

# **Psychometric evaluation of the UWES and OLBI within the cement industry**

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## **REMARKS**

The reader is reminded of the following:

- The editorial style as well as the references in this mini-dissertation follow the format prescribed by the Publication Manual (5<sup>th</sup> edition) of the American Psychological Association (APA). This practice is in line with the policy of the Programme in Industrial Psychology at the North-West University (Potchefstroom) to use APA style in all scientific documents from January 1999.
- The mini-dissertation is submitted in the form of a research article.

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## SUMMARY

**Title:** Psychometric evaluation of the UWES and OLBI within the cement factory

**Key terms:** Work wellness, work engagement, burnout, dedication, vigour, exhaustion, cement industry.

In order to be sustainable, companies have to adapt in the ever-changing market and economic conditions which are often unpredictable. The adaptation to these challenges rests with employees who have to stay motivated and psychologically well. The environmental working conditions are often undesirable

The objective of this study was to evaluate the psychometric performance of the Utrecht Work Engagement Scale (UWES) and the Oldenburg Burnout inventory (OLBI) within the cement factory. A random sampling approach was adopted by distributing a questionnaire for the purposes of achieving the general research objective with an availability sample ( $N = 187$ ). The UWES and OLBI were administered. Exploratory factor analysis, descriptive statistics, Cronbach alpha coefficients, Pearson product-moment correlations and MANOVA's were used to analyse the data.

The outcome of the study through literature review confirmed that work engagement and burnout are two important components of employee wellbeing. The factor loadings of the UWES and OLBI resulted in a two-factor structure for both the UWES and OLBI. The two factor structure for the UWES were labelled as Vigour/Dedication and Absorption. The two-factor structure for the OLBI was labelled Disengagement and Exhaustion. A small number of items were retained for the OLBI.

The internal consistency of the UWES was found to be well above the acceptable level with the alpha coefficients exceeding 0,70. The internal consistency for the OLBI was found to be lower than the 0,70 level. Data analysis further showed that correlations between engagement and burnout were statistically insignificant. Data analysis also showed that there were no

significant differences for age and gender for both engagement and burnout, however there is a significant difference in race and language with regard to engagement but none for burnout.

Limitations within the study were identified and recommendations for future research were made.

# OPSOMMING

**Titel:** Psigometriese evaluasie van die UWES en die OLBI binne 'n sement fabriek.

**Slutel terme:** Werkwelstand, uitbranding, werksbegeestering, toewyding, energie, uitputting, sinisme, sement industrie.

Om volhoubaar te kan wees, moet maatskappye aanpas by die deurlopend veranderende mark en ekonomiese toestande – wat dikwels onvoorspelbaar is. Die aanpassing by hierdie uitdagings lê by werknemers wat gemotiveer moet bly en ook sielkundig gesond moet bly. Die omgewings-werksomstandighede is dikwels ongewens.

Die doel van hierdie studie was om 'n psigometriese evaluasie te doen van die Utrecht Work Engagement Scale (UWES) en die Oldenburg Burnout Inventory (OLBI) binne 'n sement fabriek. 'n \Lukrake steekproef-benadering is gevolg vir doeleindes van die verspreiding van die vraelys ten einde die navorsingsdoelwit te bereik met 'n beskikbaarheidsteekproef ( $N = 187$ ). Die UWES en die OLBI is toegepas. Cronbach alpha-koëffisiënte, ondersoekende faktoranalise, Pearson produk-moment statistiek, en MANOVAs is gebruik om die data te ontleed.

Die uitkoms van die studie deur die literatuuroorsig het bevestig dat werkbegeestering en uitbranding twee belangrike komponente van werknemerwelstand is. Die faktorlading van die UWES en OLBI dui op 'n tweefaktorstruktuur vir beide instrumente. Die tweefaktorstruktuur vir die UWES is Lewenskragtigheid/Toewyding en Betrokkenheid, en vir die OLBI is dit Onttrekking en Uitputting.

Die interne konsekwenheid van die UWES was bokant die aanvaarbare vlak met die alpha-koëffisiënte bokant 0,70. Die interne konsekwenheid van die OLBI was laer as die 0,70 vlak. Data-analise het ook getoon dat korrelasies tussen werkbegeestering en uitbranding statisties onbetekenisvol was. Data-analise het ook getoon dat daar geen betekenisvolle verskille vir ouderdom en geslag was wat werkbegeestering en uitbranding betref nie; daar was wel 'n betekenisvolle verskil wat betref ras en taal met verwysing na werkbegeestering, maar nie vir uitbranding nie.

Beperkinge binne die bestek van die studie is geïdentifiseer en aanbevelings vir verdere studie is gemaak.

## **CHAPTER 1**

### **INTRODUCTION**

This mini-dissertation is about the psychometric evaluation of the UWES and OLBI within a cement factory.

This chapter focuses on the problem statement and research objectives (including the general and specific objectives). The research method is explained and an overview of chapters is provided.

#### **1.1 PROBLEM STATEMENT**

##### **1.1.1 Overview of the problem**

Prahalad and Hammel (1998) asserted that continuous changes in the global economic environment, rapid technological advancements and an increased emphasis on organisational competitiveness are only some of the challenges presented by globalisation trends. Employees have to cope with demands that arise as a result of competitive markets, progressive cost saving exercises and improved performance year after year based on best demonstrated performance. Failure to cope with the work pressure leads to what could be seen as under-performance by both employees and the organisation. Work pressure on individual employees leads to accidents and gross errors. Over the past three decades research has shown that the experiences of occupational stress are closely related to the health and safety of individuals and to the well-being of the organisations (Rees & Redfern, 2000).

Organisational environments are shaped by various social, political and economic factors that result in work settings that are high in demands and low in resources (Maslach & Leiter, 1997; Rothmann, Jackson, & Kruger, 2003). Changes in the nature of workplaces, characterised by increased job stressors lead to burnout, and it is evident that the contemporary workplace may often be challenging and anxiety-provoking to employees (Leiter, 1993; Probst & Brubaker, 2001). Without the exclusion of social and political factors,

economic and professional trends have combined to increase stress and decrease alternatives. Unfortunately these trends are likely to continue and in some cases become stronger. This sense of increasing job dissatisfaction is compounded by an awareness of decreasing options of job mobility (Shinn, 1982). According to Low, Cravens, Grant, and Moncrief (2001), decreased job dissatisfaction, decreased organisational commitment and increased intentions to leave are the negative consequences of employee burnout.

Given that the trend of increasing job demands is not likely to reverse in the near future, how to increase the healthiness of the work environment without reducing demands has become a crucial issue (Schaubroeck, Jones, & Xie, 2001). Recent empirical studies have revealed that some individuals do not develop burnout, regardless of high job demands and long working hours. These individuals seem to derive pleasure from working hard and dealing with job demands (Nelson & Simmons, 2003; Schaufeli & Bakker, 2004). It is in this regard that work engagement and burnout as components of well-being at work are focus areas for this research. That is, to conceptualise work engagement and burnout as well as to evaluate the instruments that are used to measure engagement and burnout.

### **1.1.2 Literature review**

The revelation that some individuals do not develop burnout irrespective of high job demands and long working hours led to the emergence of the concept of engagement (Seligman & Csikszentmihalyi, 2000; Schaufeli & Bakker, 2004). That is, such individuals who are not burned out irrespective of the job demands are seen to be engaged. Work engagement is defined as a positive, fulfilling, work state of mind that is characterised by vigour, dedication and absorption. Vigour is characterised by high energy levels and mental resilience while working, the willingness to invest effort in one's work and persist in the face of difficulties. Dedication is characterised by a sense of significance from one's work, by feeling enthusiastic. Vigour and dedication are the opposites of exhaustion and cynicism. Maslach and Leiter (1997) maintain that work engagement is characterised by energy, involvement and efficacy, the direct opposites of burnout. However, Schaufeli, Salanova, Gonzalez-Roma and Bakker(2002) found that although burnout is related to work engagement, it is not the direct opposite of burnout but they are moderately negatively correlated. Absorption is characterised by one being totally and happily immersed in one's work, to the extent that it is difficult to detach oneself from it. Absorption plays a central role in the concept of

engagement. Work engagement is mediated by the relationship between job resources and turnover intentions (Hakanen, Bakker, & Schaufeli, 2006).

Thus work engagement and burnout, being the aspects related to well-being, should be integrated into one model (Nelson & Simmons, 2003; Rothmann, 2003; Rothmann, Steyn, & Mostert, 2005). Schaufeli and Bakker (2001) distinguish between two dimensions that are used to illustrate the types of employee wellbeing. The one dimension is the horizontal axis, which represents the extent of pleasure at work. Another dimension is the vertical axis which represents energy. Schutte, Toppinen, Kalimo and Schaufeli (2000) define engagement as an energetic state in which the employee is dedicated to excellent performance at work and is confident of his or her effectiveness. On the other hand Schaufeli and Enzmann (1998, p. 36) define burnout as “a persistent, negative, work-related state of mind in normal individuals that is 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 focus on engagement as the positive antithesis of burnout promises to yield new perspective on the interventions to promote the healthy perceptions, beliefs and physical well-being and to alleviate burnout. Schaufeli and Bakker (2004) found that the engagement and burnout scales were moderately correlated (Rothmann et al., 2003). Seeing that work engagement is associated with positive experience, the question of whether or not there is a possible relationship between work engagement and workaholism arises (Brand, 2006).

The Utrecht Work Engagement Scale (UWES) is a self-report that operationalises engagement as having three aspects, namely vigour, dedication and absorption (Schaufeli & Bakker, 2004). Vigour is characterised by high levels of energy and mental resilience while working and the willingness to invest effort in one’s work; dedication is characterised by a sense of significance, enthusiasm, inspiration, pride and challenge; and absorption is characterised by being happily engrossed in one’s work so that the time passes quickly and the worker feels carried away by his or her work (Schaufeli et al., 2002).

The original UWES included 24 items but 7 items were eliminated following psychometric tests, resulting in the current instrument having three scales with a total of 17 items. Six items measure vigour, five items measure dedication and the other six items measure absorption.

Items of the UWES are scored similarly to the MBI. They both use a 7 point scale ranging from 0 (“never”) to 6 (“always”). Since it is still considered a new instrument, there is little published on the psychometric properties of the UWES (Schaufeli et al., 2002).

Recent research supports the three-factor structure of the UWES and shows correlations among three scales generally exceeding 0,65 and internal consistencies exceeding 0,70 (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002; Schaufeli, et al., 2002). Research exploring burnout measurement and the UWES has supported the concept that engagement is the antipode of burnout. Schaufeli and Bakker (2004) found that burnout, as measured by the MBI-GS, and engagement, as measured by the UWES, are negatively correlated. Empirical research revealed that some employees, regardless of high job demands and long working hours, do not develop burnout in comparison to others, but seem to derive pleasure in hard work and dealing with job demands (Schaufeli & Bakker, 2004). The results of UWES studies conducted in South Africa by Rothmann and Storm (2003) and Naude (2003) are encouraging. In both studies the structural equation modelling supported the a three-factor model of work engagement, however the correlations among the three dimensions, that is vigour, dedication and absorption were high which could imply that work engagement is a one-dimensional construct  $> 0,70$  (Nunnally & Bernstein, 1994).

Rothmann (2003) maintained that burnout leads to low morale, job dissatisfaction, staff turnover and absenteeism, and that it can bring about deterioration in the quality of work. Furthermore, to assume the presence of the positive attitudes towards work by observing the absence of its negative aspects or vice versa, is a simplistic approach to understanding eustress (e.g. work engagement) and distress (e.g. burnout). Recent research on the job-demand-resource (JD-R) model assumes that burnout develops irrespective of the type of occupation when job demands are high and when resources are limited because such negative work conditions lead to energy depletion and undermine employees’ motivation and that job resources are those aspects of the job that may be functional in achieving work, goals, reduce job demands at the associated physiological and psychological costs and stimulate personal growth and development (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). It has also been discovered that burnout is related to organisational stressors including low levels of perceived control and lack of resources (Wiese, Rothmann, & Storm, 2003).

