Teacher burnout: construct equivalence and the role of union membership

Jaco Pienaar and **Debri van Wyk**
bpkjp@puk.ac.za

The objective in this study was to investigate its structure and validate the Maslach Burnout Inventory for educators in the Goldfields region of the northern Free State province of South Africa. A cross-sectional survey design was used, where a sample of educators was drawn from the total population (N=468). An adapted version of the Maslach Burnout Inventory and a biographical questionnaire were administered. Exploratory factor analysis with target rotations confirmed construct equivalence of burnout dimensions for an Afrikaans and English subgroup and an African Languages subgroup. Burnout is described as consisting of exhaustion, cynicism, depersonalisation, and professional efficacy. However, the depersonalisation construct showed better fit across language groups than the cynicism construct. Item bias analysis was carried out for the cynicism items. For biographical differences, it was found that union membership presented an important distinction in educators' experience of burnout.

South Africa celebrated a decade of democracy in 2004. Ten years after the official end of apartheid, a great deal of change has taken place in all sectors of the country, especially in the educational sector. Previously, education was designed to mould both black and white children into apartheid citizens with values appropriate to that society (Ndhlovu, Bertram, Mthiyane, & Avery, 1999). Since 1994, national education has been restructured from 19 departments of education into one national and nine provincial departments of education. Mono-cultural schools have changed into multi-cultural (Myburgh & Poggenpoel, 2002), and multi-religious (Roux, 1998) schools. Naturally, this process included rationalization, retrenchment and redeployment of educators (Myburgh & Poggenpoel, 2002; Robinson, 2003), which may have contributed to perceptions of job insecurity.

A new policy on teacher education, namely Norms and Standards for Educators, was gazetted in February 2000, requiring all new teacher education programmes to be designed in accordance with the regulations of this policy, and within the larger context of national democratic values. Before 1998, there was no national system of registration for teacher education programmes in South Africa and, by implication, no quality assurance of programmes (Parker, 2001).

Mesthrie (1999) highlights changes in the South African education environment and society that contribute to the experience of stress by educators. These changes include, amongst others, population increases, greater diversity in school populations, increases in cost of living, crime and its effect on student behaviour, conditions of service, new rules and regulations of the Department of Education, curriculum changes, performance appraisal systems, and demands of unions. Another change that has been added to the curriculum is the so-called Outcomes Based Education (OBE, Robinson, 2003).

Rogan (1999) describes the South African educational landscape as one which includes many educators who often have little experience, meagre training, and are operating in under-resourced, large classes with learners who speak a variety of home languages. Vandalism is also common in schools situated in communities wracked by poverty, unemployment, political violence, and gang warfare (Buthelezi, 2003). Buthelezi further lists a shortage of classrooms

and overcrowding as issues traumatizing children, educators, and parents in South Africa. Clearly, the situation described above could contribute to educators' experiencing and developing burnout. Specific to the geographical area from which the current study population hails, Marais (1989) notes that factors like high workload and poor remuneration contribute to burnout of educators in the Free State province.

Maslach (1982) defined burnout as a syndrome characterized by emotional exhaustion, depersonalisation, and reduced feelings of personal accomplishment, which occurs in individuals who work with people, especially if the recipients of care have personal problems. Schaufeli and Enzmann (1998:36) define 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". Burnout is recognised as a serious threat, especially for workers who work with other people (Van Dierendonck, Schaufeli & Buunk, 1993).

The MBI-GS (Schaufeli & Enzmann, 1998, Maslach Burnout Inventory – General Survey) is widely used in measuring burnout and comprises three subscales: Exhaustion (Ex), Cynicism (Cy), and Professional Efficacy (PE). The Exhaustion items of the MBI-GS are generic as they refer to fatigue. Cynicism reflects indifference or a distant attitude towards one's work in general. Professional Efficacy encompasses both social and non-social accomplishments at work. A person is also not classified, as "burnt out" or "not burnt out", but placed on a scale from "more" to "less" burnt out.

