

PSYCHOLOGICAL EMPOWERMENT OF EMPLOYEES IN SELECTED ORGANISATIONS IN SOUTH AFRICA

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Keywords:

empowerment;
Psychological
Empowerment
Questionnaire; construct
validity; internal
consistency;
cross-sectional survey

Dates:

Received: 13 May 2008
Accepted: 15 July 2009
Published: 30 Oct. 2009

How to cite this article:

Stander, M.W., &
Rothmann, S. (2009).
Psychological
empowerment of
employees in selected
organisations in South
Africa. *SA Journal of
Industrial Psychology/SA
Tydskrif vir Bedryfsielkunde*,
35(1), Art. #466, 8 pages.
DOI: 10.4102/sajip.v35i1.466

This article is available at:

<http://www.sajip.co.za>

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ABSTRACT

The objective of this study was to assess the construct validity and internal consistency of the Psychological Empowerment Questionnaire (PEQ) for employees in selected organisations in South Africa. A cross-sectional survey design with a convenient sample ($N = 1405$) was used. The PEQ was administered. Structural equation modelling confirmed a four-factor model for the PEQ, consisting of competence, meaning, impact and self-determination. A cross-validation study confirmed the construct equivalence of the four-factor model for a study sample ($n = 679$) as well as a replication sample ($n = 726$) that was randomly selected for the total sample. The subscales showed acceptable internal consistencies.

INTRODUCTION

Employee engagement and commitment is a major success factor in today's organisations (Boninelli & Meyer, 2004; May, Gilson & Harter, 2004; Millet & Sandberg, 2005). Empowerment heightens employees' sense of personal control and motivates them to engage in work, which in turn results in positive managerial and organisational outcomes (Conger & Kanungo, 1988; Quinn & Spreitzer, 1997; Siegall & Gardener, 2000). Studies have shown that psychological empowerment mediates the relationship between structural empowerment and innovative behaviour (Knol & Van Linge, 2009), and between work redesign and organisational commitment (Chen & Chen, 2008). Psychological empowerment has also been positively associated with performance and job satisfaction (Seibert, Silver & Randolph, 2004) as well as with showing initiative, embracing risks and coping with uncertainty (Spreitzer, 1995).

Kuokkanen and Leino-Kilpi (2000) distinguish between three approaches to empowerment. The first approach is based on feminist theory and is associated with the improvement of conditions for oppressed groups. The second approach, referred to as structural empowerment, is based on organisational theories. In this approach empowerment is considered to be a set of activities and practices that give power, control and authority to subordinates (Daft, 2001). The third approach, namely psychological empowerment, is founded on social psychological theory and assumes that empowerment has its base in the perceptions of employees.

Menon (2001) classifies empowerment research in three broad categories, based on the underlying thrust and emphasis, namely situational (structural), motivational (psychological) and leadership empowerment. The situational approach emphasises the redistribution of authority and delegation of decision-making power down the organisational hierarchy so that the employee has the ability to impact on organisational outcomes, be creative and have more flexibility to take risks (Cloete, Crous & Scheepers, 2002; Greasley *et al.*, 2005; Menon, 2001). The 'leadership' approach focuses on the leader who energises his or her followers to act with the leader in providing future vision (Menon, 2001). Delegation of authority, accountability for outcomes, self-directed and participative decision making, information sharing and coaching and the developing of people have been identified as leadership behaviours that will empower people (Arnold, Arad, Rhoades & Drasgow, 2000; Konczak, Stelly & Trusty, 2000). The 'psychological' approach to empowerment refers to the internal processes of the individual being empowered (Menon, 2001).

Laschinger, Finegan and Shamian (2001) contrast Kanter's (1979) model of structural empowerment at work with psychological empowerment and points out that Kanter's model does not include employees' reactions to structural empowerment. Employees who perceive that their values, beliefs and behaviours are congruent with their job requirements have confidence in their job performance abilities. Furthermore, they feel in control of their work, which results in positive work outcomes, including higher job satisfaction and lower job stress (Spreitzer, 1995).