Hakanen, Bakker, and Schaufeli (2006) found out that burnout mediated the relationship between job demands and health problems. Levert, Lucas, and Ortlepp (2000), maintain that burnout workers show a lack of commitment and are less capable of proving themselves adequate, especially along the dimensions of decision making and training initiating involvement with clients (Fryer, Poland, Bross, & Krugman, 1988; Maslach, 1982).

Burnout was seen as an individual experience embedded in the context of complex social relationships and considered to be a long-term stress reaction that occurs among individuals who work with people in some capacity (Jansen, Schaufeli, & Houkes, 1999; Maslach & Leiter, 1997). With the development of the concept burnout, researchers acknowledge that employees in any job can develop burnout and not necessarily just individuals who work with people (Maslach & Jackson, 1986; Schaufeli & Enzmann, 1998). According to Maslach, Jackson and Leiter (1996), burnout was conceptualised with three dimensions in the helping professions and education, namely emotional exhaustion, depersonalisation and low personal accomplishment. The dimensions of burnout in any job other than the helping profession and education are conceptualised as exhaustion, cynicism and low professional efficacy.

There is a general agreement that burnout occurs at an individual level and this dimension is described as exhaustion. Exhaustion represents the individual stress component of burnout and refers to feelings of being over-extended and depleted of emotional and physical resources. Exhaustion evolves as the first stage in the development of burnout in response to an excessively demanding work environment. Cynicism includes a generally indifferent or cynical attitude towards work. This is also referred to as mental distancing in that an individual would withdraw from work in order to cope with excessive job demands and feelings of exhaustion. Exhaustion and cynicism form the core of burnout (Leiter 1993; Maslach, Schaufeli, & Leiter, 2001; Schaufeli, 2003). Thirdly, burnout is a negative experience for the individual, in that it concerns problems, distress, dysfunctions and negative consequences, a sense of reduced competence or professional efficacy. Therefore, although the individual develops impersonal relationships with others and tasks in an attempt to avoid stress, this mechanism is generally ineffective and may lead to a final phase of burnout. It is the weakest burnout dimension in terms of relationships to other variables, and is often referred to as the least “specific” or “unnecessary” dimension of burnout (Lee & Ashford, 1996; Maslach, 1982; Rothmann & Joubert, 2007; Schaufeli, 2003).

There are researchers who argue that professional efficacy reflects a personality characteristic rather than a genuine burnout dimension. Factors such as qualitative workload, role ambiguity, underperformance and unmet expectations contribute to the diminished personal accomplishment (Cordes & Dougherty, 1993). Maslach et al. (1996) redefined burnout in terms of a crisis in one's relationship with work in general, thus shifting the focus to the cynicism component of burnout. This three-dimensional conceptualisation of burnout implies that the different job stressors might be related to different dimensions (Jansen, Schaufeli, & Houkes, 1999).

Rothmann (2003) stressed the need for burnout research in South Africa, stating poorly designed studies, lack of sophisticated statistical analysis and controlled studies as serious limitations. Taking into consideration the multi-cultural context of South African society, cross-cultural studies have found that role stressors such as conflict and ambiguity may be the universal antecedents of burnout across countries and cultures (Bhagat, O'Driscoll, Babkus, Fryer, Chokkar & Winokumar 1994; Etzion & Bailyn, 1994). Within the South African context it cannot be taken for granted that scores obtained in one culture can be compared across cultural groups (Pienaar & Rothmann, 2003). Furthermore Van de Vijver and Leung (1997) maintained that before comparing scores across cultural groups, equivalence and bias should be tested, otherwise without such tests it will be impossible to know to what extent the scores or constructs underlying an instrument can be compared across cultures. It is against this backdrop that this study seeks to focus on the work engagement and burnout of employees in the cement factory. Due to the multi-cultural nature of South African society, the sample will be from a diverse cultural background. It should therefore not be assumed that results obtained from one cultural group can be generalised to other cultural groups (Boemah, 2006; Storm & Rothmann, 2003).

Systematic empirical studies on burnout were first published in the late 1970s and early 1980s, and it was during these years that the concept was more clearly developed and refined (Cordes & Dougherty, 1993). During this period instruments aimed at quantifying, capturing and measuring burnout were developed; the most prominent instrument developed being the Maslach Burnout Inventory (MBI) by Maslach and Jackson in 1981.

In later years the Oldenburg Burnout Inventory (OLBI) was developed. The OLBI is comprised of sixteen items rated on a 4-point rating system from 1 ("totally disagree") to 4

("totally agree"). Both the exhaustion and disengagement sub-scales consist of eight items, with four being positively worded and four being negatively worded in each sub-scale (Bakker, Demerouti, Verbeke, 2004). Until 2004 the OLBI had not been validated in other countries except in Greece. The OLBI has been constructed and validated in an independent study among 293 German employees from different occupational fields, including human services and blue-collar workers (Ebbinghaus, 1996). A factor analysis confirmed the two-factor structure of burnout construct. Ebbinghaus' (1996) study supported the convergent validity of the OLBI by showing that both burnout dimensions were only related to the conceptually most relevant constructs. Little has been done in an attempt to validate the OLBI in other countries, particularly in South Africa where there are diverse cultures and languages. Le Roux (2004) conducted a first study in South Africa to validate the OLBI as a measure of burnout in the South African earthmoving equipment industry. The results yielded a two-factor structure and the internal consistency of the OLBI came out at 0,71 for Engagement and 0,82 for Disengagement. According to Van de Vijver and Tanzer (1997), when burnout measures are applied to different cultural groups, issues of measurement equivalence and bias become important. Equivalence and bias of measuring instruments should be computed in all studies that take place in a multi-cultural or cross-cultural context (Van de Vijver & Leung, 1997).

The OLBI disengagement dimension scale refers to distancing oneself from one's emotions regarding the work task that is uninteresting as well as not being challenged by work. One would experience negative attitudes toward the work content and work in general as well as the relationship between the employee and his or her job (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The consistency of the factorial structure of the OLBI across different occupational groups confirms the generalisability of the burnout construct to other occupations and suggests that human service burnout represents only one specific manifestation of burnout (Demerouti & Nachreiner, 1998).

A few potential drawbacks also need to be highlighted about the OLBI. Firstly, while many have argued in favour of mixing the wording of items within a scale to force respondents to stop and think carefully about the items, they can also lead to the creation of artificial factors, based on wording as well and serve as a source of common method of bias. Secondly, respondents who report the absence of the phenomenon may not report the presence of the opposite phenomenon, for example, workers who are not burned out may not be particularly

engaged in their work either. Thirdly, the OLBI does not resolve the clinical cut-off scores for burnout. Researchers have generally considered burnout as a continuous variable, whereas there is a question as to when someone is truly burned out (Halbesleben & Buckley, 2004; Halbesleben & Demerouti, 2005; Schaufeli, Maslach & Marek, 1993). It can be noted from Gonzalez-Roma, Schaufeli, Bakker and Llorens (2006), that vigour and exhaustion formed one dimension and cynicism or disengagement and dedication formed another dimension, suggesting that the combination of positively and negatively worded OLBI items mean that they may serve as a reasonable markers for both burnout and engagement. As noted above, future research that includes relationships between OLBI factors and other constructs may be useful in understanding the dynamics of wording effects (Halbesleben & Demerouti, 2005).

Burnout and work engagement are important components of affective work-related well-being. A lack of research in terms of burnout and work engagement of employees in the cement industry within the South African context has necessitated the current research.

The following research questions emerged from the problem statement:

- How are engagement and burnout conceptualised within literature?
- What are the factor structure and internal consistency of the UWES within the cement factory?
- What are the factor structure and internal consistency of the OLBI within the cement factory?
- What is the relationship between the dimensions of engagement and burnout of employees in the cement factory?
- What demographic differences are there in terms of age, gender, race and language groups in the experience of engagement and burnout within the cement factory?
- What recommendations can be made for future research and practice?

## **1.2 RESEARCH OBJECTIVES**

The research objectives can be divided into a general objective and specific objectives.

### **1.2.1 General objective**

The general objective of this study is to evaluate the psychometric performance of the UWES and OLBI within the cement factory.

### **1.2.2 Specific objectives**

The specific objectives of the study include a need:

- To conceptualise work engagement and burnout by conducting a literature study.
- To determine the factor structure and internal consistency of the UWES within the cement factory.
- To determine the factor structure and internal consistency of the OLBI within the cement factory.
- To determine the relationship between the dimensions of engagement and burnout of employees within the cement factory.
- To determine the demographic differences in terms of age, gender, race, and language groups in the experience of engagement and burnout within the cement factory.
- To make recommendations for future research and practice.

## **1.3 RESEARCH METHOD**

The research method will consist of a literature review and an empirical study (consisting of the research design, study population, the measuring batteries as well as data analysis).

### **1.3.1 Literature review**

A detailed literature review focused on burnout and engagement within the cement factory. A search is conducted on the following databases: Google Scholar, EBSCOHost and SA-ePublications to ensure that no other comparable studies had been done. Published articles, scientific magazines, conference papers and books are also used. The keywords used in the search are engagement, burnout, UWES, OLBI, and the cement factory.

### **1.3.2 Empirical study**

The empirical study consists of the research design, participants and procedure, measuring instruments and statistical analysis.

#### **1.3.2.1 Research design**

A cross-sectional survey design is used to collect data in order to achieve the research objectives. Cross-sectional designs are used to simultaneously examine groups of subjects, while the survey describes a technique of data collection in which questionnaires are used to gather data (Burns & Groove, 1993). This design (Shaughnessy & Zechmeister, 1997) can also be used to evaluate interrelationships among variables within a population.

#### **1.3.2.2 Participants and Procedure**

A random sample ( $N = 187$ ) is taken from employees working in the cement factory in the North West Province after permission was granted by both the organisation and the unions. Employees are given assurances that their identity would remain anonymous. Each manager is issued with a pack of questionnaires to distribute to the employees. The questionnaires are placed in open envelopes labelled Afrikaans, English and Setswana and employees are encouraged to complete questionnaires of their home language or most understood language if the questionnaires are neither in home language. Employees are given a period of one week to complete the questionnaires and return them sealed.

#### **1.3.2.3. Measuring instruments**

Two questionnaires are utilised in this study, namely: the Utrecht Work Engagement Scale (UWES) and the Oldenburg Burnout Inventory (OLBI).

- *The Utrecht Work Engagement Scale (UWES)*. Schaufeli, Salanova, Gonzalez-Roma and Bakker (2002) developed the UWES and reported acceptable internal consistency for it. The construct of work engagement was introduced as the opposite pole of

burnout (Maslach & Leiter, 1997; Schaufeli & Bakker, 2004). The UWES was used in this study to measure the levels of work engagement with specific focus on three dimensions, vigour, dedication and absorption, which are conceptually seen as the opposite of burnout (Schaufeli et al., 2002). Vigour refers to an employee's level of energy and mental resilience while working, whereas dedication refers to an employee's sense of significance gained from own work. Absorption, on the other hand, is characterised by being fully focused and fully engrossed in one's work, with the result that time passes quickly and one has difficulty detaching oneself from work. The instrument is scored on a 7-point frequency rating varying from 0 (*never*) to 6 (*every day*) and has 17 questions which include statements like "My job inspires me." and "I feel strong and vigorous in my job". This 17-item questionnaire has three scales, that is vigour (6 items), dedication (5 items) and absorption (6 items). The instrument was administered to a diverse group with vast differences in race and cultural background. In a study conducted by Storm and Rothmann (2003) on the South African Police Service the following alpha coefficients were achieved on the dimensions, vigour = 0,78; dedication = 0,89 and absorption = 0,78. Coetzer (2004) obtained the following alpha coefficients among a sample of employees in an insurance company, vigour = 0,80; dedication = 0,87; and absorption = 0,69. Studies that have been carried out in other countries demonstrated that the UWES has satisfactory psychometric properties (Schaufeli et al., 2002). 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. The factor loadings for absorption were found to be invariant across all samples, while factor loadings for vigour were invariant for only two of the three groups (Schaufeli, 2003). In South Africa, little has been done regarding internal consistency, factorial validity, structural equivalence and bias of the UWES. Naudé and Rothmann (2003) confirmed a two-factor model of work engagement by using a confirmatory factor analysis in the sample of emergency workers in South Africa. That is, the Cronbach alpha coefficients were found acceptable for the vigour/dedication ( $\alpha = 0,87$ ), but not for the absorption sub-scale ( $\alpha = 0,61$ ). For the purposes of this study the UWES has for the first time in South Africa been translated into Setswana in order to make it possible for the majority of blue collar employees to be able to respond to the questionnaire.