Depersonalisation (from the MBI-Health Services Survey, Maslach & Jackson, 1986) refers to the development of negative, impersonal, and cynical attitudes and feelings about recipients in which the employee treats others like objects. People who cope by mentally disengaging themselves from situations experience more emotional exhaustion and depersonalisation (Carver, Scheier & Weintraub, 1989). Depersonalisation presents the specific interpersonal dimension of burnout (Schaufeli, 2003), whereas Cynicism is more generic. In recent research with South African educators, Cynicism and Depersonalisation have been conceptualised as sub-dimensions of a super-order factor in burnout, namely, Mental Disengagement (see Jackson & Rothmann, 2005; Montgomery, Mostert & Jackson, 2005). The targets of the cognitions and effect of these sub-dimensions differ however, namely, recipients of service (Depersonalisation), or the job itself (Cynicism) (Salanova, Llorens, García-Renedo, Bresó & Schaufeli, 2005). We therefore set out to investigate each of these sub-dimensions in terms of reliability and equivalence, instead of one factor, namely, Mental Distance. The lack of empirical research which systematically investigates educator burnout in South Africa is a concern (Jackson & Rothmann, 2005), and a distinction between Depersonalisation and Cynicism could provide important indications for avenues of intervention, because they imply different targets (namely, interpersonal or organisational foci).

A high incidence of burnout has been observed in education managers and educators at large in South Africa, because of the introduction of Curriculum 2005 and Outcomes Based Education (OBE) (National Centre for Curriculum Research and Development, 2000; Motseke, 2000). Therefore, it seems important and relevant to investigate the validity of the burnout construct for educators in South Africa. Van der Linde, Van der Westhuizen and Wissing (1999) indicate that educators at Afrikaans-medium schools experienced more burnout than Tswana-speaking educators and educators at English-medium schools. It may be argued that educators at Afrikaans-medium schools are faced with the greatest challenge in adapting to changing governmental and learner demands in terms of education.

There are very few studies of burnout among educators, in particular in individual provinces of South African, for example, the Free State province. The present research was a first step in studying burnout among educators in a newly democratic, multiracial, and multilingual northern Free State province. In this regard, it was very important to use a reliable and valid instrument to measure burnout.

Research with the Maslach Burnout Inventory in South Africa has confirmed the factor structure for educators in tertiary (Pretorius, 1994), secondary, (Jackson & Rothmann, 2005; Van der Linde *et al*., 1999) and primary settings (Montgomery *et al*., 2005). South Africa is a country of great diversity, comprising many different cultures. Organisations employ people with diverse historical, cultural, and social backgrounds. In view of these different cultures and backgrounds, it is impossible to take for granted that scores obtained in one culture can be compared with scores obtained in another culture. Therefore, a standardised test should be used to compare the scores obtained (Van de Vijver & Leung, 1997). We therefore set out to determine the construct validity and internal consistency of the MBI, and to determine the utility of biographical variables in describing teacher burnout.

The MBI-GS has previously been studied in South Africa. Storm and Rothmann (2002) and Malan and Rothmann (2003) found satisfactory alpha coefficients for all dimensions of burnout. Schaufeli, Leiter, Maslach and Jackson (1996) indicated that the MBI-GS could validly be applied across different occupations, when taking into consideration that the three dimensions of the MBI-GS are interrelated. A need for additional and more extensive studies investigating the factorial structure of the inventory in South African samples has been called for (Pretorius, 1994; Rothmann, 2003).

Method
Research design
A cross-sectional survey design was used. This design is most suited to studies where validation is a major focus (Shaugnessy & Zechmeister, 1997).