Organisations in South Africa are under pressure to bring about large-scale changes in order to cope with the economic challenges in the country. There is a need amongst employees in organisations to build competencies, resources and strategies to respond proactively to the economic challenges in the post-apartheid era. This is possible only when employees feel psychologically empowered. Therefore it is clear that employees in South African organisations are in need of an empowered approach. Bhatnagar (2005) points out that the term 'empowerment' will not be perceived in the same way by different organisations and that people within the same organisation will not even think of it in the same way. Although many studies in South Africa have focused on empowerment or empowerment techniques, few studies have focused on psychological empowerment. Sutherland, De Bruin and Crous (2007) focused on psychological empowerment in their study, but the tool that was used measured structural empowerment (referred to as empowerment climate) and psychological empowerment as part of one dimension.

The above discussion suggests that a need for psychological empowerment exists in South African organisations. A need exists for empirical research on psychological empowerment, and more

specifically regarding a tool that can be used to assess the level of psychological empowerment of employees in South African organisations. However, such a tool has to be proven reliable and valid in South Africa. No studies have been reported regarding the reliability and validity of a measuring instrument of psychological empowerment in South Africa. Furthermore, the above discussion shows that psychological empowerment mediates the relationship between structural empowerment and valued organisational outcomes. If psychological empowerment can be measured in a reliable and valid manner, interventions can be implemented to promote the empowerment of employees. The objective of this study was to determine the construct validity and reliability of the Psychological Empowerment Questionnaire (PEQ) for employees in selected organisations in South Africa.

Psychological empowerment

Psychological empowerment exists when employees perceive that they exercise some control over their work life (Spreitzer, 1995). According to Spreitzer, psychological empowerment reflects an individual's active orientation to his or her work role and consists of cognitions that are shaped by the work environment rather than a fixed personality attribute. Various schools of thought regarding psychological empowerment have evolved over time, including the work of Conger and Kanungo (1988), Spreitzer (1995) and Thomas and Velthouse (1990).

Conger and Kanungo (1988) define empowerment as a process to enhance feelings of self-efficacy among employees through the identification of conditions that foster powerlessness and through their removal by both formal organisational practices and informal techniques of providing efficacy information. Empowerment is classified in terms of five stages (Conger & Kanungo, 1988). The first stage entails the diagnosis of conditions within the organisation that are responsible for the feelings of powerlessness among employees. This leads to the use of empowerment strategies by managers in stage two, directed at removing the external conditions responsible for powerlessness. In stage three employees are provided with self-efficacy information. As a result of receiving such information, employees feel empowered in stage four. In stage five the behavioural effects of empowerment are noticed.

Thomas and Velthouse (1990) propose a cognitive model in which empowerment is shaped by an individual's work context and personality traits. According to Thomas and Velthouse, psychological empowerment consists of a set of four cognitions reflecting an employee's orientation to his or her role, namely meaning (i.e. the value of his or her work), competence (i.e. his or her capability to perform the work), choice (i.e. the choice in initiating and regulating actions) and impact (i.e. the ability to affect organisational outcomes).

Spreitzer (1995) modified the model of Thomas and Velthouse (1990) and defined empowerment as follows:

...a motivational construct manifested in four cognitions: meaning, competence, self-determination and impact. Together these four cognitions reflect an active, rather than passive orientation to a work role. By active orientation is meant an orientation in which an individual wishes and feels able to shape his or her work role or context.

(Spreitzer 1995:1441)

The four dimensions of psychological empowerment, namely meaning, competence, self-determination and impact, combine additively to create an overall construct of psychological empowerment. The lack of a single dimension will deflate but not completely eliminate the overall effect of experienced empowerment.

