Work engagement of employees at a higher education institution in South Africa

S.E. Coetzee & S. Rothmann

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

Introduction

Work can lead to illness as well as to health. On the one hand, work requires effort and is associated with lack of freedom and negative feelings. On the other hand, work gives energy, enables development and generates positive feelings (Rothmann 2003). Research in occupational health psychology is dramatically weighted on the side of ill-health and lack of well-being, rather than health and well-being (wellness) at work. Diener, Suh, Lucas & Smith (1999) showed that 17 times more scientific articles were published on negative feelings compared with positive feelings. Myers (2000) found a more favourable ratio of 14:1. He mentions that since 1887, 8 000 articles have been published in Psychological Abstracts about anger, almost 57 000 about anxiety and almost 70 000 about depression. In comparison, 851 of the published articles were about joy, 2 958 about happiness and 5 701 about satisfaction. However, after World War II, psychology became a science that focused largely on healing.

This general trend culminated in the recent introduction of the so-called ‘positive psychology’ (Seligman & Csikszentmihalyi 2000), landmarking a shift from the traditional focus on weakness and malfunctioning (namely, pathology) towards human strengths and optimal functioning (namely, fortology) (Strümpfer 1995, 2002). Attempts to discover ‘what can go right’ as opposed to ‘what can go wrong’ have become the focus of modern psychology (Tytherleigh 2003). Similar tendencies can be detected in burnout research literature. Where burnout originally focused more on ‘pathology’, recent emphasis tends to be more on the ‘positive’ perspective. Empirical studies revealed that some employees, regardless of high job demands and long working hours, in comparison to others, do not develop burnout, but seem to find pleasure in hard work and dealing with job demands (Schaufeli & Bakker 2001). Consequently, theoretical and empirical studies commenced on the concept of engagement, theoretically viewed as the antithesis of the burnout construct.

Development of the engagement construct took two different but related paths. Firstly, Maslach & Leiter (1997: 23) rephrased burnout as “an erosion of engagement with the job”. Work that started out as important, meaningful and challenging becomes unpleasant, unfulfilling and meaningless. They characterise engagement by energy, involvement and efficacy, which are considered the direct opposites of the three burnout dimensions, namely, exhaustion, cynicism and lack of professional efficacy. Engagement is then assessed by the opposite pattern of scores on the three Maslach Burnout Inventory (MBI) dimensions. Low scores on exhaustion and cynicism and high scores on efficacy are indicative of engagement. The second path was taken by Schaufeli and his colleagues, agreeing in part with the description of engagement.

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Schaufeli, Salanova et al. (2002) consider burnout and work engagement to be opposite concepts that should be measured independently and with different instruments. They define ‘work engagement’ as “a positive fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption” (Schaufeli, Salanova et al. 2002: 71). ‘Vigour’ is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, not being easily fatigued, and persistence even in the face of difficulties. ‘Dedication’ is characterised by deriving a sense of significance from one’s work, by feeling enthusiastic about and proud of one’s job, and by feeling inspired and challenged by it. ‘Absorption’ is characterised by being totally and happily immersed in one’s work and having difficulties detaching oneself from it. Time passes quickly and one forgets everything else that is around. Work engagement cannot be described as a momentary and specific state. Rather, it is a more persistent and pervasive affective-cognitive state that is not focused on a particular object, event, individual or behaviour (Schaufeli, Salanova et al. 2002).

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

Higher education institutions can make an important contribution to the reconstruction and development of South Africa (Marais, Grobbelaar & Potgieter 1997), and in this process, those responsible for producing the outcomes of higher education institutions have an important role to play. Administrators, lecturers/teachers and support staff comprise the ‘human capital’ of an educational institution, and it is therefore important to care for these groups of people (Alexy 1991; Blaise 1996; Seldin 1991).

During the past eight years, the student population at the institution has been transformed from predominantly white to predominantly black students. This has led to the change of the official language used at the institution from Afrikaans to English. During the same period (in compliance with the equity legislation passed by the post-apartheid government of South Africa), a decision was made to appoint only designated groups (that is, black, Indian, Coloured and white female applicants, in that order of preference) to vacant positions to ensure that the staff component reflects the demographics of the area (the Vaal Triangle). Consequently, the staff component has changed from predominantly white to demographically representative, and the management of the institution has also been transformed. The current scenario in higher education, including the scenario in this specific institution, will inevitably have an impact on the work engagement of employees. Research on work engagement therefore seems relevant.