Participants
Participants were selected at random from the total population of educators in the Goldfield region of the Free State province, after attaining the appropriate authorisation from the relevant Department of Education. A sample of 468 educators from the total population of 1 014 was used. Schools were randomly selected from an alphabetical list of school names, and all educators at said schools were asked to complete the questionnaire. The majority (47.80%) of the sample had completed high school education, and attained a higher diploma or degree qualification. The mean age of the participants was 37.58 years, while the mean length of work experience was 13.08 years. The majority (90.43%) of the participants had permanent contracts. Regarding the gender of participants, 60.52% were female. The first (or home) language distribution of participants was as follows: Afrikaans (39.36%), English, (17.02%), Sepedi (1.06%), Sesotho (27.87%), Setswana (1.70%), Tshivenda (0.21%), IsiNdebele (0.21%), IsiXhosa (11.49%), and IsiZulu (1.06%). Anderson (2003: 30) has described the fundamental group distinctions in South African society as based more on cultural and language differences than on essentialized notions of race. Therefore, for the purpose of this research, participants were grouped into an Afrikaans and English language group, and an African Languages group, constituting 56.38% and 43.62% of the sample, respectively. The reason for this decision was based on both pragmatic and conceptual reasons. Traditionally, the Afrikaans and English

language groups share a common European ancestry, and the African Languages group an indigenous African ancestry. This division also resulted in groups sufficiently large to conduct comparative analyses, and they were similar to previous groups used in secondary educator research (see Jackson & Rothmann, 2005). The authors were therefore confident that investigating differences based on language would yield more insightful results than investigating differences with regard to ethnic or cultural background. More than half of the participants (54.19%) indicated that they belonged to a union.

Instruments

Two measuring instruments were used in the study. The Maslach Burnout Inventory – General Survey (Schaufeli *et al*., 1996), as well as the Depersonalisation subscale (from the MBI-Health Services Survey, Maslach & Jackson, 1986), and a Biographical questionnaire were administered.

An adapted version of the Maslach Burnout Inventory – General Survey (MBI-GS) (Schaufeli *et al*., 1996) was used to measure respondents' relationships with their work. The MBI-GS has three subscales: Exhaustion (Ex) (five items, e.g. "I feel used up at the end of the workday"), Cynicism (Cy) (five items, e.g. "I have become less enthusiastic about my work"), and Professional Efficacy (PE) (six items, e.g. "In my opinion, I am good at my job"). Together the subscales of the MBI-GS provided a three-dimensional perspective on burnout. Test-retest reliabilities after one year were 0.65 (Exhaustion), 0.60 (Cynicism), and 0.67 (Professional Efficacy) (Schaufeli *et al*., 1996). All items were scored on a 7-point frequency rating scale ranging from 0 ("never") to 6 ("daily"). High scores on Ex and Cy and low scores on PE are indicative of burnout. To explore the Mental Disengagement dimension, both the Cynicism scale (Schaufeli *et al*., 1996) and the Depersonalisation scale (Maslach & Jackson, 1986) were included in the adapted version of the questionnaire. Depersonalisation (from the MBI-Health Services Survey, Maslach & Jackson, 1986) describes an unfeeling and impersonal response towards recipients of one's care or service. Although the Depersonalisation and Cynicism constructs can be said to be related, Depersonalisation presents a more specific interpersonal focus than Cynicism, which refers to a general attitude of cynicism regarding work, the employing organisation, colleagues, or the recipients of ones' service.

A Biographical Questionnaire requested participants to indicate their age, qualifications, years of experience, job level, type of contract, gender, home language, whether they belong to a union, and if they were provided with stress management and stress counselling services at the schools where they work.

Statistical analysis

The statistical analysis was carried out with the help of the SPSS programme (SPSS, 2003). The programme was used to carry out statistical analysis regarding the reliability and validity of the measuring instruments and descriptive statistics. Cronbach alpha coefficients and inter-item correlation coefficients were used to assess the reliability and validity of the measuring instruments (Clark & Watson, 1995). Descriptive statistics (e.g. means, standard deviations, skewness, and kurtosis) and inferential statistics were used to analyse the data.