'Meaning' reflects a sense of purpose or personal connection to work (Mishra & Spreitzer, 1998). Quinn and Spreitzer (1997) state that empowered people feel that their work is important to them and they care about what they are doing. 'Competence'

indicates that individuals believe that they have the skills and abilities necessary to perform their work well (Mishra & Spreitzer, 1998). This dimension is labelled competence rather than self-esteem because of a focus on efficacy specific to a work role. 'Self-determination' reflects a sense of freedom about how individuals do their own work (Mishra & Spreitzer, 1998). Self-determination relates to the opportunity to select task activities that make sense and to perform in ways that seem appropriate (Quinn & Spreitzer, 1997). 'Impact' describes a belief that individuals can influence the system in which they are embedded (Mishra & Spreitzer, 1998). This describes an individual's ability to influence outcomes at work. Quinn and Spreitzer (1997) state that impact is the accomplishment one feels in achieving goals. The feeling of perceived impact involves the sense that employees' activities are really accomplishing something and that others listen to them (Quinn & Spreitzer, 1997).

According to Menon (2001), psychological empowerment represents a psychological state that can be measured. It is regarded as a continuous variable, meaning that people can be viewed as either more or less empowered rather than empowered or not empowered (Honold 1997; Spreitzer, 1995). The above-mentioned four dimensions represent the psychological perspective of empowerment. However, a relational perspective of empowerment is represented by the social-structural components of empowerment. Organisational structure, organisational support, access to strategic information, organisational resources and organisational culture are identified as antecedents of employee empowerment, while innovation, upward influence, self-efficacy and managerial effectiveness are identified as the behavioural outcomes of empowerment (Spreitzer, 1995).

According to Mishra and Spreitzer (1998), employees fear and tend to avoid situations they believe exceed their skills whereas they get involved in activities and behave confidently when they judge themselves capable of handling situations that would otherwise be intimidating. The four dimensions of empowerment could help people feel more in control. Studies have shown that psychological empowerment may be an intervening variable between organisational empowerment and employee effectiveness (Spreitzer, 1995).

Measurement of psychological empowerment

In their study on instruments that measure psychological empowerment, Arneson and Ekberg (2006) found nine questionnaires measuring empowerment in working life. They established that most authors shared the same theoretical basis, that control and competence are dimensions that are frequently used and that Spreitzer's (1995) Psychological Empowerment Questionnaire (PEQ) has undergone the most comprehensive investigation. The research reported in this article is based on studies performed on the PEQ.

The 12-item PEQ was developed to measure the four dimensions of psychological empowerment as conceptualised by Spreitzer (1995) and Thomas and Velthouse (1990). According to Spreitzer, psychological empowerment represents a second-order construct consisting of four factors, namely meaning, competence, self-determination and impact. Confirmatory factor analysis would be regarded as appropriate to test the factor structure of the psychological empowerment construct because it assesses the loading of items on their first-order latent construct (i.e. meaning, competence, self-determination and impact) as well as the loadings of the first-order constructs on the second-order latent construct (i.e. psychological empowerment).

Although a number of studies showed support for the four-factor structure of the PEQ, exploratory factor analysis was used in most studies (e.g. Griggspall & Albrecht, 2003; Henken & Marchiori, 2003; Hochwalder & Brucefors, 2005; Hu & Leung, 2003; Moye & Henkin, 2006; Vardi, 2000), while confirmatory

factor analysis was used in only a limited number of studies (e.g. Kraimer, Siebert & Liden, 1999; Spreitzer, 1995). The studies that employed confirmatory factor analysis showed a better fit for the hypothesised model in an industrial sample (adjusted goodness-of-fit index [AGFI] = 0.98) compared to samples of insurance workers (AGFI = 0.87) and hospital workers (AGFI = 0.81). Furthermore, the pattern of second-order factor loadings differed substantially among the various samples. Boudrias, Gaudreau and Laschinger (2004) found that the structure of the PEQ was invariant for men and women.