Utrecht Work Engagement Scale (UWES)

Schaufeli, Salanova et al. (2002) propose that engagement is theoretically viewed as the opposite end of the continuum from burnout, which cannot be effectively measured by the Maslach Burnout Inventory (MBI), but rather with its own instrument, the Utrecht Work Engagement Scale (UWES). The UWES includes items such as: “I am bursting with energy in my work (vigour); “My job inspires me” (dedication); “I feel happy when I’m engrossed in my work“ (absorption). Recent confirmatory factor-analytic studies confirmed the factorial validity of the UWES (Schaufeli, Bakker, Hoogduin, Schaap & Kladler 2001; Schaufeli, Martinez, Pinto, Salanova & Bakker 2002; Schaufeli, Salanova et al. 2002). The findings showed internally consistent results for the three scales of the UWES. In a sample of undergraduate students (N = 314) and a sample of employees (N = 619), adequate Cronbach alphas were found as follows: vigour (6 items), = 0.68 and 0.80; dedication (5 items), = 0.91 for both samples; and absorption (6 items), = 0.73 and 0.75. In the student sample, the value of for the total scale could be improved by eliminating three items ( = 0.79). Also, the fit of the hypothesised
thre-factor model with the data was found to be superior to the one-factor solution (Schaufeli, Martinez et al. 2002).

Naude & Rothmann (2004) and Storm & Rothmann (2003) studied the internal consistency and factorial validity of the UWES in South Africa. In their study, Storm & Rothmann (2003) found that a respecified one-factor model (after deleting items 3, 11, 15 and 16) fitted the data best in their random, stratified sample of police members in South Africa. Although a respecified three-factor model was also initially tested and satisfactory results obtained, the fit with the data was superior for a one-factor model. Internal consistencies of the three subscales were 0.78 (vigour); 0.89 (dedication) and 0.78 (absorption). Naude & Rothmann (2004) found a two-factor model of work engagement, consisting of vigour/dedication and absorption. The Cronbach alpha coefficient of the vigour/dedication scale was acceptable ( = 0.87), but the coefficient for the absorption scale was questionable ( = 0.61).

Since the development of the UWES by Schaufeli, Salanova et al. (2002), very few studies regarding engagement could be found in the literature (Maslach, Schaufeli & Leiter 2001; Naudé & Rothmann 2004; Schaufeli et al. 2001; Schaufeli, Martinez et al. 2002; Schaufeli, Salanova et al. 2002; Storm & Rothmann 2003). As a result, information regarding differences in engagement levels is almost non-existent. This study will be an attempt to determine differences in engagement levels of employees at a higher education institution in South Africa, and the focus will be on gender, age, job category, language group and years of service at the institution.

Bearing in mind that engagement is seen as the positive antithesis of burnout (Schaufeli, Salanova et al. 2002), it can be postulated that, if engagement reflects the opposite image of the findings in the burnout literature, the following patterns can be expected: Men will be more engaged in their work than women, as Schaufeli & Enzmann (1998) found that women reflect higher levels of burnout than men. Furthermore, younger employees and those with less years’ experience will reflect lower levels of engagement, as Cherniss (1980) and Maslach, Jackson & Leiter (1996) found higher levels of burnout among younger employees with less years’ experience. Cash (1988) found that individuals with a higher level of education were more prone to burnout. Schutte, Toppinen, Kalimo & Schaufeli (2000) found that no significant differences in burnout levels across cultures could be detected.

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

Method

Research design

A cross-sectional design was used to achieve the objectives of this research. Shaughnessy & Zeichmeister (1997) propose that cross-sectional designs are suitable for the development and validation of questionnaires (in this case the UWES).

Participants

The study population comprised academic and administrative staff at the Vaal University of Technology in South Africa. The survey was conducted from June to September 2003. A total of 820 questionnaires were sent out: academic staff (N = 320); and administrative staff (N = 500). A total of 372 completed questionnaires were received back. This comprised 175 questionnaires from academic and 197 questionnaires from administrative staff members, giving a total response rate of 45.36% (47.04% for academic staff and 52.96% for administrative staff).