Construct (structural) equivalence was used to compare the factor structures of the MBI for the two language groups. Exploratory factor analysis and target (Procrustean) rotation were used to determine construct equivalence (Van de Vijver & Leung, 1997). According to Van de Vijver and Leung (1997), it is not acceptable to conduct factor analyses for different cultural

groups to address the similarity of factor-analytical solutions because the spatial orientation of factors in factor analysis is arbitrary. Rather, prior to an evaluation of the agreement of factors in different cultural groups, the matrices of loadings should be rotated with regard to each other (i.e. target rotations should be carried out). The factor loadings of separate groups were rotated to a joint common matrix of factor loadings. After target rotation had been carried out, factorial agreement was estimated using Tucker's coefficient of agreement (Tucker's *phi*). This coefficient is insensitive to multiplications of the factor loadings, but is sensitive to a constant added to all loadings of a factor. This index does not have a known sampling distribution, hence it is impossible to establish confidence intervals. Values higher than 0.95 are seen as evidence for factorial similarity, whereas values lower than 0.85 are taken to point to non-negligible incongruities (Van de Vijver & Leung, 1997). This index is sufficiently accurate to examine factorial similarity at a global level. However, if construct equivalence is not acceptable, bias analyses should be carried out to detect inappropriate items.

An extension of Cleary and Hilton's (1968) use of analysis of variance was applied to identify item bias (Van de Vijver & Leung, 1997). Bias was examined for each item separately. The item score was the dependent variable, while language groups (two levels) and score levels were the independent variables. Score groups were composed on the basis of the total score on the MBI. Two effects were tested through analysis of variance, namely, the main effect of language group, and the interaction of score level and language group. When both the main effect of language group and the interaction of score level and language group are non-significant, the item is taken to be unbiased.

A *t* test was used to determine differences between the language groups in the sample regarding their union membership. The following formula was used to determine the practical significance of difference in means between two groups (Steyn, 1999):

$$d = \frac{\text{Mean}_A - \text{Mean}_B}{\text{RMSE}}$$

where Mean_A = Mean of the first group; Mean_B = Mean of the second group; and RMSE = Root Mean Square Error.

A cut-off point of 0.50 (medium effect, Cohen, 1988) was set for the practical significance of differences between means.

Results

Exploratory factor analysis and target (Procrustean) rotation were used to determine construct equivalence of the MBI. The scree plot and eigenvalues indicated four factors. The factor loadings of race groups were rotated to one target group. After target rotation had been carried out, factorial agreement was estimated using Tucker's coefficient of agreement (Tucker's *phi*). The Tucker's *phi* coefficients for the two languages group are given in Table 1.

Inspection of Table 1 shows that the Tucker's *phi* coefficients for Exhaustion and Professional Efficacy for the two language groups were all acceptable (>0.90). However, when looking at the Tucker's *phi* coefficient for Depersonalisation, it can be seen that for the African Languages group, the coefficient is somewhat lower. Regarding Cynicism, the *phi* coefficient for the African Languages group is totally unacceptable, compared to the given guideline (Van de Vijver & Leung, 1997). These results therefore indicate that a three-factor model of burnout,

Table 1 Construct equivalence of the burnout dimensions for different languages groups

Group	Percentage of sample	Tucker's *phi* Exhaustion	Tucker's *phi* Depersonali- sation	Tucker's *phi* Cynicism	Tucker's *phi* Professional Efficacy
Afrikaans and English	55.30	0.99	0.97	0.99	0.94
African Languages	41.50	0.96	0.88	0.80	0.97

including Depersonalisation, may be applied to all language groups.

Item bias analysis was computed for the Cynicism scale owing to its low phi coefficient in the African Languages group. The results are reported in Table 2.