- *Oldenburg Burnout Inventory (OLBI)*. The OLBI is based on a model similar to that of the Maslach Burnout Inventory (MBI). This inventory was constructed and validated in an independent study among German employees from different occupational fields. From this study, exhaustion was related to psychological fatigue ( $r = 0,53$ ) but not to satisfaction ( $r = 0,00$ ) whereas disengagement was significantly related to satisfaction ( $r = 0,53$ ;  $p < 0,05$ ) but not to psychological fatigue ( $r = -0,10$ ). According to Halbesleben and Demerouti (2005), the most recent version of the OLBI features questions that have balanced positive and negative wording as well as questions designed to assess cognitive and physical components of exhaustion, consistent with past suggestions in the burnout literature (Schaufeli et al., 2002). The OLBI conceives burnout as a syndrome of work-related negative experiences comprising two dimensions, which are feelings of exhaustion and disengagement from work. Furthermore the inventory measures burnout independent of vocational aspects on the two dimensions. Unlike the MBI-GS, the OLBI also covers physical and cognitive aspects of exhaustion, that is, a need for long resting time. This makes the OLBI more applicable to blue-collar workers who perform physical work and not only to those who process information across different occupational categories. For the purposes of this study the OLBI is for the first time in South Africa translated into Setswana in order to make it possible for the majority of blue-collar employees to be able to respond to the questionnaire. Le Roux (2004) found the Cronbach alpha coefficients of OLBI to be 0,71 and 0,82.

#### **1.3.2.4 Biographical questionnaire**

A biographical questionnaire is included to determine the participants' age, gender, race, language, working hours, management level, and business unit.

#### **1.3.2.5 Statistical analysis**

The statistical analysis is done with the use of the SPSS-program (SPSS Inc. 2003). Exploratory factor analysis is used to examine constructed equivalence and to enhance the reliability results of both the UWES and the OLBI. The number of factors in the total sample of the UWES and OLBI is determined by the principal component analysis. Subsequently components extraction is used to estimate the number of factors followed by principal axis

factoring extraction using a rotation method of direct Oblimin with Kaiser normalisation and/or Varimax on the UWES and OLBI. Descriptive statistics (e.g. means, standard deviation, skewness and kurtosis) are used to analyse data. Cronbach alpha coefficients are used to determine the internal consistency of both instruments (the UWES and OLBI).

Pearson product-moment correlation coefficients are used to specify the relationship between the variables. In terms of statistical significance the correlation is practically significant at ( $p \leq 0,05$ ). Effect sizes (Cohen, 1988) are used to decide on the practical significance of the findings. A cut-off point of 0,30 (medium effect) and 0,50 for (large effect) are set for practical significance of correlation coefficients.

Multivariate analysis of variance (MANOVA) is used to determine demographic differences in the experience of wellness within the cement industry. This technique creates a linear combination of the dependent variables and then tests for differences in the new variable using methods similar to ANOVA. The independent variable used to group the cases is categorical. MANOVA tests whether the categorical variable explains a significant amount of variability in the new dependent variable (Tabachnick & Fidell, 2001). There is an investigation into the differences of age, gender, race and language groups in terms of engagement and burnout experience.

#### **1.4 OVERVIEW OF CHAPTERS**

In Chapter 2, engagement and burnout are discussed in the form of a research article. Chapter 3 deals with the conclusions, limitations and recommendations of this research.

#### **1.5 CHAPTER SUMMARY**

In this chapter, the problem statement and the research objectives are discussed. The measuring instruments and the research method used in this study are explained. It is also indicated how the statistical analysis is performed followed by a brief overview of the chapters that follow.

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## **CHAPTER 2**

### **RESEARCH ARTICLE**

# **PSYCHOMETRIC EVALUATION OF THE UWES AND OLBI WITHIN THE CEMENT INDUSTRY**

## **ABSTRACT**

The general objective of this study was to evaluate the psychometric performance of the UWES and OLBI within a cement factory. A random sample ( $N=187$ ) was taken of employees within the cement factory in the North-West province. The Utrecht Work Engagement Scale (UWES) and the Oldenburg Burnout Inventory (OLBI) questionnaires were used as measuring instruments. Exploratory factor analysis, descriptive statistics, Cronbach alpha coefficients, Pearson product-moment correlation and MANOVA's were used to analyse the data. The study showed low item loadings on the dimensions for burnout, while engagement showed only two factors. The reliability of both instruments showed acceptable internal consistency. Relationships were established for both dimensions of engagement with each other and with one dimension of burnout. Race and language differences regarding the experience of only engagement were identified.

## **OPSOMMING**

Die algemene doelwit van hierdie studie was om die psigometriese uiteensetting van die UWES en OLBI te ontleed binne 'n sement konteks. 'n Lukrake streekproef ( $N=187$ ) van werknemers werksaam binne 'n sement fabriek in die Noordwes provinsie is geneem. Die Utrecht Work Engagement Scale (UWES) en Oldenburg Burnout Inventory (OLBI) is as meetinstrumente gebruik. Ondersoekende faktoranalise, beskrywende statistiek, Cronbach alpha-koeffisiënt, Pearson produk-moment statistiek, en MANOVA's is gebruik om die data te ontleed. Die resultate toon dat min items gelaai het op die faktore van uitbranding, terwyl slegs twee faktore geïdentifiseer is by werksbegeestering. Die betroubaarheid van albei instrumente toon aanvaarbare interne konsekwentheid. Verhoudings is verkry tussen albei dimensies van werksbegeestering met mekaar, en ook met een dimensie van uitbranding. Slegs ras en taal verskille is geïdentifiseer in die ervaring van werksbegeestering

Prahalad and Hammel (1998) asserted that continuous changes in the global economic environment, rapid technological advancements and an increased emphasis on organisational competitiveness are only some of the challenges presented by globalisation trends. Employees have to cope with demands that arise as a result of competitive markets, progressive cost saving exercises and improved performance year after year based on best demonstrated performance. Failure to cope with the work pressure leads to what could be seen as under-performance by both employees and the organisation. Work pressure on individual employees leads to accidents and gross errors. Over the past three decades research has shown that the experiences of occupational stress are closely related to the health and safety of individuals and to the well-being of the organisations (Rees & Redfern, 2000).

Organisational environments are shaped by various social, political and economic factors that result in work settings that are high in demands and low in resources (Maslach & Leiter, 1997; Rothmann, Jackson, & Kruger, 2003). Changes in the nature of workplaces, characterised by increased job stressors lead to burnout, and it is evident that the contemporary workplace may often be challenging and anxiety-provoking to employees (Leiter, 1993; Probst & Brubaker, 2001). Without the exclusion of social and political factors, economic and professional trends have combined to increase stress and decrease alternatives. Unfortunately these trends are likely to continue and in some cases become stronger. This sense of increasing job dissatisfaction is compounded by an awareness of decreasing options of job mobility (Shinn, 1982). According to Low, Cravens, Grant, and Montcrief (2001), decreased job dissatisfaction, decreased organisational commitment and increased intentions to leave are the negative consequences of employee burnout.

According to Minervini, Meyer and Rourke (2003), the key differentiator of competitive advantage in the new world economy is the organisation's employees. Employees have to cope with increasing demands from various and diverse roles and organisational stakeholders, often with limited resources. Furthermore downsizing, transformation in terms of joint ventures and takeovers in line with Broad Based Black Economic Empowerment tend to leave employees stressed, insecure, misunderstood and alienated (Rothmann, Steyn & Mostert, 2005). With fewer staff members having to do more work, employees experience both mental and physical exhaustion. In order to keep production units running at maximum outputs have led to a situation where employees, for example artisans and technicians have to

work after hours and weekends to attend to faulty equipment and breakdowns. As each job has its own challenges, not only employees in the technical fields have to cope with increasing demands from various and diverse roles. These pressures cause stress in the workplace which could eventually affect the work-related well-being of employees including burnout and work engagement (Minervini et al., 2003; Rothmann et al., 2005).

Exit interview reports have indicated that employees who are leaving the company are citing working conditions as one of the reasons for leaving the organisation. Rothmann (2003) reported that burnout leads to low morale, job dissatisfaction, staff turnover and absenteeism. The company was also experiencing an escalated amount of unplanned leave and sick leave. Empirical studies have confirmed that burnout is related to health problems and turnover intentions, and that it mediates the relationship between job demands and health problems. Also, engagement mediates the relationship between job resources and turnover intentions (Jackson, Rothmann & Van De Vijver, 2006). One can argue that the anomalies for absenteeism may not necessarily be a result of burnout but work engagement.

It could also be deduced from the exit interview reports that the management styles of the respective managers were the reason for the subordinates leaving the organisation. Ivancevich and Matteson (1999) maintained that managers are responsible for the effectiveness of individuals, groups and organisations. In contrast managers who suffer from burnout, harm organisational effectiveness because they spread it to their subordinates. Burnout can thus be “contagious” and perpetuates itself through the informal interactions in the job (DuBrin, 1990). It can be deduced from this finding that managers can impact directly or indirectly on employee effectiveness and organisational outcomes such as turnover (Rothmann et al., 2005).

The issue of stress has also captured the attention of human resource managers and organisational researchers (Carrel, Kuzmits & Elbert, 1992). According to Lazarus and Folkman (1984), stress is an outcome of a transaction between the person and the environment, and that when the environmental stressors are perceived by the individual to be demanding and have exceeded his or her personal resources to cope with them, the person will experience stress. Such stress can be manifested psychologically, physically and behaviourally (Lai, Chan, Ko, & Boey, 2000). The company is experiencing incidences of elevated hypertension and employees who are being booked off for fatigue. In this regard, it

can be deduced that the work environment can lead to employee stress especially if linked to the amount of hours spent at work or the organisational requirements for the job, namely job demands. Schaufeli and Enzman (1998) said that burnout should not be confused with stress but could be considered as a particular kind of prolonged job stress. Burnout is a particular multi-dimensional and chronic stress reaction that goes beyond the experience of mere exhaustion.

While the company continues to experience challenges like resignations and stress-related illnesses, there are employees who continue to stay with the company despite organisational reasons and individual reasons causing stress. The company provides an employee assistance programme (EAP) for such employees and their families. There are also statutes that allow employees the opportunity to rest, annual leave and family responsibility leave to attend to illness or death in the family. These employees would be seen as engaged in their work.

It has become necessary to compile a holistic model in the study of work engagement and burnout in order to gain a better understanding of work wellness. Schaufeli and Bakker (2004) maintain that burnout and engagement can be combined in a model of being since work engagement and burnout represent the two aspects of wellness. Work wellness can be described as a broad construct that can be described in the following facets: meaning in life, work involvement, career commitment, work values and intrinsic motivation (De Klerk, Boshoff & Van Wyk, 2004). Well-being or work wellness is generally considered to be the underlying conceptual basis of salutogenic orientation (Spangenberg, 2004). In recent literature Meyers, Sweeney, and Witmer (2000) define wellness as a way of life oriented towards 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. Lindley and Joseph (2004) found that well-being extends beyond the absence of ill-health to include aspirations to learn, being reasonably dependent and possessing confidence. This implies a proactive stance towards achieving optimal physical, mental and emotional well-being (Reardon, 1998).

The objectives of this study are to conceptualise work engagement and burnout and to determine the factor structure and internal consistency of the both the UWES and OLBI within the cement factory. To determine the relationship between the dimensions of

engagement and burnout as well as to determine the demographic differences in terms of age, gender, race, and language groups in the experience of engagement and burnout of

No studies have been found regarding work engagement and burnout in the cement industry. Maslach, Schaufeli and Leiter (2001) asserted that the impact of the changing work environment is probably evident in changes in the psychological contract. Employees are expected to extend themselves in terms of their time, skills and efforts and in return they often receive less in terms of career growth and job security. This breakdown in psychological contract is likely to produce burnout and reduce work engagement as it erodes the notion of reciprocity (Maslach et al. 2001). For an organisation to remain effective at to so as to cope with the demands of the changing work environments and to stimulate employee wellbeing, it is imperative to understand the levels of engagement and burnout of their employees. This premise has sparked interest from organisations and research students as it will assist with employee well-being and organisational effectiveness.