Females constituted 61% of the participants. Different language groups were included in the study. A total of 54.60% of the participants were Afrikaans-speaking; 19.50% were English-speaking, and 25.90 spoke African languages. The majority (43.80%) of the participants were married. In total, 24.44% of the population had obtained a masters or related degree and/or higher qualifications. Furthermore, 33.52% of the participants had been at the institution for ten years or more. The characteristics of the participants are shown in Table 1.

Instruments

The Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova et al. 2002) was used to measure levels of engagement. Although work engagement is conceptually seen as the positive antithesis of burnout, it is operationalised in its own
Work engagement is a concept that includes three dimensions: vigour, dedication and absorption. Engaged workers are characterised by high levels of vigour and dedication, and they are immersed in their jobs. The UWES is scored on a seven-point frequency scale, ranging from 0 (never) to 6 (every day). Three dimensions of engagement can be distinguished, namely vigour (6 items, for example, “I am bursting with energy in my work”), dedication (5 items, for example, “I find my work full of meaning and purpose”) and absorption (6 items, for example, “When I am working, I forget everything else around me”). In terms of internal consistency, reliability coefficients for the three subscales between 0.68 an 0.91 have been determined. Improvement of the alpha coefficient (ranging from 0.78 to 0.89) seems possible without adversely affecting the internal consistency of the scale (Storm & Rothmann 2003).

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

### Statistical analysis

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

In order to test the factorial validity of the UWES, structural equation modelling (SEM) methods were initially used with the maximum likelihood method of the AMOS program (Arbuckle 1997). In the SEM analysis, the hypothesised structural relationships are empirically tested by means of goodness-of-fit with the sample data. The statistic and several other goodness-of-fit indices summarise the degree of correspondence between the implied and observed covariance matrices. According to Byrne (2001), should not be used as the sole indicator of model fit in the behavioural sciences. The following fit indices were therefore used in this study: (1) the /degrees of freedom ratio (CMIN/DF), which should be lower than 5; (2) the Goodness of Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI), which should be higher than 0.90; (3) the Normed Fit Index (NFI), which should be higher than 0.90; (4) the Comparative Fit Index (CFI), which should be higher than 0.90; (5) the Tucker-Lewis Index (TLI), which should be higher than 0.90, and (6) the Root Mean Square Error of Approximation (RMSEA), which should be lower than 0.08.

Descriptive statistics were used to analyse the data. Cronbach alpha coefficients and inter-item correlation coefficients were used to assess the internal consistency, homogeneity and unidimensionality of the scales of the UWES (Clark & Watson 1995). Multivariate analysis of variance (MANOVA) was used to determine the significance of differences between engagement levels as influenced by

### Table 1: Characteristics of participants

<table>
<thead>
<tr>
<th>Item</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment category</td>
<td>Academic</td>
<td>175</td>
<td>47.00</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>197</td>
<td>53.00</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>135</td>
<td>39.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>227</td>
<td>61.00</td>
</tr>
<tr>
<td>Language</td>
<td>Afrikaans</td>
<td>202</td>
<td>54.60</td>
</tr>
<tr>
<td></td>
<td>English</td>
<td>72</td>
<td>19.50</td>
</tr>
<tr>
<td></td>
<td>African</td>
<td>98</td>
<td>25.90</td>
</tr>
<tr>
<td>Education</td>
<td>Highest grade/standard</td>
<td>82</td>
<td>22.04</td>
</tr>
<tr>
<td></td>
<td>3-year qualification</td>
<td>85</td>
<td>22.85</td>
</tr>
<tr>
<td></td>
<td>4-year qualification</td>
<td>114</td>
<td>30.60</td>
</tr>
<tr>
<td></td>
<td>Masters</td>
<td>68</td>
<td>18.30</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>24</td>
<td>6.14</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single/Divorced</td>
<td>70</td>
<td>18.80</td>
</tr>
<tr>
<td></td>
<td>Engaged/in relationship</td>
<td>139</td>
<td>37.40</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>163</td>
<td>43.80</td>
</tr>
<tr>
<td>Years of service in the institution</td>
<td>0–5 years</td>
<td>116</td>
<td>31.29</td>
</tr>
<tr>
<td></td>
<td>5.1–10 years</td>
<td>131</td>
<td>35.19</td>
</tr>
<tr>
<td></td>
<td>10+ years</td>
<td>125</td>
<td>33.52</td>
</tr>
<tr>
<td>Age distribution</td>
<td>21–30</td>
<td>74</td>
<td>19.94</td>
</tr>
<tr>
<td></td>
<td>31–40</td>
<td>138</td>
<td>37.19</td>
</tr>
<tr>
<td></td>
<td>41–50</td>
<td>98</td>
<td>26.21</td>
</tr>
<tr>
<td></td>
<td>51–60</td>
<td>62</td>
<td>15.95</td>
</tr>
</tbody>
</table>
various biographical characteristics of the sample. MANOVA tests whether mean differences among groups on a combination of dependent variables are likely to have occurred by chance (Tabachnick & Fidell 2001). Wilks’ Lambda was used to test the significance of the effects. When an effect was significant in MANOVA, ANOVA was used to discover which dependent variables were affected. Tukey tests were conducted to indicate which groups differed significantly when ANOVAs were done.