Siegal and Gardner (2000) studied the factor structure of the PEQ by using exploratory factor analysis. They found that the meaning, competence and impact dimensions clearly emerged but not the self-determination dimension. Hancer and George (2003) identified three factors in their study of 917 service employees. Self-determination and impact loaded on one factor. This supports the results of an earlier study with service employees by Fulford and Enz (1995) who called the 'new' factor 'influence'. Consistent with Fulford and Enz (1995), Hancer and George (2003), Kraimer *et al.* (1999) and Boudrias *et al.* (2004) suggest that self-determination and impact have something in common that is not shared with the other dimensions of the questionnaire. In his study of 154 Greek employed students, Dimitriadis (2005) retained a three-factor model. He reports a potential overlap between self-determination and impact. Hancer's (2005) research with 214 undergraduate Turkish students suggested that three factors might represent the structure of the PEQ. Factor one closely resembled what Fulford and Enz (1995) and Hancer and George (2003) called influence, while the other two were named meaning and competence (Hancer, 2005). Hancer, George and Kim (2005), in their study with 173 restaurant service employees, reported two factors that they called attitude (meaning and competence) and influence (self-determination and impact).

The problem with most of the studies that focused on the construct validity of the PEQ is that they made use of exploratory factor analyses. Exploratory factor analysis is used primarily as a tool for reducing the number of variables or examining patterns of correlations among variables (Tabachnick & Fidell, 2001). Decisions about the number of factors and rotational scheme are based on pragmatic rather than theoretical criteria. Confirmatory factor analysis, in which different competing theoretical models can be tested, is appropriate when the aim is to find the best fitting theoretical model. Confirmatory factor analysis also makes it possible to specify first-order and second-order latent variables. Notably, the literature review showed that deviations for the four-factor model of psychological empowerment were observed when exploratory factor analysis was implemented.

Based on the above discussion, the following hypothesis is formulated for this study:

Hypothesis 1: Psychological empowerment, as measured by the PEQ, is a four-dimensional construct (meaning, competence, self-determination and impact).

Siegal and Gardner (2000) surveyed 203 employees of a manufacturing firm and found Cronbach alpha coefficients of 0.87 (meaning), 0.77 (competence), 0.72 (self-determination) and 0.86 (impact). Sauer (2003) reports an overall Cronbach alpha coefficient of 0.92 and 0.92 (meaning), 0.89 (competence), 0.91 (self-determination) and 0.84 (impact) for the subscales. Henken and Marchiori (2003) report Cronbach alphas ranging from 0.79 to 0.88 for the four subscales. The above results indicate high reliability for the subscales of the instrument.

Avolio, Zhu, Koh and Bhatia (2004) report an alpha coefficient of 0.84, Dimitriadis (2005) one of 0.79, Hancer *et al.* (2005) one of 0.89, Hancer and George (2003) one of 0.87, Hu and Leung (2003) one of 0.90, Jansen (2004) one of 0.82, Konczak *et al.* (2000) one of 0.86, Laschinger (2001) one of between 0.87 and 0.92, Moye and Henkin (2006) one of 0.87 and Seibert *et al.* (2004) one of 0.88

for the overall empowerment scale. This is an indication that the level of reliability of the questionnaire is more than acceptable.

Based on the above discussion, the following hypothesis is formulated for this study:

Hypothesis 2: The PEQ and its four subscales have acceptable levels of internal consistency.

RESEARCH DESIGN

Research approach

A cross-sectional survey design was used. Questionnaires were used to gather primary data in a non-random field survey. A correlational approach was followed in the data analysis.

Research method

Participants

The study population consisted of employees from selected organisations in South Africa ($N = 1\ 406$). The participants included employees from the following industries: manufacturing ($n = 583$), mining ($n = 75$), chemical ($n = 285$), service ($n = 167$) and a government organisation ($n = 296$). The population included workers from all levels, in other words ranging from semi-skilled to professional level. The lowest level employees had a level of literacy adequate for valid completion of questionnaires.

Descriptive information of the sample is given in Table 1. The majority of employees (42%) were younger than 35. More men (66%) than women (27%) participated in the research. The majority of employees (47%) had a level of education of Grade 12 or lower, while 43% had tertiary qualifications. Seventeen per cent were at a management level (having people reporting to them), while 44% had longer than 10 years of service and 36% had less than five years of service.