### **Work engagement and burnout**

Research has showed that work engagement and burnout are aspects related to well-being, that can be integrated into one model (Nelson & Simmons, 2003; Rothmann, 2003; Rothmann, Steyn, & Mostert, 2005). Schaufeli and Bakker (2004) distinguished between two dimensions that are used to illustrate the types of employee wellbeing. The one dimension is the horizontal axis, which represents the extent of pleasure at work. Another dimension is the vertical axis which represents energy.

#### *Work engagement*

There are various conceptualisations of work engagement by numerous researchers,

Work engagement on the other hand has been defined as an energetic state in which the employee is dedicated to excellent performance at work and is confident about own effectiveness (Schutte, Toppinen, Kalimo, & Schaufeli, 2000).

According to Schaufeli and Bakker (2004), work engagement refers to a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption.

Maslach and Leiter (1997) redefined burnout as an erosion of engagement with the job. Vigour refers to high levels of energy and mental resilience while working, as well as willingness to exert effort and to persist even through difficult times. Dedication refers to a sense of significance, enthusiasm, inspiration, pride and challenge and absorption is described as a tendency to concentrate fully and to be deeply engrossed in work. That is as time passes by, one battles to detach oneself from one's work (Csikszentmihalyi, 1990).

Maslach, Schaufeli and Leiter (2001) explain that in the case of burnout, what started out as important, meaningful and challenging work becomes unpleasant, unfulfilling and meaningless. It can also be seen as positive poles of burnout dimensions. The revelation that some individuals do not develop burnout irrespective of high job demands and long working hours led to the emergence of the concept of engagement (Schaufeli & Bakker, 2004; Seligman & Csikszentmihalyi, 2000). That is, such individuals who are not burned out irrespective of the job demands are seen to be engaged. Schartz (2007) noticed a movement towards positive psychology in the workforce literature. Positive psychology seeks to understand and foster the factors that allow the individuals, communities, and societies to flourish. Seligman and Csikszentmihalyi (2000, p. 5) explain that "the aim of positive psychology is to begin to catalyse a change in the focus of psychology from preoccupation only with repairing the worst things in life to also building positive qualities". The focus on engagement as the positive antithesis of burnout promises to yield new perspective on the interventions to promote the healthy perceptions, beliefs and physical well-being and to alleviate burnout (Schaufeli, Salanova et al. (2002). Work engagement is measured by the UWES with focus on vigour, absorption and dedication as the sub-scales.

There has been a recent push to reframe the turnover issue by researching the concept of intent to remain employed as opposed to intent to leave and examining resilience and engagement rather than burnout. Schaufeli and Bakker (2004) found that the engagement and burnout scales were moderately correlated. Seeing that work engagement is associated with positive experience, the question of whether or not there is a possible relationship between work engagement and workaholism arises (Brand, 2006).

Concerning the UWES in South Africa little has been done regarding the study of internal consistency, factorial validity and structural equivalence. South Africa is a multi-cultural society and it cannot be taken for granted that scores obtained in one culture can be compared

across other cultural groups. Such information is psychometrically critical since non-invariance of the instrument across groups reduce the credibility of findings from substantive multi-group research that has assumed equivalent factorial structure (Byrne, 1993).

In South African studies, the following alpha coefficients were obtained, vigour (0,78 to 0,80), dedication (0,87 to 0,89) and absorption (0,69 to 0,78) (Coetzer, 2004; Storm & Rothmann, 2003). The studies have also demonstrated the factorial validity of the UWES. However, 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. The 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 17, 16, and 11. Internal consistent Cronbach alphas from 0,65 to 0,79 for vigour (5 items); 0,77 to 0,85 for dedication (5 items) and 0,65 to 0,73 for absorption (4 items), (Naudé, 2003, Schaufeli, Martinez, Pinto, Salanova & Bakker, 2002).

It is important to obtain a valid and reliable measurement of engagement in South Africa from an empirical point of view. According to Van de Vijver and Leung (1997), issues of measurement equivalence and bias should be computed for measuring instruments in any multi-cultural setting where groups from different cultural groups are compared in terms of a specific construct. Measurement of equivalence and bias should be tested where differences in scores could be attributed to cultural influences in terms of language factor, that is understanding rather than differences resulting from the measuring of constructs by the measuring instruments. Another factor that can play a role in language is bias, that is, in terms of incidental differences in appropriateness of item content and inadequate item formulation and translation. If cultural influences are not accounted for, invalid conclusions regarding constructs under study could be made with serious implications for culturally diverse settings such as South Africa.

### *Burnout*

Burnout is commonly used as a metaphor to describe a state or process of mental exhaustion. There are three general symptoms related to burnout, that is, distress, decreased motivation

and dysfunctional attitudes and behaviours at work. Schaufeli and Enzmann (1998) defined burnout as “a persistent, negative work related state of mind in normal individuals that is primarily characterised 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 burnout construct was developed to capture and collectively identify common reactions to stressors within person-work relationships. The term burnout was coined by Freudenberger, a psychiatrist working in an alternative health care agency who recounted a process he witnessed in workers characterised by emotional depletion, loss of motivation, and decreased commitment (Maslach, Schaufeli & Leiter, 2001).

Early burnout enquiry was conducted primarily within the service professions, because these workers are most likely to experience burnout, as the essence of their work includes intense relationships between people. What is noteworthy is that both practitioners and social commentators identified the importance of burnout as a social problem long before it became a focus for systematic study by researchers (Maslach, Schaufeli & Leiter, 2001). Early research on burnout utilised bottom-up approaches to examine work experience (Cordes & Dougherty, 1993; Maslach 2003). Increased awareness that the emotional stress associated with burnout debilitated both the individual and the organisation further led to further investigation of the phenomenon.

Systematic empirical studies on burnout were first published in the late 1970s and early 1980s, and it was during these years that the concept was more clearly developed and refined (Cordes & Dougherty, 1993). It was in 1981 when Maslach and Jackson developed the prominent instrument called the Maslach Burnout Inventory (MBI). This instrument was conceptualised to measure burnout in human service workers. According to Maslach and Jackson, burnout is defined as a syndrome consisting of three dimensions: emotional exhaustion, depersonalisation and reduced personal accomplishment (Maslach et al., 2001). Exhaustion represents the individual stress component of burnout and refers to feelings of being overextended and depleted of emotional and physical resources. Exhaustion evolves as the first stage in the development of burnout in response to an excessively demanding work environment. Cynicism includes a general indifferent or cynical attitude towards work. This is also referred to as mental distancing in that an individual would withdraw from work in

order to cope with excessive job demands and feelings of exhaustion (Cordes & Dougherty, 1993).

Continued research in the 1990s, gave rise to a new direction, particularly outside the service professions. Researchers began to report similar patterns in the various professions. First, development was a response to a suggestion that the three factors of burnout could be formulated into terms that are applicable to other occupations. For example, it was noted that the emotional exhaustion resembles the stress reactions of fatigue, anxiety, psychosomatic complaints and job-related depression (Demerouti, Bakker, Nachreiner, & Ebbinghaus, 2002). However, depression and burnout have been debated since inception and the controversy has been whether depression, strain or disillusionment was synonymous with burnout (Schaufeli & Enzman, 1998). Second, development was the proliferation of other instruments that measure burnout within and outside the human services (Schwartz, 2007).

Thirdly, how burnout develops or occurs over time is another issue that has caused controversy. The most widely accepted phase model of burnout is based on Maslach and Jackson's conceptualisation (Goodman & Boss, 2002). They proposed that emotional exhaustion is the first symptom of burnout and occurs as a result of excessive chronic work demands. The second stage would be depersonalisation which follows as a defence mechanism, and finally, once the worker recognises the discrepancy between his or her original attitudes and expectations, then feelings of reduced personal accomplishment would develop (Leiter, 1991; Maslach & Jackson, 1982). Golembiewski and Munzenrider (1998) proposed a different approach to that of Maslach and Jackson, and asserted that burnout begins with a depersonalising form of coping where the worker distances himself or herself from the work and experiences diminished personal accomplishment that ultimately triggers emotional exhaustion (Goodman & Boss, 2002).

The literature on how burnout occurs led to controversial discussions about why it occurs. One body of research postulated that burnout is as a result of organisational stressors including job demands and resources (JD-R model and conservation of resources – COR model), role conflict, role overload, organisational factors and occupational characteristics. Another body of research explores connections between individual characteristics such as personality, age, gender, ethnicity and marital status to burnout. On the other hand some researchers examine burnout as a dual development involving both the organisation and the

individual (Schwartz, 2007). There is a fundamental assumption that in the JD-R model job stress or burnout develops irrespective of the type of job or occupation (Bakker, Demerouti, Euwema, 2005).

There was also a development regarding the labelling of the burnout dimensions as the earlier three dimensions were not deducted theoretically but resulted from the exploratory factor analysed items that initially collected the range of experiences associated with the burnout phenomenon. Depersonalisation was replaced by cynicism in the new dimension. The third dimension, reduced personal accomplishment, was labelled reduced professional efficacy or effectiveness (Garden, 1987; Golembiewski & Boss, 1992).

The OLBI consists of sixteen items that produce two scores: Exhaustion (Ex) (eight items, e.g. "There are days when I feel tired before I arrive at work.") and Disengagement (DE) (eight items, e.g. "I can tolerate the pressure of my work very well."). The OLBI features questions designed to assess cognitive and physical components of exhaustion and it reflects a conceptualisation of burnout that is not restricted to human service professions (Demerouti et al., 2002).

Halbesleben and Demerouti (2005) reported that the internal consistency of the OLBI was acceptable, with all the Cronbach's alpha coefficients being 0,70 and more. In a South African study conducted by Le Roux (2004), it was found that the two factors could be extracted, namely, Engagement and Disengagement. All the positive items and negative items were clustered together and loaded on the two factors respectively. These factors showed internal consistency with Cronbach alpha coefficients of 0,71 (engagement) and 0,82 (disengagement) (Brand, 2006; Le Roux, 2004).

The OLBI is based on a model similar to that of the MBI; however, it features only two scales, viz, exhaustion and disengagement. The two-factor model is derived from the model of burnout process, the Job Demands-Resources model. In this model they propose that exhaustion stems from job demands while disengagement stems from job resources. Given that the two dimensions of burnout have different causes, one would expect that they load onto two different factors. Using the confirmatory factor analysis, this study will test the fit of the two-factor measurement for the OLBI (Halbesleben & Demerouti, 2005).

It is only in this study that the OLBI was translated into Setswana and utilised in a Setswana speaking sample. It has been also been translated into Afrikaans, thus this study will be exploring whether the scale is psychometrically acceptable by testing the internal consistency, factorial validity and construct validity. Bias can be caused by incidental differences in appropriateness of item content, inadequate item formulation and translation, but also from response characteristics of the sample and administration effects.

Furthermore very few South African Studies investigating the internal consistency and construct validity of OLBI exist.

### *The relationship between work engagement and burnout*

According to Schaufeli and Bakker (2004), work engagement and burnout are indicators of wellness of people in the workplace hence they are both used in the wellness model. Schaufeli and Bakker (2004) classified four types of well-being at work which lie on two dimensions. The horizontal axis represents the pleasurable versus unpleasurable identification with work, varying from **cynicism** to **dedication**. The vertical axis relates to the mobilisation of energy, varying from **exhaustion** to **vigour**. Cynicism describes the interpersonal context dimension of burnout. Dedication describes a sense of significance, that is enthusiasm, pride and inspiration. Exhaustion is the basic individual stress dimension of burnout and vigour refers to high levels of energy and mental resilience to persist even through difficult times (Schaufeli et al., Salavona, Gonzalez-Roma, & Bakker, 2002).