T-tests were used to determine differences between the groups in the sample. Effect sizes (Cohen 1988; Steyn 1999) were used in addition to statistical significance to determine the significance of relationships. According to Cohen (1988), $d = 0.10$ indicates a small effect, $0.50 \leq d \leq 0.80$ indicates a medium effect, and $d \geq 0.80$ indicates a large effect. A cut-off point of 0.50 (medium effect) (Cohen 1988) was set for the practical significance of differences between group means.

**Results**

**Hypothesised model of the UWES**

Firstly, the unidimensional model, which assumes that all 17 UWES items load on a single factor, was tested. Consequently, the hypothesised 17-item three-factor UWES model and adaptations thereof were fitted with the data. Table 2 provides a summary of the fit statistics for the hypothesised UWES models.

The fit statistics for the one-factor model revealed very poor overall fit, as indicated by the statistically significant value of $1456.77 \ (df = 323.72; p < 0.01)$. All the other fit indices confirmed a poor fit with the data.

For the three-factor (17-item) model, the SEM analysis yielded a poor fit between the theoretical model and the empirical data. The statistically significant value of 464.42 ($df = 116; p < 0.01$), and the elevated RMSEA value indicate that possible existing misspecifications in the theoretical model could be modified for model-fit improvement in the post hoc analysis. However, both the sensitivity of the likelihood ratio test to sample size and its basis on the central distribution, which assumes that the model fits the population perfectly, have been reported to lead to problems of fit. Jöreskog & Sörbom (1993) pointed out that the use of is based on the assumption that the model holds exactly in the population, which is a stringent assumption. A consequence of this assumption is that models that hold approximately in the population will be rejected in a large sample. Furthermore, the hypothesised model (Model 1) was also not good from a practical perspective. The NFI, TLI and CFI values of lower than 0.95 and the RMSEA value of higher than 0.05 are indicative of failure to confirm the hypothesised model. It is thus apparent that some modification in specification is needed in order to determine a model that better represents the sample data.

To pinpoint possible areas of misfit, modification indices were examined. Furthermore, standardised residual values were examined. Standardised residuals are fitted residuals divided by their asymptotic (large samples) standard errors (Jöreskog & Sörbom 1988). In essence, they represent estimates of the number of standard deviations the observed residuals are from the zero residuals that would exist if model fit were perfect (Byrne 2001). Values of $> 2.58$ are considered to be large (Jöreskog & Sörbom 1988).

**Post hoc analysis**

Given the poor fit of the initially postulated three-factor model, the focus shifted from model test to model development (exploratory factor analysis). Considering the high standardised residuals of two items, it was decided to respecify the model with item 4 and item 15 deleted. In previous South

<table>
<thead>
<tr>
<th>Model</th>
<th>$df$</th>
<th>GFI</th>
<th>AGFI</th>
<th>NFI</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-item 1-factor model</td>
<td>1456.77</td>
<td>4.50</td>
<td>0.72</td>
<td>0.68</td>
<td>0.62</td>
<td>0.65</td>
<td>0.68</td>
</tr>
<tr>
<td>17-item 3-factor model</td>
<td>464.42</td>
<td>4.00</td>
<td>0.87</td>
<td>0.82</td>
<td>0.84</td>
<td>0.85</td>
<td>0.87</td>
</tr>
<tr>
<td>15-item 3-factor model</td>
<td>406.22</td>
<td>3.50</td>
<td>0.88</td>
<td>0.84</td>
<td>0.87</td>
<td>0.88</td>
<td>0.90</td>
</tr>
<tr>
<td>13-item 3-factor model (1)</td>
<td>301.44</td>
<td>3.46</td>
<td>0.90</td>
<td>0.86</td>
<td>0.89</td>
<td>0.91</td>
<td>0.92</td>
</tr>
<tr>
<td>13-item 3-factor model (2)</td>
<td>263.36</td>
<td>3.10</td>
<td>0.91</td>
<td>0.87</td>
<td>0.91</td>
<td>0.92</td>
<td>0.94</td>
</tr>
</tbody>
</table>