Measuring instrument

The PEQ (Spreitzer, 1995) was used in this study. Spreitzer developed the subscales by adapting items from previous studies. Meaning items were taken directly from Tymon (1988),

TABLE 1
Characteristics of the participants

ITEM	CATEGORY	FREQUENCY	PERCENTAGE
Age	35 years and younger	592	42
	36–45 years	295	21
	46 years and older	324	23
	Missing	194	14
Gender	Male	928	66
	Female	373	27
	Missing	104	7
Race	Black	346	25
	White	508	36
	Other	47	3
	Missing	504	36
Qualification	Up to Grade 12	667	47
	Diploma and degree	405	29
	Postgraduate qualification	200	14
	Missing	133	9
Organisational level	Management	246	17
	Non-management	473	34
	Specialist	200	14
	Missing	487	35
Years of service	Less than 5 years	501	36
	6–10 years	270	19
	More than 10 years	620	44
	Missing	15	1
Industry	Manufacturing	582	42
	Government	296	21
	Mining	75	5
	Service	167	12
	Chemical	285	20
	Missing	0	0

competence items from Jones's (1986) self-efficacy scale, impact from Ashforth's (1989) helplessness scale and self-determination items from Hackman and Oldham's (1980) autonomy scale. The PEQ contains three items for each of the four subdimensions of psychological empowerment (for example, Meaning: 'The work I do is meaningful to me'; Competence: 'I have mastered the skills necessary for my job'; Self-determination: 'I have significant autonomy in determining how to do my job'; and Impact: 'I have a great deal of control over what happens in my department'). Respondents indicated the extent to which they agreed with each statement on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A higher score means a higher degree of psychological empowerment.

Research procedure

Fieldworkers administered hard copies of the questionnaires to participants in the different organisations. The copies of the questionnaires were collected directly after they had been completed by the participants. The participants completed the questionnaires anonymously. The fieldworkers explained to the participants that the questionnaires would be treated confidentially.

Statistical analysis

The analysis was carried out with the SPSS 15.0 program (SPSS, 2006) and the AMOS program (Arbuckle, 2006). The reliability and validity of the PEQ were assessed by means of Cronbach alpha coefficients and confirmatory factor analysis. Descriptive statistics (means and standard deviations) were computed to describe the data.

Structural equation modelling, as implemented in AMOS (Arbuckle, 2006), was used to test the factorial models of the PEQ by using the maximum likelihood analyses. Given that this was the first comprehensive study assessing the dimensions of psychological empowerment in South Africa and the fact that mixed findings are reported in the literature, one-, two-, three- and four-factor models were considered. The following indices produced by AMOS were used in this study: the Chi-square statistic, which is the test of absolute fit of the model, the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Normed Fit Index (NFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root-Means-Square Error of Approximation (RMSEA).

RESULTS

Construct validity of the PEQ

Structural equation modelling methods, as implemented by AMOS (Arbuckle, 2006), were used to test the factorial model for the PEQ. Before performing structural equation modelling, the frequency distribution of the items of the PEQ was checked in order to assess deviations from normality, and multivariate outliers were removed. It was assumed that the χ^2 goodness-of-fit statistics are not likely to be inflated if the skewness and kurtosis for individual items do not exceed the critical values of 2.00 and 7.00 respectively (West, Finch & Curran, 1995).

According to Byrne (2001), the primary focus of the estimation process in structural equation modelling is to yield parameter values such that the residual between the sample covariance

matrix and population covariance matrix implied by the model is minimal. Data analyses proceeded as follows: Firstly, a quick overview of model fit was done by looking at the overall χ^2 value together with its degrees of freedom and probability value. Global assessments of model fit were based on several goodness-of-fit statistics (GFI, AGFI, NFI, TLI, CFI and RMSEA). Secondly, given the findings of an ill-fitting initially hypothesised model, analyses proceeded in an exploratory mode. Possible misspecifications, as suggested by the modification indices, were searched for, and a revised, respecified model was fitted to the data.