According to Maslach and Leiter (1997) both work engagement and burnout are components of affective well-being at work but they are not the direct opposite of each other (Schaufeli et al., 2002). Schaufeli and Bakker (2004) who classify four types of well-being at work which lie on two dimensions, found that the engagement and burnout scales were moderately negatively correlated. Burnout and work engagement are indicators of wellness of people in the workplace, hence they are both used in the wellness model. Gonzalez-Roma et al., (2006), that vigour and exhaustion formed one dimension and cynicism or disengagement and dedication formed another dimension, suggesting that the combination of positively and negatively worked OLBI items means that they may serve as reasonable markers for both burnout and engagement.

## METHOD

### **Research design**

A cross-sectional survey design was used to collect data and to reach the research objectives. This survey design is used to assess interrelationships among variables within a population and the survey technique of data collection gathers information from the target population by means of questionnaires (Shaughnessy & Zechmeister, 1997).

### **Participants and procedure**

A random sample from the cement industry was used for the survey ( $N = 187$ ). Permission was granted by both the company and the unions before a questionnaire could be administered. Employees were given assurance that their identity would remain anonymous. A total population of 187 employees within a cement factory participated in the survey. Each manager was issued with a pack of questionnaires to distribute to the employees. The questionnaires were placed in open envelopes labelled Afrikaans, English and Setswana and employees are encouraged to complete questionnaires of their home language or most understood language if the questionnaires are neither in home language. Employees were given a period of one week to complete the questionnaires and return them sealed.

Table 1 shows the characteristics of the participants.

Table 1

*Characteristics of Participants (N= 187)*

Item	Category	Frequency	Percentage
Age	20-30 years	39	20,9
	31-40 years	68	36,4
	41-50 years	44	23,5
	51-60 years	33	17,6
	61-65 years	3	1,6
Race	Asian	6	3,2
	Black	109	58,3
	Coloured	1	0,5
	White	71	38,0
Language	Afrikaans	67	35,8
	English	7	3,7
	Tswana	81	43,3
	Xhosa	19	10,2
	Other	13	7,0
Gender	Female	19	10,2
	Male	168	89,8
Business unit	Admin & HR	20	11,5
	Packing & Despatch	37	16,8
	Quality	9	6,3
	Quarry	39	20,4
	Process	34	16,8
	Maintenance	48	20,4
Type of work	Administrative/HR	22	11,8
	Technical	60	32,1
	Managerial	25	13,4
	Operating	80	42,8
Management level	NML	152	81,3
	FML	21	11,2
	MML	14	7,5
Years of service	0-5 years	79	42,2
	6-10 years	32	17,1
	11-15 years	29	15,5
	16-20 years	18	9,6
	21-25 years	14	7,5
	26-30 years	7	3,7
	31-35 years	8	4,3
Hours of work	Day workers	90	48,1
	Shift workers	97	51,9
Standby	Yes	48	25,7
	No	139	74,3
Education level	Primary	16	8,6
	Secondary	84	44,9
	Technical	58	31,0
	Tertiary	29	15,5

According to Table 1, the sample was composed of a diverse group of people of different races, cultural backgrounds, educational backgrounds as well as all employment categories. Both the OLBI and UWES were administered in Afrikaans, English and Setswana in order to reduce language barriers for the respondents. It can be said that the majority of the sample were black, 58,3% and majority of employees were between the ages 31 and 40 years. The males were in the majority at 89,8% and 81% of the employees were in non-management positions. Most of the employees had secondary education and higher.

### **Measuring instruments**

The Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2002) and The Oldenburg Burnout Inventory (OLBI) (Demerouti et al., 2003) were used in this study.

**Utrecht Work Engagement Scale (UWES):** The UWES was used in this study to measure the levels of work engagement with specific focus on three dimensions, namely vigour, dedication and absorption, which are conceptually seen as the opposite of burnout (Schaufeli et al., 2002). The instrument is scored on a 7 point frequency rating varying from 0 (*never*) to 6 (*every day*) and has seventeen questions which include statements like “My job inspires me.” and “I feel strong and vigorous in my job.” (Schaufeli et al. 2002). This 17-item questionnaire has three scales, that is vigour (6 items), dedication (5 items) and absorption (6 items). The instrument was administered to a diverse group with vast differences in race and cultural background. In a study conducted by Storm (2002) on the South African Police Service the following alpha coefficients were achieved on the dimensions: vigour = 0,78; dedication = 0,89 and absorption = 0,78.

**The Oldenburg Burnout Inventory (OLBI):** The most recent version of the OLBI features questions that have balanced positive and negative wording as well as questions designed to assess cognitive and physical components of exhaustion, consistent with past suggestions in the burnout literature (Halbesleben & Demerouti, 2005). The OLBI was used to measure the participants’ level of burnout (Demerouti et al., 2002). Furthermore the inventory measures burnout independent of vocational aspects on the two dimensions. Unlike the MBI-GS, the OLBI also covers physical and cognitive aspects of exhaustion, that is, a need for long resting time. The OLBI conceives burnout as a syndrome of work-related negative experiences comprising two dimensions, which are feelings of *exhaustion* and *disengagement* from work. This makes the OLBI more applicable to blue-collar workers who perform physical

work and not only to those who process information across different occupational categories. (Demerouti et al., 2002).

The seven items of the exhaustion sub-scale are generic and refer to general feelings of emptiness, overtaxing from work, a strong need to rest and a state of physical exhaustion. For example, “There are days that I feel too tired to go to work.” and “I usually feel worn out and tired after my work.” In the study conducted by Demerouti et al. (2001), a Cronbach alpha coefficient of the exhaustion subscale was reported as 0,84. The OLBI disengagement dimension sub-scale has nine items and refers to distancing oneself from one’s emotions regarding the work task that is uninteresting and not being challenged by work. For example, “Over time, I have lost personal interest in my work” and “It happens more and more that I talk about my work in a negative way”. One would experience negative attitudes toward the work content and work in general as well as the relationship between the employee and his or her job (Demerouti et al., 2002). The consistency of the factorial structure of the OLBI across different occupational groups confirms the generalisability of the burnout construct to other occupations (Demerouti & Nachreiner, 1998). In a study conducted by Bosman (2005) on the South African government employees, the following alpha coefficients were achieved on the dimensions: exhaustion/disengagement = 0,66, OLBI engagement = 0,71. In a study by Le Roux (2004) on South African earth-moving equipment industry the following alpha coefficients were achieved, viz, Engagement = 0,71 and Disengagement = 0,82.

### **Statistical analysis**

The general objective of the study was to evaluate the UWES and OLBI as wellness instruments within a cement factory. The statistical analysis was done with the use of the SPSS-program (SPSS Inc. 2003). The exploratory factor analysis (EFA) was carried out to determine the validity of the UWES and the OLBI questionnaires. The reason why EFA was used as opposed to confirmatory factor analysis (CFA) (especially on the UWES) was because of the small number of participants ( $N=187$ ). Hoelter (1983) recommended that a minimum of 200 participants should be included before carrying out CFA. That’s why EFA was employed in this study. Firstly, a simple principal components analysis was conducted on the items of the questionnaires to determine the number of factors. For this purpose both the scree plot and eigenvalues were evaluated. Secondly, a principal axis factoring analysis with a direct Oblimin rotation was conducted in order to identify the factor loadings of the

items on both questionnaires. Communalities ( $r > 0,20$ ) were evaluated to determine the amount of variance each item explained in terms of the other items. The factor correlation matrix was evaluated to determine if factors correlated with each other. In cases where factors were related ( $r > 0,30$ ) an Oblimin rotation was employed while a Varimax rotation was employed when in case where factors were not related ( $r < 0,30$ ). Cronbach alpha coefficients were used to assess the reliability of the constructs that are measured in this study. Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were analysed to determine the distribution of the data. Pearson product-moment correlation coefficients were used to specify the relationship between variables. The level of statistical significance was set at 0,05. In terms of practical significance, a cut-off point of 0,30 for medium effect and 0,50 was set for a significance of large effect (Cohen, 1988). Multivariate analysis of variance (MANOVA) was used to establish the significance of differences between demographic groups (Tabachnick & Fidell, 2001). If Wilk's Lambda values ( $p < 0,01$ ) demonstrated statistically significant differences, the relationships were further analysed to determine the practical significance using one-way analysis of variance (ANOVA).

## RESULTS

### Factor analysis

Principle factor extraction was employed with an oblique rotation in extraction of the items for the UWES and OLBI. Two factors (with eigen values higher than 1) were extracted for both instruments. Item loadings for the UWES was identified by employing Principle Axis Factoring analysis and Oblimin rotation, explaining 53,94% of the variance. The results of the factor analysis of the UWES are shown in Table 2. Item loadings for the OLBI was identified by the use of Principle Axis factoring analysis and Varimax rotation, explaining 38,80% of the variance. The results of the OLBI are shown in Table 3. Loading of variables on factors, communalities and percent of variance and covariance are shown. Items are ordered and grouped by size of loading to facilitate interpretation. Labels for each factor are suggested in a footnote.

Table 2

*Factor loadings, Communalities, Percentage Variance for Principle Factor Extraction and Oblimin rotation on the Utrecht Work Engagement Scale (UWES)*

<b>Item</b>		<b>F1</b>	<b>F2</b>	<b><i>h</i><sup>2</sup></b>
UWES – 1	I am bursting with energy in my work.	<b>0,78</b>	0,00	<b>0,54</b>
UWES – 2	I find my work full of meaning and purpose.	<b>0,89</b>	0,00	<b>0,63</b>
UWES – 3	Time flies when I'm working.	0,00	<b>0,34</b>	<b>0,30</b>
UWES – 4	I feel strong and vigorous in my job.	<b>0,76</b>	0,00	<b>0,63</b>
UWES – 5	I am enthusiastic about my job.	<b>0,78</b>	0,00	<b>0,66</b>
UWES – 6	When I am working, I forget everything else around me.	0,00	<b>0,63</b>	<b>0,37</b>
UWES – 7	My job inspires me.	<b>0,59</b>	0,00	<b>0,57</b>
UWES – 8	When I get up in the morning, I feel like going to work.	<b>0,69</b>	0,00	<b>0,51</b>
UWES – 10	I am proud of the work that I do.	<b>0,42</b>	0,00	<b>0,39</b>
UWES – 11	I am immersed in my work.	0,00	<b>0,52</b>	<b>0,54</b>
UWES – 14	I get carried away by my work.	0,00	<b>0,63</b>	<b>0,46</b>
UWES – 16	It is difficult to detach myself from my job.	0,00	<b>0,59</b>	<b>0,34</b>
Variance Explained		7,44%	46,50%	53,94%
F1 Vigour/Dedication F2 Absorption				

A simple principal factor analysis with a direct Oblimin was conducted on the items of the UWES. The results yielded a two-factor model after the principal factor extraction was done. A cut-off of 0,30 was set for the inclusion of items. Only 12 items seemed to load, that is Items 1, 2, 4, 5, 7, 8, 10 loaded on Factor 1 which can be labelled *Vigour/Dedication* since items of both dimension loaded onto one factor. Items 3, 6, 11, 14, and 16 loaded on Factor 2 which can be labelled *Absorption*. These 12 items together explained 53,94% of the total variance. It seems that the items of Vigour and Dedication merged into one factor. *Vigour* is characterised 'by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties' (Schaufeli & Bakker, 2003). *Dedication* refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge' (Schaufeli & Bakker, 2003). Items of Absorption loaded on Factor 2. *Absorption*, is characterized 'by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work' (Schaufeli & Bakker, 2003).

Five items were disregarded from further analysis for this instrument. Four items showed low loadings on the factor they were developed to measure. They were Item 9 (*I feel happy when I am engrossed in my work*) which loaded 0,23 on Factor 2 (Absorption); Item 12 (*In my job, I can continue working for very long periods of time*) which loaded 0,08 on Factor 1 (Vigour/Dedication), Item 13 (*To me my work is challenging*) loaded 0,06 on Factor 2 (Vigour/Dedication), and Item 17 (*I always persevere at work, even when things do not go well*) loaded 0,20 on Vigour/Dedication. Item 15 (*I am very resilient, mentally, in my job*) was disregarded since it loaded onto both factors.