Table 2: Goodness-of-fit statistics for the hypothesised UWES models
African studies, item 4 (Storm & Rothmann 2003) and item 15 (Naude & Rothmann 2004) were also problematic.

This respecified 15-item three-factor model showed a small improvement in the fit statistics in comparison with the previous models. A further attempt at model development was investigated. The high standardised residuals of item 16 and item 17 indicated respecification by deleting these items. This decision was supported by the notion that items 16 and 17 were not initially included in the UWES (Schaufeli, Salanova et al. 2002). Consequently, these items were deleted in the hope of a better fit. Table 2 shows a moderate fit between the theoretical model and the empirical data. The statistically significant value of 301.44 \( (df = 87; p < 0.01) \) and the elevated RMSEA value still indicate possible existing misspecifications.

Modification indices (MI) were consequently considered to pinpoint areas of misspecification in the model. The constrained parameters exhibiting the highest degree of misfit lay in the error covariance matrix and represent a correlated error between item 3 and item 9 \( (MI = 13.74) \), as well as between item 7 and item 13 \( (MI = 10.43) \). Compared with MI values for all other error covariance parameters, these values are high and in need of respecification. Based on the modification indexes and on theoretical considerations, the errors of these two-item pairs were allowed to correlate. According to the fit statistics in Table 2, an overall acceptable fit with the data is obtained by the third respecified three-factor model. The value of 263.36 \( (df = 85; p < 0.01) \) is significantly higher than that of the first three-factor model fitted to the data. Furthermore, the goodness-of-fit statistics indicate acceptable levels of model fit for the GFI, NFI, TLI and CFI, with AGFI approaching 0.90. Moreover, the RMSEA of 0.08 is indicative of acceptable fit. Since model fit was determined to be acceptable, and the results agree with the theoretical assumptions underlying the structure of the UWES (Schaufeli, Salanova et al. 2002), no further modifications of the model were deemed necessary.

The descriptive statistics, alpha coefficients and inter-item correlations of the three factors of the UWES are given in Table 3.

The results in Table 3 indicate that the three dimensions of the engagement model are normally distributed. The internal consistency of the three scales of the UWES is acceptable, with Cronbach alphas above the 0.70 guideline provided by Nunnally & Bernstein (1994). The mean inter-item correlation of absorption is considered acceptable compared with the guideline of 0.15 \( r < 0.50 \) (Clark & Watson 1995). The mean inter-item correlations of vigour and dedication were somewhat higher than the suggested guideline of \( r < 0.50 \).

Consequently, MANOVA and ANOVA analyses were done to determine the relationship between engagement and various biographical characteristics such as language, age, gender, job category and years of service at the institution. Biographical characteristics were first analysed for statistical significance using Wilks’ Lambda statistics. The results are shown in Table 4.

An analysis of Wilks’ Lambda values indicates statistically significant differences \( (p < 0.01) \) for different language groups and categories of years’ experience at the institution. No statistically sig-

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**Table 3: Descriptive statistics, alpha coefficients and inter-item correlations of the UWES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>( r(\text{Mean}) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vigour (VI)</td>
<td>19.63</td>
<td>6.85</td>
<td>-0.53</td>
<td>-0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>Dedication (DE)</td>
<td>21.54</td>
<td>7.13</td>
<td>-0.62</td>
<td>-0.56</td>
<td>0.59</td>
</tr>
<tr>
<td>Absorption (AB)</td>
<td>19.66</td>
<td>6.10</td>
<td>-0.47</td>
<td>-0.12</td>
<td>0.33</td>
</tr>
</tbody>
</table>

**Table 4: Differences in engagement levels based on biographical characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
<th>( F )</th>
<th>( df )</th>
<th>Den DF</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>0.89</td>
<td>6.93</td>
<td>6</td>
<td>708</td>
<td>0.00*</td>
</tr>
<tr>
<td>Age</td>
<td>0.98</td>
<td>1.44</td>
<td>6</td>
<td>690</td>
<td>0.20</td>
</tr>
<tr>
<td>Years’ experience</td>
<td>0.92</td>
<td>5.28</td>
<td>6</td>
<td>704</td>
<td>0.00*</td>
</tr>
</tbody>
</table>

* Statistically significant difference: \( p = 0.01 \)
significant differences ($p = 0.01$) regarding engagement levels could be found between different age groups.