Table 2 Item bias analysis of the Cynicism items of the MBI

Item	Uniform bias		Non-uniform bias	
Cynicism	P	Partial eta^2	P	Partial eta^2
I have become less interested in my work since I started this job	0.806	0.001	0.929	0.004
I have become less enthusiastic about my work	0.890	0.11*++	0.160	0.020*+
I just want to do my work and not be bothered	0.024	0.016*+	0.023	0.032*+
I have become more cynical about whether my work contributes anything	0.534	0.003	0.183	0.019*+
I doubt the significance of my work	0.846	0.001	0.127	0.022*+

   * Significant: p ≤ 0.05
   + Practically significant (small effect): Partial eta^2 ≥ 0.01
  ++ Practically significant (medium effect): Partial eta^2 ≥ 0.06
+++ Practically significant (large effect): Partial eta^2 ≥ 0.14

Table 2 shows that significant *eta* square values for items 9 and 13 existed regarding uniform bias, and significant *eta* square values existed for items 9, 13, 14, and 15 regarding non-uniform bias. Therefore, it appears that the means of the language groups for the different score levels differed from zero in a systematic way.

The descriptive statistics for the measuring instruments are presented in Table 3, which shows that the scores of the MBI factors are relatively normally distributed. The alpha coefficients of the MBI factors were acceptable compared to the guideline of α > 0.70, although the factor of Cynicism was just below the cut-off, but still acceptable (Nunnally & Bernstein, 1994). The mean inter-item correlation coefficients were within the range of 0.15 ≤ r ≤ 0.50 proposed by Clark and Watson (1995), although Professional Efficacy items showed a slightly high inter-item correlation. It appears that the scales had acceptable levels of internal consistency. The Exhaustion and Depersonalisation factors also showed high kurtosis.

Table 4 indicates the differences for the Afrikaans and English languages group regarding burnout and union membership.

It can be seen in Table 4 that for the Afrikaans and English languages group, a practically

Table 3 Descriptive statistics, inter-item correlation coefficients and Cronbach alpha coefficients of the measuring instruments (N=283)

Factor	Mean	SD	Skewness	Kurtosis	*r* Mean	α
Exhaustion	17.05	6.25	0.45	4.53	0.46	0.81
Depersonalisation	10.85	5.41	0.11	1.91	0.48	0.79
Cynicism	12.57	4.80	−0.61	0.40	0.36	0.69
Professional efficacy	24.00	6.44	0.19	−0.45	0.51	0.86

Table 4 Results of *t* test regarding burnout factors and union membership for the Afrikaans and English languages group

Item	*P*	*d*
Exhaustion	0.06	–
Depersonalisation	0.06	–
Efficacy	0.00*	0.79*+

  * Significant: *p* < 0.05
  + Practically significant (medium effect): *d* > 0.50
++ Practically significant (large effect): *d* > 0.80

significant difference existed (large effect) regarding their sense of professional efficacy and union membership. Members of unions showed higher professional efficacy.

Table 5 indicates the differences for the African Languages group regarding burnout and union membership.

Table 5 Results of *t* test regarding burnout factors and union membership for the African Languages group

Item	*P*	*d*
Exhaustion	0.71	–
Depersonalisation	0.00*	0.77*+
Efficacy	0.00*	0.78*+

  * Significant: *p* < 0.05
  + Practically significant (medium effect): *d* > 0.50
++ Practically significant (large effect): *d* > 0.80

Table 5 shows that for the African Languages group, individuals who were members of unions experienced less depersonalisation than non-members (practically significant, medium effect). Regarding their sense of professional efficacy, union members experienced more efficacy than non-members (practically significant, medium effect).

No differences regarding burnout scores were obtained for any of the groups regarding their age, gender, years experience as a teacher, tenure at current employment, or marital status or between the two language groupings used for analysis.

