suggested that future research could focus on the UWES in other higher education institutions in South Africa, to verify the current findings. Also, although the UWES was found to be reliable and valid for this sample, other occupational settings should be investigated in a similar manner. It is also important to determine norm levels for other occupations in South Africa. Future studies should use large samples and adequate statistical techniques (e.g. structural equation modelling). Large sample sizes might provide increased confidence that study findings would be consistent across other similar groups. Researchers contemplating future validation of the UWES are urged to utilise statistical programs that can yield a measure of multivariate normality, and provide appropriate estimation procedures, given findings of non-normal data. In the quest to make the UWES more user friendly with regard to comprehensibility by different language groups, some of the items can be adjusted. The possibility of translating the UWES into other South African languages should also be considered.

Given the pervasive nature of occupational stress, this study is a first step toward the validation of the ASSET as an organisational stress screening tool that can be used in higher education institutions in South Africa. As such, the current study only considered one higher education institution and it is recommended that the study be expanded to all the other higher education institutions in South Africa and, if possible, to other African higher education institutions as well, specifically with the aid of a randomised sampling design. Further refining and testing of the ASSET are needed. In stress research in general and in higher education specifically it is important to take a holistic approach in terms of stress and strain of the employee (Cooper et al., 2001), in order to minimise the negative spin-offs of occupational stress.

In terms of assessment, validated cut-off points with regard to the measurement of burnout, engagement and occupational stress are lacking due to insufficient South African norms for the MBI, the UWES and the ASSET. This problem makes the early detection of burnout, engagement and occupational stress very difficult. With regard to the MBI, the lack of

clinically validated cut-off points is a burning issue which would facilitate the distinction between burnout and clinical conditions, where continuation of normal functioning is severely influenced.

Future research in South Africa should focus on determining a clinical profile for burnout to establish validated cut-off points and distinguish burnout from other clinical conditions. Since burnout is not included in the DSM IV's classification of clinical conditions, researchers have recommended the use of the ICD-10 diagnostic label of *neurasthenia* with the additive criteria of work relatedness (Schaufeli, Bakker, Hoogduin, Schaap & Kladler, 2001). *Neurasthenia* as a neurosis, depending on one's definition, is characterised by distress symptoms like sleep disturbance, inability to relax, emotional and physical exhaustion, irritability and tension headaches, and cognitive impairment. These cognitive symptoms typically occur when one feels exhausted. Hence, keeping clinical validation in mind, the inclusion of the Cognitive Weariness Scale (Van Horn et al., in press), in this study is a step in the direction of supplementing the MBI burnout concept with cognitive exhaustion or weariness. The addition of other distress symptoms also deserves further investigation.

Research in other occupational settings in South Africa is urgently needed to serve as norm-group in terms of measurement levels of these aspects. Further research is also needed regarding standardisation of measuring instruments which could be used to measure burnout (including all versions of the MBI as well as the CWS), work engagement (including the UWES) and occupational stress (including the ASSET). Future studies should focus on the psychometric properties of these instruments. In this regard it is recommended that statistical analysis should take cognisance of the inherent problems of measurement in multicultural settings, such as South Africa. Therefore, internal consistency, test-retest reliability and construct validity should be expanded to include equivalence and bias, especially in the South African context. It might also be necessary to translate the MBI-GS, Cognitive Weariness Scale, UWES, and ASSET into other languages used in South Africa.

The operationalisation of the instruments used in this research is another aspect which justifies further research. In terms of the operationalisation of the MBI specifically, mounting criticism against the predominant use of negatively phrased items has been voiced in the literature. Recently, the psychometric properties of the MBI-GS were increased by the addition of the Disengagement subscale of the Oldenberg Burnout Inventory (OLBI) to the

existing scales of the MBI-GS (Demerouti, Bakker, Vardakou & Kantas, 2002). In terms of future research, it is suggested that studies should focus on the inclusion of positively phrased items to the existing subscales of the MBI.

Furthermore, research is needed with regard to the conceptualisation and operationalisation of work engagement. Various problems are also experienced with current items of the UWES, such as difficult item phrasing and the generation of positive response sets. In order to minimise the effect of positive and negative phrasing of the items of the UWES and the MBI-GS and CWS in this specific study, the questions were mingled. Until further research is done as recommended, this might be considered an interim solution.