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

The ANOVAs of differences in engagement levels among the different language groups are given in Table 5.

According to Table 5, indigenous language groups scored significantly higher (practically significant difference, medium effect) than the Afrikaans language group in terms of vigour.

Table 6 shows the ANOVAs of differences in engagement levels for different categories of years’ experience at the institution.

Table 6 shows that employees with less than five years’ experience at the institution scored significantly higher (practically significant difference, medium effect) on vigour in comparison with employees with more than ten years’ experience at the institution.

Table 7 gives an indication of differences in engagement levels based on job category as indicated by t-test procedures. No statistically significant differences regarding gender could be found.

Table 7 indicates that the administrative staff component scored statistically significantly higher on the vigour dimension of engagement in comparison with the academic staff component (practically significant difference, small effect). No statistically or practically significant differences were observed regarding the other engagement dimensions and job category.

Even though it was expected that men would reflect higher levels of engagement, no significant differences between the genders could be detected; it

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### Table 5: Differences in engagement levels of different language groups

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Afrikaans</th>
<th>English</th>
<th>Indigenous</th>
<th>$p$</th>
<th>Root MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vigour</td>
<td>18.50b</td>
<td>19.94</td>
<td>21.69a</td>
<td>0.00*</td>
<td>6.77</td>
</tr>
<tr>
<td>Dedication</td>
<td>20.92</td>
<td>20.97</td>
<td>23.44</td>
<td>0.02</td>
<td>7.02</td>
</tr>
<tr>
<td>Absorption</td>
<td>20.01</td>
<td>19.29</td>
<td>18.93</td>
<td>0.35</td>
<td>6.13</td>
</tr>
</tbody>
</table>

* Statistically significant difference: $p = 0.01$

a Practically significant differences from group (in row) where b (medium effect, $d = 0.5$) or c (large effect, $d = 0.8$) are indicated

### Table 6: Differences in engagement levels of years’ experience categories

<table>
<thead>
<tr>
<th>Dimension</th>
<th>0–5 years</th>
<th>5.1–10 years</th>
<th>10.1–44 years</th>
<th>$p$</th>
<th>Root MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vigour</td>
<td>22.00b</td>
<td>20.01</td>
<td>17.76a</td>
<td>0.00*</td>
<td>6.77</td>
</tr>
<tr>
<td>Dedication</td>
<td>23.52</td>
<td>21.51</td>
<td>20.58</td>
<td>0.05</td>
<td>7.06</td>
</tr>
<tr>
<td>Absorption</td>
<td>20.63</td>
<td>19.11</td>
<td>20.06</td>
<td>0.20</td>
<td>6.15</td>
</tr>
</tbody>
</table>

* Statistically significant difference: $p = 0.01$

a Practically significant differences from category (in row) where b (medium effect, $d = 0.5$) or c (large effect, $d = 0.8$) are indicated

### Table 7: T-tests – differences in engagement levels based on job category

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Academic</th>
<th>Administration</th>
<th>$t$</th>
<th>$p$</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Vigour</td>
<td>18.56</td>
<td>6.98</td>
<td>20.59</td>
<td>6.61</td>
<td>−2.87</td>
</tr>
<tr>
<td>Dedication</td>
<td>20.90</td>
<td>6.71</td>
<td>22.12</td>
<td>7.45</td>
<td>−1.66</td>
</tr>
<tr>
<td>Absorption</td>
<td>19.65</td>
<td>6.52</td>
<td>19.66</td>
<td>5.71</td>
<td>−0.02</td>
</tr>
</tbody>
</table>

* Statistically significant difference: $p = 0.01$
was expected that younger employees would be less engaged, but no significant differences between age groups could be found; it was expected that employees with less years’ experience would reflect lower levels of engagement, but in contrast, it was found that those with more than ten years’ experience were less engaged; as expected, the administrative staff component showed higher levels of engagement than the academic staff; and in contrast with expectations that no differences would be found between language groups; it was found that the indigenous language groups were more engaged in their work than the Afrikaans-speaking group.