Discussion

It was found that burnout amongst secondary school educators in the Free State province of

South Africa could be aptly measured with the Maslach Burnout Inventory, but that the Depersonalisation scale showed better fit to the data than the Cynicism scale. Alpha values computed on the total sample indicated, however, that all four MBI subscales showed ample reliability and internal consistency, confirming suggestions (Jackson & Rothmann, 2005) that both Depersonalisation and Cynicism should be studied in educator samples. Our results however were contrary to previous South African research (Jackson & Rothmann, 2005), but confirmed international findings (Salanova *et al.*, 2005) in indicating that both dimensions are important in studying Mental Distancing. Regarding construct equivalence, the Cynicism scale did not make the grade, and therefore use of the Mental Distancing dimension should be done with caution. Results seemed to indicate that each dimension may carry unique potential in describing the variance in educator burnout. It is important to note that Depersonalisation is specifically considered as the interpersonal dimension of burnout (Schaufeli, 2003), and thus represents a more specific focus than cynicism. It is alarming that depersonalisation (an interpersonal attitude) proved a sounder factor than cynicism (a general attitude towards work, the employer, or the organisation) in describing educator burnout. Educators supposedly work with so many people every day of their lives (overcrowded classrooms has been cited as a source of stress — see Gold & Roth, 1993) that learners tend to become objects. Working with a large group of learners also makes it impossible to give personal attention to everyone, and educators therefore develop an impersonal and aloof attitude.

Two Cynicism items, namely, "I have become less enthusiastic about my work" and "I just want to do my work and not be bothered" showed uniform bias in the current sample. This indicated that the influence of bias was consistent for all score levels of this particular item. The items "I have become less enthusiastic about my work", "I just want to do my work and not be bothered", "I have become more cynical about whether my work contributes anything", and "I doubt the significance of my work" showed non-uniform bias, indicating that across all score levels of an item, significantly larger differences in terms of a particular item existed in one group, when compared to the other group across the different score levels for the specific item (Mellenbergh, 1982). Item 13 ("I just want to do my work and not be bothered") was also indicated as problematic by Jackson and Rothmann (2005). Only one item from the Cynicism subscale did not show either uniform or non-uniform bias, or both. The Cynicism subscale therefore appears particularly flawed in describing teacher burnout in the northern Free State province.

For the African Languages group, it was found that members of unions experienced less depersonalisation than non-members. An important social support role has been hypothesized for union membership (Armstrong-Stassen, 1993; Dekker & Schaufeli, 1995; Hellgren & Sverke, 2001). Unions perhaps provide members with an opportunity to not lose sight of the humanness of recipients of their service, where opportunities to receive social support and vent frustrations act as a deterrent to developing depersonalisation.

Union members from both language groups experienced more professional efficacy. This made for an important finding — very little previous research could be retrieved regarding the role the union plays in this regard. It has however been shown that union membership can lessen perceptions of powerlessness, in that the union has the function of speaking for the employees (Hellgren & Chirumbolo, 2003; Sverke & Hellgren, 2001). Educators who are therefore members of a union may show higher efficacy because they are confident that the union will be willing to intervene in their interest, should it become necessary. The union also has the task of making sure that the needs of members, that is, the employees, are met (Sverke *et al.*, 2004).

Union membership may thus be instrumental in attaining opportunities for training, thereby enhancing professional efficacy.

Contrary to previous South African research which highlighted the type of school and educators' intentions to leave the profession and age (Jackson & Rothmann, 2005) as important variables, we did not find any other biographical variables relevant to describing teacher burnout.

Recommendations

Our results suggest that, rather than using the Depersonalisation and Cynicism items in one super-order factor Mental Distancing, unique differences may still be captured by using these subscales separately. Educators may experience both dimensions simultaneously, or any one dimension separately. Item 13 ("I just want to do my work and not be bothered") should definitely be removed from future studies with secondary educators. The construct equivalence of the Cynicism subscale remains suspect.

This study was seemingly the first to investigate the role of union membership in relation to burnout for educators in South Africa. Given the important and interesting findings, and the differences highlighted for different language groups, future researchers would do well to consider union membership as a moderating variable in investigating teacher burnout.