Hypothesised models

In the hypothesised models each of the 12 observed variables loads on only one factor. The indicator variables in the model were treated as continuous variables. Errors of measurement associated with each observed variable are uncorrelated. Latent variables were not allowed to correlate.

The following hypothesised models of the PEQ were tested:

- Model 1: A four-factor model (consisting of four first-order latent factors, namely competence, meaning, impact and self-determination, and one second-order latent factor, namely psychological empowerment)
- Model 2: A one-factor model (consisting of one latent factor, namely psychological empowerment)
- Model 3: A three-factor model (consisting of three first-order latent factors, namely competence, meaning and influence, and one second-order latent factor, namely psychological empowerment)
- Model 4: A two-factor model (consisting of two latent factors, namely attitude and influence)
- Model 5: A three-factor model (consisting of three first-order latent factors, namely attitude, impact and self-determination, and one second-order latent factor, namely psychological empowerment)

Table 2 presents fit statistics for the test of the various models on the total sample.

Comparison of the fit indices indicates that Model 1 fitted the data best. All the other models showed a poor fit to the data. Table 2 shows that a χ^2 value of 671.91 ($df = 50$) was obtained for Model 1, which was subsequently used as a baseline model to decide whether the other four models represented a statistically significant improvement. The following changes in chi-square ($\Delta\chi^2$) were found: Model 1 and Model 2 ($\Delta\chi^2 = 2\,554.47$, $\Delta df = 4$, $p < 0.01$); Model 1 and Model 3 ($\Delta\chi^2 = 252.53$, $\Delta df = 1$, $p < 0.01$); Model 1 and Model 4 ($\Delta\chi^2 = 824.46$, $\Delta df = 3$, $p < 0.01$); and Model 1 and Model 5 ($\Delta\chi^2 = 332.12$, $\Delta df = 1$, $p < 0.01$). These results show that Model 1 indeed fits the data statistically significantly better than the other four models.

The first model hypothesised that the PEQ consists of four latent first-order factors, namely meaning (three items), competence (three items), self-determination (three items) and impact (three items), and one latent second-order factor, namely psychological empowerment. It was assumed that the errors of items are uncorrelated. The model was over-identified: It had 78 distinct sample moments, 28 distinct parameters to be estimated and 50 degrees of freedom.

TABLE 2
Goodness-of-fit statistics for the hypothesised PEQ models

MODEL	χ^2	df	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Model 1	671.91	50	13.44	0.92	0.88	0.94	0.92	0.94	0.09
Model 2	3 226.38	54	59.75	0.65	0.50	0.69	0.62	0.69	0.21
Model 3	924.44	51	18.13	0.89	0.83	0.91	0.89	0.92	0.11
Model 4	1 498.37	53	28.27	0.83	0.75	0.86	0.83	0.86	0.14
Model 5	1 005.03	51	19.71	0.88	0.91	0.90	0.88	0.91	0.12

Note: Model 1 (4-factor model: meaning, competence, impact and self-determination); Model 2 (1-factor model: psychological empowerment); Model 3 (3-factor model: competence, meaning and influence); Model 4 (2-factor model: attitude and influence); Model 5 (3-factor model: attitude, impact and self-determination)

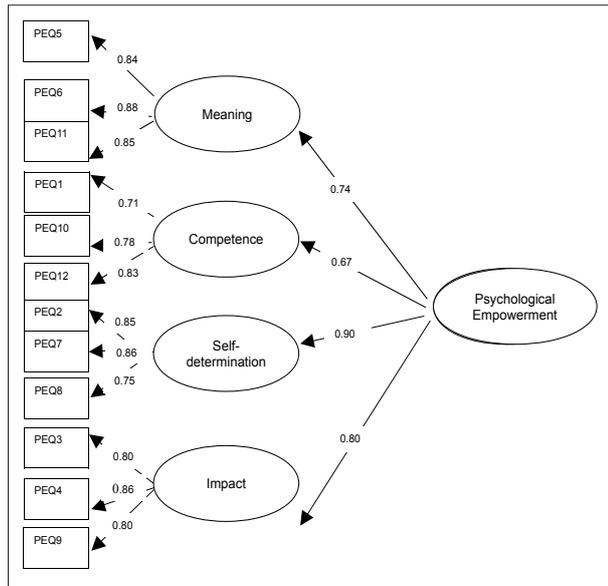


FIGURE 1

Standardised regression coefficients of a four-factor model of the PEQ (Note: All regression coefficients were statistically significant – $p < 0.01$)