With regard to the ASSET, it was used for the first time in South Africa in the present study and found to be an excellent and comprehensive instrument consisting of eight subscales, which succeed in giving an all-round picture of occupational stress as perceived by employees. Further research regarding its conceptualisation and operationalisation is recommended. The current study only considered one higher education institution and it is recommended that the study be expanded to all the other higher education institutions in South Africa and, if possible, to other African higher education institutions as well, specifically with the aid of a randomised sampling design. Further refining and testing of the ASSET is needed. In stress research in general and in higher education specifically it is important to take a holistic approach in terms of stress and strain of the employee (Cooper et al., 2001) in order to minimise the negative side-effects of occupational stress.

In order to fully understand the effect of different biographical characteristics on burnout, engagement and occupational stress, especially in institutions undergoing transformation on different levels simultaneously, it is recommended that future studies with regard to higher education institutions in South Africa be expanded to measure the secondary impact that the negative residue of burnout, the erosion of engagement and occupational stress might have on affected employees, students (i.e. clients) and co-workers. Valuable scientific contributions can also be made regarding measures to redress inadequate engagement levels among employees. Another informative investigation could include the effect of burnout, engagement and occupational stress on the psychological contract and organisational commitment of the individual. Measures on how to enhance engagement and trust are issues

that justify further investigation and need to be addressed if employee wellness is ranked as a priority in an organisation.

To date, little is known regarding wellness, seeing that the era of positive psychology, introduced by Seligman and Csikszentmihalyi (2000), is still very young. The present study tried to form a picture of a balanced view on employee wellness by including the two antitheses, namely burnout and engagement, in a comprehensive wellness audit. Currently little is known with regard to the prevalence and dynamics of work engagement, in stark contrast to the knowledge of the development of negative work-related attitudes and behaviours, such as burnout and occupational stress. In terms of future research, the development of a causal model of wellness for employees of all higher education institutions in South Africa, and possibly also the rest of Africa, can make a valuable contribution to positive psychology. Future studies should also aim to make use of larger and more representative samples. The results of this study not only need to be validated in future studies, but should also be expanded to other occupations in order to further refine and increase our understanding of work wellness. Research should also be conducted to evaluate the effectiveness of interventions to enhance employee wellness. The impact and implications of affectivity on the work wellness experience is also an aspect that warrants further investigation.

It is recommended that causal models of wellness with longitudinal designs be utilised, with the further inclusion of various dispositional, situational and social variables. It is necessary to explore whether and to which extent these factors might buffer or exacerbate the interaction between employees and their stressful working environments. Furthermore, future research should also focus on possible causes, outcomes and underlying processes of employee wellness. Existing models that could assist in this process is the Job Demand – Control Model (Karasek & Theorell, 1990), the Job Demand – Resources Model (Demerouti et al., 2001), and the Comprehensive Burnout and Engagement Model (COBE) (Schaufeli & Bakker, 2004). From a fortigenic perspective more research is also needed to determine whether psychological strengths (e.g. sense of coherence, self-efficacy, internal locus of control, optimism, positive affectivity and life satisfaction) and engagement can be related to organisational outcomes, such as the taking of sick leave, productivity, job satisfaction, quality of goods and services, retention and turnover.

Especially as far as employee wellness is concerned, future research should also focus on the study of appropriate interventions and their impact. Here appropriate research designs, such as probability sampling methods with acceptable sample sizes, will be important. To assist researchers, aspects that will be important are for example the use of intervention mapping in the planning, implementation and research of the effects of interventions (Bartolomew, Parcel & Kok, 1998), incorporating different types of change (alpha, beta and gamma) in terms of the effectiveness of interventions (Vandenberg & Self, 1993), conducting both etiological and prevention effectiveness studies (Skov & Kristensen, 1996), and using methods toward defining and determining the clinical significance of treatment effects (Jacobson, Roberts, Berns & McGlinchey, 1999).

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## **APPENDIX 1**

Table 4 (Enlarged version of Table 4 on p. 167)

*Product-Moment Correlation Coefficients of the MBI-GS, UWES, JCS, Health Subscales, LOT-R, and Affectometer*