Acknowledgement

References
Anderson GM 2003. Racial identity, the Apartheid state and the limits of political mobilization and democratic reform in South Africa: The case of the University of the Western Cape. *Identity: An International Journal of Theory and Research*, 3:29-52.

Armstrong-Stassen M 1993. Production workers reactions to a plant closing: The role of transfer, stress and support. *Anxiety, Stress and Coping: An International Journal*, 6:201-214.

Buthelezi Z 2003. Researchers, beware of your assumptions! The unique case of South African Education. *Reading Online,* 41-50.

Carver CS, Scheier MR & Weintraub JK 1989. Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56:267-283.

Clark LA & Watson D 1995. Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7:309-319.

Cleary TA & Hilton TL 1968. An investigation of item bias. *Educational and Psychological Measurement*, 28:61-75.

Cohen J 1988. *Statistical power analysis for the behavioural sciences,* 2nd edn. Hillsdale, NJ: Lawrence Erlbaum & Associates.

Dekker SWA & Schaufeli WB 1995. The effects of job insecurity on psychological health and withdrawal: A longitudinal study. *Australian Psychologist*, 30:57-63.

Gold Y & Roth RA 1993. *Teachers managing stress and preventing burnout: The professional health solution*. London: Falmer.

Hellgren J & Chirumbolo A 2003. Can union support reduce the negative effects of job insecurity on well-being? *Economic and Industrial Democracy*, 24:271-289.

Hellgren J & Sverke M 2001. Unionized employees' perceptions of role stress and fairness during organizational downsizing: Consequences for job satisfaction, union satisfaction and well-being. *Economic and Industrial Democracy*, 22:543-567.

Jackson LTB & Rothmann S 2005. An adapted model of burnout for educators in South Africa. *South African Journal of Education*, 25:100-108.

Malan H & Rothmann S 2003. Koherensiesin, selfdoeltreffendheid, lokus van beheer en uitbranding by maatskaplike werkers [Sense of coherence, self-efficacy, locus of control and burnout in social workers]. *South African Journal of Industrial Psychology*, 29:43-51.

Marais JL 1989. Faktore wat stres veroorsaak by onderwysers in die Oranje-Vrystaat en Kaapprovinsie [Factors that cause stress for teachers in the Orange Free State and Cape Province]. Ongepubliseerde Meesters-verhandeling, Potchefstroomse Universiteit.

Maslach C & Jackson SE 1986. *Maslach Burnout Inventory*, 2nd edn. Palo Alto, CA: Consulting Psychologist Press.

Maslach C 1982. *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice Hall.

Mellenbergh GJ 1982. Contingency table models for assessing item bias. *Journal of Educational Statistics*, 7:105-118.

Mesthrie R 1999. The role of principals in the management of stress and burnout. *Education Practice*, 3:19-23.

Montgomery A, Mostert K & Jackson LTB 2005. Burnout and health of primary school educators in the North West Province. *South African Journal of Education*, 25:266-272.

Motseke MJ 2000. OBE-related stress among township school teachers in the Free State Province. Unpublished Doctoral thesis, Vista University, Welkom, South Africa.

Myburgh CPH & Poggenpoel M 2002. Teachers' experience of their school environment — Implications for health promotion. *Education*, 123:260-267.

National Centre for Curriculum Research and Development 2000. *Teachers understanding of Curriculum 2005*. Available at: http://education.pwv.gov.za

Ndhlovu TN, Bertram C, Mthiyane N & Avery N 1999. *Creating people-centred schools: School organization and change in South Africa, Learning guide*. Cape Town: South African Institute of Distance Education and Oxford University Press.

Nunnally J & Bernstein IH 1994. *Psychometric theory*, 3rd edn. New York: McGraw-Hill.

Parker B 2001. Roles and responsibilities, institutional landscapes and curriculum mindscapes: A partial view of teacher education policy in South Africa, 1990 to 2000. Paper presented at the *Multi-Site Teacher Education Research Project*, Pretoria, South Africa, 5-7 April.