Table 3

*Factor loadings, Communalities, Percentage Variance for Principle Factor Extraction and Varimax rotation on the Oldenburg Burnout Inventory (OLBI)*

Item		F1	F2	<i>h</i> <sup>2</sup>
OLBI – 3	I can cope with pressure of my work very well.	<b>0,69</b>	0,00	<b>0,48</b>
OLBI – 5	I need more time to relax and feel free after work than I did in the past	0,00	<b>0,58</b>	<b>0,34</b>
OLBI– 9	I usually have enough energy for leisure activities after work.	<b>0,52</b>	0,00	<b>0,35</b>
OLBI – 11	I can usually manage my workload well.	<b>0,70</b>	0,00	<b>0,50</b>
OLBI – 14	I like my work so much that I cannot imagine another occupation for myself.	0,00	<b>0,54</b>	<b>0,29</b>
OLBI – 16	I feel more and more engaged in my work	0,00	<b>0,84</b>	<b>0,71</b>
Variance explained		16,64%	22,16%	38,80%

F1 Disengagement F2 Exhaustion

The principle factor analysis with Varimax rotation was conducted on the items of the OLBI. The results yielded a two-factor structure model after the principle factor extraction was conducted. A cut-off of 0,30 was set for the inclusion of items. Only 6 items seem to load, that is Items 3, 9 and 11 loaded on Factor 1 which can be labelled *Disengagement* and Items 5, 14, and 16 loaded on Factor 2 which can be labelled *Exhaustion*. *Disengagement* is characterized as ‘distancing oneself from one’s work’ and *exhaustion* is characterised by ‘general feelings of emptiness, overtaxing from work, a strong need for rest and a state of emotional exhaustion’ (Ebbinghaus, 1996).

Ten items in total did not load onto any factor. The items were Item 1 (*I always find new and interesting aspects in my work*), which loaded 0,14 of Factor 1. Item 2 (*There are days when I feel tired before I arrive at work*), which loaded 0,15 of Factor 2. Item 4 (*After work, I tend to need more time than in the past in order to relax and feel better*), which loaded 0,06 of Factor 1. Item 6 (*Lately, I tend to think less at work and do my job almost mechanically*),

which loaded 0,11 of Factor 1. Item 7 (*I find my work to be a positive challenge*), which loaded 0,14 of Factor 1. Item 8 (*During my work, I often feel emotionally drained*), which loaded 0,05 of Factor 2. Item 10 (*After working, I have enough energy for my leisure activities*), which loaded 0,18 of Factor 1. Item 12 (*After my work, I usually feel worn out and weary*), which loaded 0,09 of Factor 2. Item 13 (*This is the only type of work that I can imagine myself doing*), which loaded 0,29 of Factor 2, and Item 15 (*I feel more and more engaged in my work*) which loaded 0,07 of Factor 1.

### **Descriptive statistics and alpha coefficient of the scales**

The descriptive statistics and alpha coefficients of the measuring instruments are shown in Table 4.

Table 4

*Descriptive Statistics, and Alpha Coefficients of the UWES and the OLBI*

<i>Item</i>	Mean	SD	Skewness	Kurtosis	A
<b>Engagement</b>					
Vigour/Dedication	4,65	1,22	-0,99	0,49	0,90
Absorption	4,33	1,22	-0,81	0,46	0,76
<b>Burnout</b>					
Disengagement	2,16	0,72	0,31	-0,25	0,68
Exhaustion	2,30	0,75	-0,05	-0,26	0,69

Table 4 shows that acceptable Cronbach alpha coefficients were obtained in all dimensions, varying from 0,68 to 0,90. It can be inferred that the internal consistencies, 0,90 for *Vigour/Dedication* and 0,76 for *Absorption* are well within the acceptable guideline of  $\alpha > 0,70$  for engagement. The internal consistencies for the OLBI, 0,68 for *Disengagement* and 0,69 for *Exhaustion* were below acceptable level compared to the guideline of  $\alpha > 0,70$  (Nunnally & Bernstein, 1994). According to Black and Porter (1996), an alpha coefficient of 0,60 and higher is considered adequate in exploratory research. Nunnally (1967) also indicated that an alpha coefficient of between 0,50 and 0,60 is still acceptable for preliminary results, provided that further analysis of the instrument be conducted which are recommended for future research. The skewness and kurtosis of both scales seem to be between 1 and -1, thus it can be inferred that the scores are normally distributed.

## Product-moment correlations

The results of the product-moment correlation coefficients between the constructs are reported in Table 5. As indicated in Table 5, *Vigour/dedication*, *Absorption*, *Disengagement* and *Exhaustion* are normally distributed. It was therefore decided to use the Pearson product-moment correlations for the two scales.

Table 5  
*Correlation Coefficients between Engagement and Burnout*

<i>Item</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1. Vigour/Dedication	1	-	-	-
2. Absorption	0,70***	1	-	-
3. Disengagement	-0,51***	-0,38**	1	-
4. Exhaustion	-0,13	-0,15	0,10	1

\*Correlation is statistical significant at the 0,05 level

\*Correlation is practical significant at the 0,30 level (medium effect)

\*\*Correlation is practical significant at the 0,50 level (large effect)

As can be seen in Table 5, there is a strong statistical and practical significant correlation between *Vigour/Dedication* and *Absorption* as dimensions of the UWES scale. There are statistical and negative practical correlation between *Disengagement* (from the OLBI scale) with *Vigour/Dedication* (large effect) and *Absorption* (medium effect). No statistical or practical significant correlation was established for *Exhaustion* with any of the other dimensions.

MANOVAs were conducted to determine the differences in the experience of Engagement and Burnout regarding age, gender, race and language. This is presented in Table 6 (for Engagement) and Table 9 (for Burnout).

Table 6  
MANOVA – Differences in Engagement of Age, Gender, Race and Language Groups

Variable	Value	<i>F</i>	<i>Df</i>	<i>P</i>	Partial Eta Squared
Age	0,98	0,46	10	0,92	0,01
Gender	0,98	0,93	4	0,45	0,01
Race	0,82	6,26	6	0,00*	0,09
Language	0,83	3,63	10	0,00*	0,09

\**p* < 0,05 = significant differences

After conducting an analysis of Wilk’s Lambda values, no statistical differences ( $p < 0,05$ ) could be found regarding the experience of engagement for age and gender groups, but there is a statistical difference regarding the experience of engagement for different race and language groups. The specific differences are further explored in the following tables (Table 7 and Table 8).

Table 7  
ANOVA - Differences in Engagement on Race groups

Item	Asian	Black	Coloured	White	<i>P</i>	Partial Eta Squared
Vigour/Dedication	5,48	5,02	3,88	4,08	0,00*	0,15
Absorption	5,36	4,53	2,70	4,01	0,00*	0,08

\*Statistically significant difference:  $p < 0.05$

Table 7 indicates that there is a significant difference between the race groups for *Vigour/Dedication* and *Absorption*. From Table 7 it can be estimated that the Asian group experiences more *Vigour/Dedication* and *Absorption* than any the other groups, while the Coloured group seems to experience the least *Vigour/Dedication* and *Absorption* in comparison with the other groups.

Table 8  
ANOVA – Differences in Engagement in terms of Language groups

Item	Afrikaans	English	Setswana	isiXhosa	Other	<i>P</i>	Partial Eta Squared
Vigour/Dedication	4,12	5,03	4,96	5,15	5,04	0,00*	0,12
Absorption	4,02	5,72	4,47	4,69	4,29	0,02*	0,07

\*Statistically significant difference:  $p < 0.05$

In Table 8, the results indicate that there is a significant difference between the different language groups for *Vigour/Dedication* and *Absorption*. As Table 7 indicates, isiXhosa speakers experience more *Vigour/Dedication* than any of the other groups, while the Afrikaans group experiences the least *Vigour/Dedication*. Regarding the experience of *Absorption*, the English group experience it the most, while the Afrikaans group again experiences the least *Absorption*.

Table 9

*MANOVA – Differences in Burnout of Age, Gender, Race and Language*

Variable	Value	<i>F</i>	<i>df</i>	<i>P</i>	Partial Eta Squared
Age	0,97	0,63	10	0,79	0,02
Gender	0,97	1,55	4	0,19	0,02
Race	0,94	1,76	6	0,11	0,03
Language	0,94	1,15	10	0,33	0,03

\**p* <0,05 = significant differences

After conducting an analysis of Wilk’s Lambda values, no statistical differences (*p* < 0,05) could be found regarding the experience of burnout for age, gender, race and language groups.

## DISCUSSION

The general aim of the study was to conduct a psychometric evaluation of the UWES and OLBI within a cement factory. To achieve the general objective, specific objectives were determined and analysed through statistical properties of the measuring instruments, namely to determine their construct validity, reliability as well as the correlation between the instruments, and to determine the demographic differences between groups in the experience of engagement and burnout.

To answer the first objective of the study with regard to the conceptualisation of engagement and burnout, from the literature review, it came out that these two constructs are components of wellbeing at work. Engagement and burnout are the indicators of wellness of people in the

workplace, hence they are both used in the wellness model. According to Maslach and Leiter (1997) both work engagement and burnout are components of affective well-being at work but they are not the direct opposite of each other (Schaufeli et al., 2002). Schaufeli and Bakker (2004) who classify four types of well-being at work which lie on two dimensions, found that the engagement and burnout scales were moderately negatively correlated. Gonzalez-Roma et al., (2006), maintained that vigour and exhaustion formed one dimension and cynicism or disengagement and dedication formed another dimension, suggesting that the combination of positively and negatively worked OLBI items means that they may serve as reasonable markers for both engagement and burnout.

The second objective of this study was to determine the factor structure and internal consistency of the UWES. The results of this study revealed that engagement is a two-factor model after the principle factor extraction was done. Only 12 items loaded in total on Factor 1 (labelled *Vigour/Dedication*) and Factor 2 (labelled *Absorption*). This two factor model explained 53,94% of the total variance. However, in a study by Coetzer and Rothmann (2007), they found acceptable goodness of fit statistics for the three-dimensional structure of the UWES for employees in an insurance company. Storm and Rothmann (2003) and Naudé (2003) established that there are high correlations between work engagement dimensions (*Vigour/Dedication* and *Absorption*) by which they suggested that work engagement as measured by the UWES, is a two-factor construct. Therefore the results of this study also confirm that the UWES is a two-factor construct.

The criteria for inclusion of items were three-fold. Firstly, items were excluded if the inter-item correlation (communalities) was below the cut-off 0,20. According to Gorsuch (1997) low communalities might lead to inflated values of variance. Secondly, items were excluded if they failed to load onto the factor they were developed to measure (which can be ascribed to low content validity). The cut-off was set as 0,30 for inclusion. Thirdly, items that loaded on more than one factor were also excluded. Cross-loadings might indicate ambiguous or low understanding of the item which might distort the results if it is retained. Four items failed to meet these criteria out the Principle Axis factoring analysis with an Oblimin rotation on the UWES. They were Item 9 (*I feel happy when I am engrossed in my work*) which loaded 0,23 on Factor 2 (*Absorption*); Item 12 (*In my job, I can continue working for very long periods of time*) which loaded 0,08 on Factor 1 (*Vigour/Dedication*), Item 13 (*To me my work is challenging*) loaded 0,06 on Factor 2 (*Vigour/Dedication*), and Item 17 (*I always persevere at*

*work, even when things do not go well*) loaded 0,20 on *Vigour/Dedication*. The reason why these items failed to load onto any factor could be ascribed to numerous issues. The terms might be too difficult to understand, especially for the African language speakers (other than Setswana speakers since they had translated versions). Another reason might be that the items were understood in a different way as was intended, which made it possible that items failed to load onto the target dimension it was developed for (Vosloo, 2005). Item 9 (*I feel happy when I am engrossed in my work*) and Item 17 (*I always persevere at work, even when things do not go well*) might have been misunderstood because of its ambiguous nature (being happy vs. engrossed; persevere vs. not doing well) (Auriacombe, 2010). Auriacombe (2010) suggests further that a double-barrel item should be separated into two items. Item 13 (*To me my work is challenging*) seems to be too broad and general to adequately answer for the participants (who are blue collar workers within a cement factory). The low loading of Item 12 (*In my job, I can continue working for very long periods of time*) on *Vigour/Dedication* could be ascribed to the fact that the item was very long. Auriacombe (2010) suggests using shorter items since it is understood quicker for the respondents.