Discussion

The objectives of this study were to assess the factorial validity and internal consistency of the UWES and to determine differences between the work engagement levels of different genders, age groups, language groups, job categories and years’ experience at the institution.

The factorial validity of the UWES was investigated with the aid of structural equation modelling. The three-factor structure of the UWES was confirmed for the three scales of the UWES, namely vigour, dedication and absorption. This finding is supported by research in different samples, groups and countries (Naudé & Rothmann 2004; Schaufeli, Martinez et al. 2002; Schaufeli, Salanova et al. 2002; Storm & Rothmann 2003) Moreover, the internal consistency of the scales was found to be satisfactory and in line with findings reported in the literature.

The elimination of item 15 ("I am very resilient, mentally, in my job") and 4 ("I feel strong and vigorous in my job") can be validated on both conceptual and theoretical grounds, resulting in a 15-item UWES scale. In their study, Storm & Rothmann (2003) found considerable cross-loadings pertaining to item 15 in their validation of the UWES for police members. Naudé & Rothmann (2004) found the same for item 4. Even though deletion of these items formed part of the post hoc analysis, and validation is needed in future studies, the decision to eliminate these items was based partly on previous research (Naudé & Rothmann 2004; Storm & Rothmann 2003) and should therefore not be viewed as a strategy for model modification solely for the purpose of data fitting.

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

Notwithstanding the motivation for deleting variables from the UWES for reasons of bias and model-fit improvement, it is disconcerting that model parsimony is sacrificed in the process. In other words, relationships have been eliminated, which could be viewed as an erosion in meaning of the work engagement construct. Also, it is possible, due to the relatively small sample size and sampling procedure (subgroup representation), that these findings could have been obtained by pure chance. Furthermore, the possibility of semantic differences in meaning attributed to these items cannot be excluded, especially in view of the comparison between groups on the basis of linguistic groupings. Closer inspection of the actual wording of the problematic items (item 4: “I feel strong and vigorous in my job”; item 15: “I am very resilient, mentally, in my job”; item 16: “It is difficult to detach myself from my job”; and item 17: “I always persevere at work even when things do not go well”) highlight the fact that second-language English speakers might have difficulty interpreting words such as ‘vigorous’, ‘resilient’, ‘detach’ and ‘persevere’. Using language that can be easily interpreted might overcome problems with these items, or alternatively, the tests can, where practically possible, be translated into the first language of the participants.

The prominent correlated errors in this study present an important problem. In general, the specification of correlated error items for the purpose of achieving a better-fitting model is not an acceptable practice. Correlated error terms in measurement models represent systematic, rather than random, measurement error in item responses. They may derive from characteristics specific to either the items or the respondents (Aish & Jöreskog 1990). For example, if these parameters reflect item characteristics, they may represent a small omitted factor. However, as may be the case in this instance, correlated errors may represent respondent characteristics that reflect bias such as yea-/nay-saying, social desirability (Aish & Jöreskog 1990), as well as a high degree of overlap in item content (when an item, although worded differently, essentially asks the same question) (Byrne 2001).
However, previous research with psychological constructs in general (for example, Jöreskog 1982; Newcomb & Bentler 1988), and with measuring instruments in particular (Byrne 1991 2001), has demonstrated that the specification of correlated errors can often lead to substantially better-fitting models. Bentler & Chou (1987) also argue that the specification of correlated errors can often lead to substantially better-fitting models. Bentler & Chou (1987) argue that the specification of a model that forces these error parameters to be uncorrelated is rarely appropriate with real data. Therefore, it was considered more realistic to incorporate the correlated errors in this study, rather than to ignore their presence.

Multivariate analysis of variance was used to determine the significance of differences between the engagement levels of different groups of the population, on the basis of their biographical characteristics. Higher levels of the vigour dimension of engagement can be observed among the indigenous language-speaking group (26% of the population) in comparison with the Afrikaans language group (55% of the population). Vigour is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, not being easily fatigued, and persistence even in the face of difficulties. Against the background of the recent history of this institution, these findings might be better understood.