Pretorius TB 1994. Using the Maslach Burnout Inventory to assess educator's burnout at a university in South Africa. *Psychological Reports*, 75:771-777.

Robinson M 2003. Teacher education policy in South Africa: The voice of teacher educators. *Journal of Education for Teaching*, 29:19-34.

Rogan J 1999. The implementation of Cirruculum 2005: A research agenda. In: E Fennema & K Taole (eds). *Proceedings of the Second Joint Conference: Mapping out a Research Agenda to Drive Professional Development and Systemic Reform*. Pretoria, NSF, USA, NRF.

Rothmann S 2003. Burnout and engagement: A South African perspective. *South African Journal of Industrial Psychology*, 29:16-26.

Roux CD 1998. The need for a paradigm shift in teaching religion in a multicultural school. *South African Journal of Education*, 18:79-83.

Salanova M, Llorens S, García-Renedo M, Burriel R, Bresó E & Schaufeli WB 2005. Toward a four-dimensional model of burnout: a multi-group factor-analytic study including depersonalisation and cynicism. *Educational and Psychological Measurement*, 56:901-931.

Schaufeli WB 2003. Past performance and future perspectives of burnout research. *South African Journal of Industrial Psychology*, 29:1-16.

Schaufeli WB & Enzmann D 1998. *The burnout companion to study and practice: A critical analysis*. London: Taylor and Francis.

Schaufeli WB, Leiter MP, Maslach C & Jackson SE 1996. MBI-General Survey. In: C Maslach, SE Jackson & MP Leiter (eds). *Maslach Burnout Inventory Manual,* 3rd edn. Palo Alto, CA: Consulting Psychologists Press.

Shaughnessy JJ & Zechmeister EB 1997. *Research methods in psychology*, 4th edn. New York: McGraw-Hill.

SPSS 2003. *SPSS 12.0*. Chicago, IL: SPSS Incorporated.

Steyn HS 1999. Praktiese betekenisvolheid. Die gebruik van effekgroottes. *Wetenskaplike bydraes — reeks B: Natuurwetenskappe Nr. 117*. Potchefstroom: Potchefstroomse Universiteit.

Storm K & Rothmann S 2003. The relationship between burnout, personality traits and coping strategies in a corporate pharmaceutical group. *South African Journal of Industrial Psychology*, 29:35-42.

Sverke M & Hellgren J 2001. Exit, voice, and loyalty reactions to job insecurity: Do unionized and non-unionized employees differ? *British Journal of Industrial Relations*, 39:167-182.

Sverke M, Hellgren J, Näswall K, Chirumbolo A, De Witte H & Goslinga S 2004. *Job insecurity and union membership. European unions in the wake of flexible production*. Brussels: P.I.E. Peter Lang, Presses Interuniversitaires Européenes.

Van de Vijver FJR & Leung K 1997. *Method and data analysis for cross-cultural research*. Beverly Hills, CA: Sage.

Van der Linde AH, Van der Westhuizen PC & Wissing MP 1999. Burnout in female educators. *South African Journal of Education*, 19:192-197.

Van Dierendonck D, Schaufeli WB & Buunk BP 1993. The evaluation of an individual burnout intervention program: The role of inequity and social support. *Journal of Applied Psychology*, 83:392-407.

Authors

Jaco Pienaar is Senior Lecturer and Researcher at Workwell, the Research Unit for People, Policy and Performance at the North-West University (Potchefstroom Campus). His research interests include occupational stress and its individual moderators, coping, and dysfunctional behaviour at work.

Debri van Wyk is an Industrial Psychologist at Assessment Centre Technologies (ACT) in Cape Town. He is completing his doctorate at the North-West University, focusing on wellbeing of teachers in the Free State. Aspects covered are burnout, work engagement, educator stress, and moderating effect of optimism.