The Cronbach Alpha coefficients showed acceptable internal consistency for both dimensions (0,90 for *Vigour/Dedication* and 0,76 for *Absorption*), which is above the guideline as prescribed by Nunnally and Bernstein (1994). It can therefore be concluded that the UWES as utilised in this research is a valid and reliable measuring instrument.

To answer the third objective, exploratory factor analysis was conducted on the OLBI and the results revealed that the questionnaire has a two-factor structure, being *Disengagement* (labelled Factor 1) and *Exhaustion* (labelled Factor 2). However, in this study, only six items loaded; three for *Disengagement* and three for *Exhaustion*, which explained 38,80% of the total variance. According to Costello and Osborne (2005) a minimum of three items should be retained per factor in order to make adequate interpretations, which fortunately happened in this case. In exploring the factor structure of the OLBI, in a study by Ebbinghaus, (1996), a factor analysis confirmed a two-factor structure. A study by Demerouti et al. (2002) found out that burnout as measured by OLBI has a two-factor structure, with *Disengagement* and *Exhaustion* as separate yet correlated dimensions. In a recent study by Bosman (2005) the results also confirmed that OLBI is a two-factor construct.

Although the results of this study has confirmed that burnout as measured by OLBI is a two-factor structure, the results did not fully correspond with the findings of Demerouti et al. (2002) since an orthogonal rotation (and more specifically Varimax) had to be employed since there was no correlation between the two factors.. The low number of items that were retained can be ascribed to the factors not correlating with each other (Costello & Osborne, 2005). The items that failed to load were Item 1 (*I always find new and interesting aspects in my work*), which loaded 0,14 of Factor 1. Item 2 (*There are days when I feel tired before I arrive at work*), which loaded 0,15 on Factor 2. Item 4 (*After work, I tend to need more time than in the past in order to relax and feel better*), which loaded 0,06 on Factor1. Item 6 (*Lately, I tend to think less at work and do my job almost mechanically*), which loaded 0,11 on Factor 1. Item 7 (*I find my work to be a positive challenge*), which loaded 0,14 on Factor 1. Item 8 (*During my work, I often feel emotionally drained*), which loaded 0,05 on Factor 2. Item 10 (*After working, I have enough energy for my leisure activities*), which loaded 0,18 on Factor 1. Item 12 (*After my work, I usually feel worn out and weary*), which loaded 0,09 on Factor 2. Item 13 (*This is the only type of work that I can imagine myself doing*), which loaded 0,29 on Factor 2, and Item 15 (*I feel more and more engaged in my work*) which loaded 0,07 on Factor 1. As with the UWES where some items were omitted, the reasons might be similar with items failing to load in the OLBI. Most items are double-barrelled (Item 4, Item 6, and Item 12) or too broad (Item 7).

The internal consistency of the two factors of the OLBI were both marginally acceptable; 0,68 for *Disengagement* and 0,69 for *Exhaustion* if compared according to Nunnally and Bernstein (1994) level of 0,70. However, Black and Porter (1996) asserted that an alpha coefficient of 0,60 and higher is considered adequate in exploratory research. Nunnally (1967) also indicated that an alpha coefficient of between 0,50 and 0,60 is still acceptable in instances of exploratory analysis. For the purposes of this study, the reliability of these factors as measured in terms of internal consistency is therefore acceptable. It is possible that the issue regarding the low internal consistency can be ascribed to the fact that few items survived the factor analysis of the questionnaire. With only few items surviving the factor analysis, this could suggest that more similar research is required.

It is interesting why the UWES has yielded desirable results on its psychometric evaluation and the OLBI has not. Chances are high that the translated OLBI version to Setswana and Afrikaans have contributed to the undesirable psychometric characteristics of the instrument,

since majority of participants were Tswana (43,9%) and Afrikaans (35,8%). Another reason could be that participants whose home language was neither Afrikaans, English or Setswana have possibly opted for other language questionnaire and could have been faced by semantics problem. It is also highly likely that some of the double-barrel items could also have contributed to the results.

The fourth objective was to determine the relationship of the dimensions of engagement and burnout. The results indicated a strong positive statistical and practical correlation between *Vigour/Dedication* and *Absorption* as dimensions of the UWES scale. Previous studies by Storm and Rothmann (2003) and Naudé (2003) indicated similar outcome of high correlations between work engagement dimensions of vigour, dedication and absorption. This correlation suggests that energetic and dedicated employees are highly likely to be happy in their work to the extent that they are unlikely to detach themselves from their work. However there is also a statistical and practical correlation between *Disengagement* (a dimension of the OLBI) with *Vigour/Dedication* and *Absorption* and this could imply that once employees are Disengaged, there is a likelihood that such employees would be less energetic and less dedicated. The fact that there is no statistical relationship with *Exhaustion* could mean that employees who are exhausted may still be engaged in their work. Maslach, Schaufeli and Leiter (2001) explain that in the case of burnout, what started out as important, meaningful and challenging work becomes unpleasant, unfulfilling and meaningless. It can also be seen as positive poles of burnout dimensions. Thus the results might indicate that some individuals do not develop burnout irrespective of high job demands and long working hours (Schaufeli & Bakker, 2004; Seligman & Csikszentmihalyi, 2000).

With regard to the fifth objective, significant differences were found between the various demographic groups and their scores on engagement. The Asian group came out as the most engaged than the rest of the groups while the Coloured group seemed to be least engaged in comparison with the other groups. The outcome of the study does not correspond with the research of Storm (2002), who did not find any practical differences between the engagement levels of black and white participants. The results of this study are closely related to the findings of Bosman (2005), who found that black participants were more engaged than their white counterparts. The results of this study regarding demographic differences in engagement in terms of languages found that, isiXhosa speakers were more engaged than any of the other groups, while the Afrikaans group experience the least engagement. No

significant differences were found in the experience of burnout between the different race and language groups.

No significant differences were found in the experience of burnout between the different race and language groups.

The results also showed that irrespective of age, and gender, there is no difference in the experience of engagement and burnout. This outcome implies that employees of different age and gender are likely to experience burnout in the same manner. However, Maslach et al. (2001) noted that of all demographic variables that have been studied, age is the one that has been consistently related to burnout, with younger employees reporting higher levels of burnout than older employees. No research could be found comparing the engagement and burnout level between male and female gender.

This study has showed that the use of the UWES is acceptable for measuring engagement of employees in a cement factory because of its construct validity and high level of reliability. On the other hand the OLBI has demonstrated challenges related to its construct validity and marginal reliability as only few items survived the factor analysis. Given the situation of the OLBI in this study it is suggested that future research must focus on the validity and reliability of the OLBI. Furthermore the study has indicated that different races and language groups will experience engagement differently and that there is no difference in the experience of both engagement and burnout related to age and gender.

## **LIMITATIONS**

This study had several limitations. Firstly, there was a low number of participants and the use of the participants within the North West Province, which limit the generalisations that could be made from the results. Secondly, the use of cross-sectional design as opposed to longitudinal design could have influenced the outcome. With a longitudinal design more substantiated results and comparative analysis could have been accumulated and made. Thirdly, self-report questionnaires were used (UWES and OLBI) which was completed by participants on their own time and availability, which could have lead to participants not understanding some of the items, or the inability of the researcher to identify transient factors (stress, anxiety, etc.). This could have distorted the results of this study. Fourthly, few items

seem to load on the factors of the OLBI. A possibility can be attributed to unexpected relationships between the variables. Fifthly, the translation of measuring instruments (UWES and OLBI) to Afrikaans and English might have led to certain issues, especially since the OLBI failed to work probably in this study. The problems associated with translation and or semantic differences in terms of understanding the content by the different group which led to inconsistent responses by the different language groups.

## **RECOMMENDATIONS**

Based on the outcome of this study, the following recommendations can be made. For research, the use of the OLBI as a measuring instrument in a multi-cultural setting is questionable. Further research should be conducted on item level regarding the OLBI (especially in cross-cultural research), since so many items failed to load onto any of the two factors. Therefore should research focus on the content and construct validity of the OLBI. Item biased, as well as the structuring of items for both UWES and OLBI should be researched further, since the low loadings of items can be construed to its ambiguity and difficulty. Further studies focusing on wellness research should employ more well-researched measuring instruments like UWES and Maslach Burnout Inventory (MBI). In this study, the UWES showed acceptable construct validity and internal consistency. Future research should focus on identifying the specific factors which attribute to engagement differences in race and language groups. Since no differences were found for age and gender in the experience of engagement and burnout, it should be explored in order to ascertain if the results were methodology based or practically substantiated. Another recommendation can be made towards the low total of participants towards this study. To make it more representative, more respondents must participate in order to accumulate more valid results.

For the context of this study, the following recommendations can be made. Psychometric evaluation and questionability of the measuring instruments used aside, wellness issues seems to be an issue for blue collar workers within the cement factory. While they seem to be energised, dedicated and engrossed towards their work, the instant they feel disengaged they might feel less enthused, devoted and absorbed. These results should be further explored within the cement factory since external or internal factors can be attributed to the loss of interest towards their work. Furthermore, the significant differences regarding race and

language groups in their experience of engagement should also be explored. Why is it that Coloured employees seem to be less engaged towards their work than any of race groups? Why is that Afrikaans speakers from the cement factory seem to be less absorbed in their work than any other language groups? The employers should look into other factors that may contribute this finding.

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## **CHAPTER 3**

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

In this chapter, conclusions regarding the study are provided according to the general and specific objectives. The limitations of this research are discussed followed by recommendations for the organisational and future research.

#### **3.1 CONCLUSIONS**

The first research objective was to conceptualise work engagement and burnout as a model of work wellness. To answer the first objective of the study with regard to the conceptualisation of engagement and burnout, from the literature review, it came out that these two constructs are components of wellbeing at work. According to Maslach and Leiter (1997) both work engagement and burnout are components of affective well-being at work but they are not the direct opposite of each other (Schaufeli et al., 2002). Schaufeli and Bakker (2004) who classify four types of well-being at work which lie on two dimensions, found that the engagement and burnout scales were moderately negatively correlated. Gonzalez-Roma et al., (2006), maintained that vigour and exhaustion formed one dimension and cynicism or disengagement and dedication formed another dimension, suggesting that the combination of positively and negatively worked OLBI items means that they may serve as reasonable markers for both engagement and burnout.

The second objective of this study was to determine the factor structure and internal consistency of the UWES. The results of the factor analysis of the UWES confirmed a two-factor model by using the simple principal factor analysis with a direct Oblimin rotation. The first factor labelled Vigour/Dedication included bursting with energy in ones' work, finding work meaningful, feeling strong, vigorous and enthusiastic as well as pride about work. The second factor labelled Absorption included time is flying when at work and forgetting about everything when at work, getting immersed and carried away by work. The results obtained using the principal component analysis confirm the previous studies (Storm and Rothmann, 2003, Naudé, 2003 and Bosman, 2005) that have been done across different samples and occupational groups in South Africa. The exploratory factor analysis conducted on the UWES indicated a two-factor structure for the UWES, few studies, for example Van der Linde (2004) found a two- factor structure of the UWES. A study by Storm and Rothmann

(2003) indicated that although the three-factor structure results were satisfactory, the fit with data was superior with the one-factor or two-factor structure.

The UWES performed well in this study, although participants were administered the UWES-17. However the UWES-9 has in previous studies demonstrated a better confirmatory fit during the preliminary analysis, suggesting that the UWES-9 is preferable for organisational research because of its shorter length and superior psychometric features (Schaufeli, Bakker and Salanova, 2006). For this study, exploratory factor analysis had to be conducted since the number of participants was 187. According to Hoelter (1983) a minimum of 200 participants should be included in order to conduct a confirmatory factor analysis.