| Dimensions               | 1       | 2       | 3       | 4       | 5       | 6       | 7      | 8       | 9       | 10      | 11      | 12     | 13      | 14     | 15      | 16     | 17      | 18      | 19      | 20      | 21 |
|--------------------------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|---------|--------|---------|--------|---------|--------|---------|---------|---------|---------|----|
| 1. Exhaustion            | -       |         |         |         |         |         |        |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 2. Cynicism              | 0,46**  | -       |         |         |         |         |        |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 3. Professional Efficacy | -0,05*  | -0,43** | -       |         |         |         |        |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 4. Cognitive Weariness   | 0,56**  | 0,54**  | -0,38** | -       |         |         |        |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 5. Vigour                | -0,43** | -0,63** | 0,68**  | -0,61** | -       |         |        |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 6. Dedication            | -0,26*  | -0,59** | 0,70**  | 0,43**  | 0,75**  | -       |        |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 7. Absorption            | 0,01    | -0,32** | 0,55**  | -0,25*  | 0,61**  | 0,63**  | -      |         |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 8. Physical Health       | 0,53**  | 0,33**  | -0,11*  | 0,44**  | -0,37** | -0,23*  | -0,04  | -       |         |         |         |        |         |        |         |        |         |         |         |         |    |
| 9. Psychological Health  | 0,64**  | 0,49**  | -0,32** | 0,67**  | -0,58** | -0,42** | -0,17* | 0,70**  | -       |         |         |        |         |        |         |        |         |         |         |         |    |
| 10. Management           | -0,35** | -0,46** | 0,38**  | -0,30** | 0,50**  | 0,57**  | 0,32** | -0,20*  | -0,36** | -       |         |        |         |        |         |        |         |         |         |         |    |
| 11. Task Characteristics | -2,0*   | -0,50** | 0,51**  | -0,26*  | 0,50**  | 0,65**  | 0,46** | -0,05*  | -0,23*  | 0,62**  | -       |        |         |        |         |        |         |         |         |         |    |
| 12. Overload             | 0,59**  | 0,22*   | 0,14*   | 0,30**  | -0,11*  | -0,03   | 0,14*  | 0,35**  | 0,35**  | -0,20*  | 0,05*   | -      |         |        |         |        |         |         |         |         |    |
| 13. Rewards              | -0,21*  | -0,27*  | 0,06*   | -0,09*  | 0,13*   | 0,17*   | 0,13*  | -0,20*  | -0,13*  | 0,17*   | 0,24*   | -0,19* | -       |        |         |        |         |         |         |         |    |
| 14. Job Security         | 0,15*   | 0,28*   | -0,14*  | 0,17*   | -0,21*  | -0,14*  | -0,14* | 0,22*   | 0,18*   | -0,13*  | -0,12*  | 0,14*  | -0,21*  | -      |         |        |         |         |         |         |    |
| 15. Social Support       | -0,25*  | -0,30** | 0,34**  | -0,27*  | 0,44**  | 0,38**  | 0,19*  | -0,24*  | -0,38** | 0,41**  | 0,32**  | -0,18* | 0,10*   | 0,02   | -       |        |         |         |         |         |    |
| 16. Advancement          | -0,18*  | -0,29*  | 0,20*   | -0,11*  | 0,20*   | 0,43**  | 0,19*  | -0,05*  | -0,18*  | 0,48**  | 0,50**  | -0,05* | 0,40**  | -0,07* | 0,27*   | -      |         |         |         |         |    |
| 17. Pessimism            | -0,04   | -0,25*  | 0,23*   | -1,11*  | 0,18*   | 0,15*   | 0,26*  | -0,06*  | -0,13*  | 0,14*   | 0,20*   | 0,07*  | 0,24*   | -0,27* | 0,10*   | 0,09*  | -       |         |         |         |    |
| 18. Optimism             | -0,24*  | -0,23*  | 0,27*   | -0,38** | 0,33**  | 0,28*   | 0,19*  | -0,23*  | -0,32** | 0,21*   | 0,21*   | -0,08* | 0,19*   | -0,13* | 0,28*   | 0,23*  | 0,22*   | -       |         |         |    |
| 19. Optimism Total       | -0,17*  | -0,31** | 0,32**  | -0,30** | 0,33**  | 0,28*   | 0,30** | -0,18*  | -0,28*  | 0,22*   | 0,25*   | 0,00   | 0,28*   | -0,26* | 0,24*   | 0,20*  | 0,80**  | 0,76**  | -       |         |    |
| 20. Positive Affect      | -0,52** | -0,50** | 0,42**  | -0,61** | 0,60**  | 0,48**  | 0,26*  | -0,40** | -0,63** | 0,38**  | 0,35**  | -0,24* | 0,20*   | -0,15* | 0,46**  | 0,27*  | 0,22*   | 0,56**  | 0,49**  | -       |    |
| 21. Negative Affect      | 0,41**  | 0,57**  | -0,34** | 0,45**  | -0,51** | -0,44** | 0,28*  | 0,45**  | 0,53**  | -0,37** | -0,35** | 0,22*  | -0,31** | 0,31** | -0,31** | -0,16* | -0,42** | -0,47** | -0,57** | -0,59** | -  |

\*  $p \leq 0,05$  – statistically significant+  $r > 0,30$  – practically significant (Medium effect)++  $r > 0,50$  – practically significant (Large effect)