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

Bearing in mind the impact of the apartheid legacy, especially concerning job reservation and promotion for selective groups (predominantly white, Afrikaans-speaking males), those with less years’ experience (previously disadvantaged groups) might be more vigorously committed and engaged as a result of their joy at finding a job and the increased possibility of promotion. During the past eight years, the official language at the institution was also changed from Afrikaans to English. White, Afrikaans-speaking employees (who reflected significantly lower levels of vigour), in contrast with their black colleagues who received their education predominantly in English in the black schools of the apartheid government, had to adjust to communicating in English in order to educate second language-speaking students (whose first language is one of the indigenous languages). Furthermore, they have been subjected to radical changes with regard to the culture of their clients (the students), as well as their co-workers and the management of the institution. These factors might have contributed to lower levels of engagement.

Vigour is also significantly higher among employees with 0–5 years’ experience (31.09% of the population), in comparison with those with more than ten years’ experience at the institution (33.52% of the population). Even though no relevant research with regard to years of service and its relationship to engagement could be found in the literature, it might be linked to burnout research which indicates that older, more experience, single workers who experience a high workload are significantly more at risk of burnout than younger, less experienced, married workers who experience a low workload (Zijlstra & De Vries 2001). Bearing in mind that engagement represents the positive antithesis of burnout (Schaufeli, Salanova et al. 2002), it can be expected that employees with less years’ experience at an institution might still be more vigorously committed to and engaged in their work than those with longer years of service.

The administrative staff component (52.96% of the population) also shows significantly higher levels of vigour than the academic staff component (47.04% of the population). This might be attributed to the fact that employees in administrative positions are not affected as much as academic staff by the recent radical changes in higher education and increased psychological stress that have become synonymous with working in academia (Kinman & Jones 2003; Tytherleigh 2003). In view of these findings, it might be explained that administrative employees showed significantly higher levels of vigour than academics, possibly because their job content may be more stable and under control and not constantly changing. Another intra-institutional factor that might contribute to this finding is the fact that transformation of the administrative staff
component was more drastic and accelerated than that of the academic staff component. As a result, most of the administrative employees are black with less than five years’ experience at the institution. The same dynamics as discussed under the impact of language and years’ experience are therefore relevant. The total transformation of the top management of the institution also has a secondary impact on the governance, culture and climate of the organisation.

For the black administrative staff component with less than five years’ experience, this might have been an invigorating and challenging experience resulting in higher levels of engagement. In contrast, adjusting to and dealing with the realities of these changes in a relatively short period of time might have resulted in reduced levels of the vigour dimension of engagement, especially among Afrikaans-speaking, academic employees with more than ten years’ experience at the institution. The fact that the loss of vigour is found in between a third and a half of the population certainly requires serious organisational consideration, as well as possible interventions in the interests of employee wellness in general.

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

The size of the sample and specifically the distribution of language groups and the sampling method were limitations in this study. Future studies could benefit greatly by utilising a randomly stratified sample with the proportionate inclusion of all language or race groups in the sample. Future studies conducted in this manner would confirm whether differences in engagement levels as measured by the UWES indeed exist for the different language groups of employees and those with different years’ experience and different job categories at higher education institutions in South Africa, especially at institutions that are undergoing rapid and drastic transformation. The use of a cross-sectional study design also represents a limitation (namely, that of the ability to test causal assumptions regarding the engagement syndrome). Longitudinal data would allow for forming a better understanding of the true nature of work engagement.

Recommendations

According to the results in this study, the use of the UWES is recommended to assess the engagement of employees at a higher education institution in South Africa. Interventions to address the lower work engagement (and specifically vigour) of Afrikaans speakers, those with more experience and academic staff should be planned and implemented. However, before interventions can be planned, it is necessary to investigate why the vigour levels of these groups are lower than those of other groups. As a result of the effects of organisational transformation, these groups may perceive that they lack job resources, including opportunities for growth and advancement, as well as resources to support them to do their work properly (such as good relationships with managers and colleagues and role clarity).

Future research could focus on work engagement in other higher education institutions in South Africa to verify the current findings. Furthermore, although the UWES was found to be reliable and valid for this sample, other occupational settings should also be investigated in a similar manner. It is also important to determine norm levels for other occupations in South Africa. Future studies should use large samples and adequate statistical techniques. In the quest to make the UWES more user-friendly with regard to comprehensibility by different language groups, some of the items may need to be adjusted. The possibility of translating the UWES to other South African languages should also be considered.

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

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References