Cronbach alpha coefficients of 0,76 for *Vigour/Dedication* and 0,90 for *Absorption* were obtained. These alpha coefficients compared reasonably well with the guideline of 0,70 (Nunnally and Bernstein, 1994). Thus the UWES can be accepted as a reliable instrument for measuring work engagement within the cement industry.

The third objective of this study was to determine factor structure and internal consistency of the OLBI. The results of the factor analysis of the OLBI confirmed a two-factor model after conducting the principal factor analysis with a Varimax rotation. The first factor was labelled *Disengagement* and is defined as coping with pressure, energy for leisure after work, and managing work load. The second factor was labelled *Exhaustion* which includes: Need for time to relax, state of emotional exhaustion and overtaxing from work. The results obtained confirmed the previous studies (Bosman, 2005; Ebbinghaus, 1996, Demerouti et al., 2002; Halbesleben & Demerouti, 2005; Schwartz, 2007) that have been done across different samples, occupational groups and countries. Although the results of this study has confirmed that burnout as measured by OLBI is a two-factor structure, the results did not fully correspond with the findings of Demerouti et al. (2002) since an orthogonal rotation (and more specifically Varimax) had to be employed since there was no correlation between the two factors.. The low number of items that were retained can be ascribed to the factors not correlating with each other (Costello & Osborne, 2005).

The Cronbach alpha coefficients of 0,68 for *Disengagement* and 0,69 for *Exhaustion* were obtained. These alpha coefficients posed a challenge when compared with Nunnally and Bernstein (1994) acceptable level 0,70. However Black and Porter (1996) asserted that an

alpha coefficient of 0,60 and higher is considered adequate in exploratory research. Nunnally (1967) also indicated that an alpha coefficient of between 0,50 and 0,60 is still acceptable in instances of exploratory analysis. For the purposes of this study, the reliability of these factors as measured in terms of internal consistency was accepted. This could be indicative of the fact that the internal consistency of the OLBI is influenced by the size of the sample.

It is therefore recommended that, for future studies a sample of 300 participants is required in order to have better results of the alpha coefficient (Nunnally & Bernstein, 1994). The two-factor structure of the OLBI supports the findings of Demerouti et al., (2002). The fact that, about, 35,8% and 43.9% of participants, Afrikaans and Setswana respectively could have contributed to the outcome of the results. In short, it can be stated that the psychometric properties of the OLBI, that is both the factorial structure and internal consistencies have raised concerns that need to be addressed by future research and also whether the OLBI can be widely accepted as a preferred instrument to measure burnout.

The fourth objective was to determine the relationship of the dimensions of engagement and burnout. The results indicated a strong positive statistical and practical correlation between *Vigour/Dedication* and *Absorption* as dimensions of the UWES scale. Previous studies Storm and Rothmann (2003) and Naudé (2003) indicated similar outcome of high correlations between work engagement dimensions of vigour, dedication and absorption. This correlation suggests that energetic and dedicated employees are highly likely to be happy in their work to the extent that they are unlikely to detach themselves from their work. However there is also a statistical and practical correlation between *Disengagement* (a dimension of the OLBI) with *Vigour/Dedication* and *Absorption* and this could imply that once employees are Disengaged, there is a likelihood that such employees would be less energetic and less dedicated. The fact that there is no statistical relationship with *Exhaustion* could mean that employees who are exhausted may still be engaged in their work. Maslach, Schaufeli and Leiter (2001) explain that in the case of burnout, what started out as important, meaningful and challenging work becomes unpleasant, unfulfilling and meaningless. It can also be seen as positive poles of burnout dimensions. Thus the results confirm the outcome of previous studies that some individuals do not develop burnout irrespective of high job demands and long working hours (Schaufeli & Bakker, 2004; Seligman & Csikszentmihalyi, 2000).

With regard to the fifth objective, significant differences were found between the various demographic groups and their scores on engagement. The Asian group came out as the most engaged than the rest of the groups while the Coloured group seemed to be least engaged in comparison with the other groups. The outcome of the study does not correspond with the research of Storm (2002), who did not find any practical differences between the engagement levels of black and white participants. The results of this study are closely related to the findings of Bosman (2005), who found that black participants were more engaged than their white counterparts. The results of this study regarding demographic differences in engagement in terms of languages found that, isiXhosa speakers were more engaged than any of the other groups, while the Afrikaans group experience the least engagement. Furthermore no significant differences were found in the experience of burnout between the different race and language groups. Antonovsky (1979) suggested that black participants are expected to score lower on indices of psychological well-being compared to white participants due to their different social backgrounds, but Wissing and Van Eeden (2002) had a different view in the context of the new political dispensation in South Africa, and they claim that white participants are expected to score low indices than black participants because of Employment Equity and affirmative Action, suggesting that they may feel less vigour and dedication.

No significant differences were found in the experience of burnout between the different race and language groups. Research on the influences that ethnic differences can have on employee work experiences of burnout is limited. However in a study by Bosman (2005) regarding the OLBI, black participants were found to be more engaged than their white counterparts. The same line of thought as advanced above is applicable in the experience of burnout, where it can be argued that white participants are expected to be more sceptical than the black participants because of transformation at work.

The results also showed that irrespective of age, and gender, there is no difference in the experience of engagement and burnout. This outcome implies that employees of different age and gender are likely to experience burnout in the same manner. However Maslach et al. (2001) noted that of all demographic variables that have been studied, age is the one that has been consistently related to burnout, with younger employees reporting higher levels of burnout than older employees. Although numerous studies have examined the role gender plays in burnout, the findings have been inconclusive and have not resulted in a consensus on the impact of gender. Bakker, Demerouti and Schaufeli (2002) found higher levels of burnout

in women than men, while others have found no gender differences at all (Erickson & Ritter, 2001).

### **3.2 LIMITATIONS**

This study had several limitations. Firstly, there was a low number of participants and the use of the participants within the North West Province, which limit the generalisations that could be made from the results. It made it also impossible to conduct a confirmatory factor analysis with the UWES (which in previous studies showed good internal consistency and construct validity). That was why an exploratory factor analysis needed to be conducted for the instruments.

Secondly, the use of cross-sectional design as opposed to longitudinal design could have influenced the outcome. With a longitudinal design more substantiated results and comparative analysis could have been accumulated and made. Thirdly, self-report questionnaires were used (UWES and OLBI) which was completed by participants on their own time and availability, which could have lead to participants not understanding some of the items, or the inability of the researcher to identify transient factors (stress, anxiety, etc.). This could have distorted the results of this study.

Fourthly, few items seem to load on the factors of the OLBI. A possibility can be attributed to unexpected relationships between the variables. Perhaps there are high cross loadings between items or the removal of low loading items could have improved item correlation. This could also have contributed to low alpha coefficients posing a threat of whether OLBI is truly measuring burnout. Fifthly, the translation of measuring instruments (UWES and OLBI) to Afrikaans and English might have lead to certain issues, especially since the OLBI failed to work probably in this study. The problems associated with translation and or semantic differences in terms of understanding the content by the different group which led to inconsistent responses by the different language groups.

### **3.3 RECOMMENDATIONS**

Recommendations for the future research and for the organisation are made in this section.

### **3.3.1 Recommendation for future research**

To overcome the limitations in future research, certain recommendations can be made for future studies.

Based on the outcome of this study, the following recommendations can be made for research. The use of the OLBI as a measuring instrument in a multi-cultural setting is questionable. Further research should be conducted on item level regarding the OLBI (especially in cross-cultural research), since so many items failed to load onto any of the two factors. Therefore should research focus on the content and construct validity of the OLBI. Item biased, as well as the structuring of items for both UWES and OLBI should be researched further, since the low loadings of items can be construed to its ambiguity and difficulty.

Further studies focusing on wellness research should employ more well-researched measuring instruments like UWES and Maslach Burnout Inventory (MBI). In this study, the UWES showed acceptable construct validity and internal consistency. It became evident during the literature review that most of the studies in South Africa used the Maslach Burnout Inventory (MBI) for the psychometric evaluation of burnout in the different industries. This limitation made it difficult to make comparison in terms of factorial validity and internal consistency in South Africa. Confirmatory factor analysis done by Schutte, Toppinen, Kalimo and Schaufeli, (2000), showed that the three-factor structure of the MBI-GS was clearly superior than the one-factor and two-factor models. In a study by Le Roux, (2004) where she validated the OLBI and MBI, the results indicated that the MBI was a valid, reliable and suitable for measuring burnout of employees working in an earthmoving equipment industry. It also came out that the OLBI did not measure burnout as it was supposed to. It is therefore very critical for future studies to come up with a recommendation of the best measure of burnout between OLBI and MBI. A similar study as that of Halbesleben and Demerouti, (2005), of the validation of the English translation of OLBI is very necessary in Afrikaans and African languages. More studies are needed for the validation of the Setswana questionnaires of the OLBI and UWES as this was the initial translated version in South Africa.

Future research should focus on identifying the specific factors which attribute to engagement differences in race and language groups. Since no differences were found for age and gender in the experience of engagement and burnout, it should be explored in order to ascertain if the results were methodology based or practically substantiated.

Nunnally and Bernstein (1994) recommend that in order to have acceptable levels of coefficient  $\alpha$ , it will be advisable to have a sample of 300 or more participants. The coefficient  $\alpha$  will be above 0,8 and rarely below 0,6. They further assert that if the  $\alpha$  is low, either the test is too short or the items have little in common. From the study, it is recommended that future studies must have a larger sample of at least 300 participants or more. Future studies can also benefit in terms of stratified random-sample design, which will ensure sufficient representation of the different groups.

Future studies examining the utility of the South African translation of the OLBI and the UWES could make an important contribution to the work engagement and burnout measurement research. South Africa is a multicultural society and it cannot be taken for granted that scores obtained in one culture can be compared across other cultural groups. Such information is psychometrically critical since non-invariance of the instrument across groups reduce the credibility of findings from substantive multi-group research that has assumed equivalent factorial structure (Byrne, 1993).

Future studies can also focus on longitudinal designs where causal inferences can be made. That is, in order to an accurate perspective of the validity and consistency of the measuring instrument in South Africa, it will be imperative for future studies to have a more balanced amount of participants per language group as well as occupational settings. This will improve the construct validity and internal consistency between the different language groups occupational categories. According to Van der Vijver and Leung (1997) measurement equivalence should be computed for measuring instruments in any multicultural settings where groups from different are compared in specific constructs. When work engagement and burnout measures are applied to different cultural groups, issues of measurement equivalence and bias become important (Van der Vijver & Tanzer, 1997).

### **3.3.2 Recommendation for the organisation**

It is clear from the literature of past studies (Coetzer & Rothmann, 2007; Rothman, Steyn & Mostert, 2005), that work engagement and burnout are important components of affective work related wellbeing. It is not only important to obtain valid and reliable measurement of burnout and work engagement from an empirical point of view, but also to enable the individual measurement of work engagement and burnout in a reliable manner in South African cement industry. Organisations can employ the UWES-9 which is preferable for organisational research because of its shorter length and superior psychometric features (Schaufeli, Bakker & Salanova, 2006).

According to Levert et al. (2000), burned out workers show a lack of commitment and they are also too depleted to give of themselves in a creative and co-operative fashion (Sammut, 1997). Generally wellness is assumed to have a positive effect in the workplace. In order to improve wellness at the workplace, organisations need to advise on their well-being and related aspects such as role demands, job resources and the importance of recovery. Organisations need to explore these by advising employees to do proper planning for the utilisation of fewer resources and to advise employees to take leave as per company procedure in line with the Basic Conditions of Employment Act (1997). Furthermore organisations must encourage employees to uplift their skills for the purposes of growth and job rotation, both in private capacity and those courses presented by the organisations. The results indicated that while employees might be energised, dedicated and engrossed towards their work, the instant they feel disengaged they might feel less enthused, devoted and absorbed. These results should be further explored within the cement factory since external or internal factors can be attributed to the loss of interest towards their work. Furthermore, the significant differences regarding race and language in their experience of engagement should also be explored. Why is it that Coloured employees seem to be less engaged towards their work than any of race groups? The employers should look into other factors that may contribute this finding. Why is that Afrikaans speakers from the cement factory seem to be less absorbed in their work than any other language groups? Job specifications, or other organisational elements might lead to this factors.

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