The statistically significant χ^2 value of 671.91 ($df = 50; p < 0.01$) revealed a poor overall fit of Model 1. However, both the sensitivity of the likelihood ratio test to sample size and its basis on the central χ^2 distribution, which assumes that the model fits perfectly in the population, have been reported to lead to problems of fit. Jöreskog and Sorbom (1993) point out that the use of χ^2 is based on the assumption that the model holds exactly in the population, which is a stringent assumption. A consequence of this assumption is that models that hold approximately in the population will be rejected in a large sample. Regarding the acceptability of Model 1 from a practical perspective, acceptable fit is evident from NFI, TLI and CFI values higher than 0.90, while unacceptable fit is indicated by an RMSEA value that is higher than 0.08. A value of 0.88 was obtained on the AGFI, which is lower than the guideline of 0.90 but in line with the finding of Spreitzer (1995). Figure 1 shows the standardised regression coefficients for the four-factor model of the PEQ.

Figure 1 shows that self-determination had the highest loading on psychological empowerment ($\beta = 0.90, p < 0.01$), followed by impact ($\beta = 0.80, p < 0.01$), meaning ($\beta = 0.74, p < 0.01$) and competence ($\beta = 0.67, p < 0.01$). The squared multiple correlation (R^2) for self-determination was 0.80, indicating that the predictors of self-determination were 80% of its variance, while its error variance was 20%. Furthermore, the R^2 values for impact, meaning and competence were 0.64, 0.54 and 0.45 respectively, indicating error variances of 36%, 46% and 55% for the three respective factors. However, it was apparent that some modification in specification is needed in order to determine a model that better represents the sample data.

Post hoc analyses

Given the mediocre fit of the four-factor model, the focus shifted from model testing to model development (exploratory

TABLE 3
Goodness-of-fit statistics for the adapted four-factor PEQ model

MODEL	χ^2	df	χ^2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
Model 6	430.75	49	8.79	0.95	0.92	0.96	0.95	0.96	0.07

factor analysis). Modification indexes (MI) were considered to pinpoint areas of misspecification in the model. The constrained parameter exhibiting the highest degree of misfit lay in the correlation between two factors of the PEQ, namely meaning and competence ($MI = 83.31$), as well as competence and meaning ($MI = 67.38$). When compared with MI values for all other parameters, it was found that these values were exceptionally high. Based on the modification index and on theoretical considerations, Model 1 was respecified by including a dummy variable (labelled 'attitude') to model the relationship between meaning and competence. This model was labelled Model 6. Table 3 summarises the goodness-of-fit statistics of Model 6.

The fit statistics in Table 3 indicate an improved fit for the respecified model. Although the χ^2 value of 430.75 ($df = 49; p < 0.01$) was still high, it was statistically significantly lower than the value for Model 1 ($\Delta\chi^2 = 241.16, \Delta df = 1, p < 0.01$). The other fit statistics ($AGFI > 0.90, CFI > 0.95, GFI > 0.95, NFI > 0.95$ and $TLI > 0.95$) indicated highly acceptable fit of the model to the data, although the RMSEA (0.07) indicated a mediocre fit. No further modifications of the model were deemed necessary.

Cross-validation of the PEQ

Next, it was decided to split the total sample to obtain a replication sample. This was done to assess the construct validity of the PEQ in a cross-validation study (Kline, 1994). According to Tabachnick and Fidell (2001), using structural equation modelling to search for the best model is appropriate, provided that significance levels be viewed cautiously and cross-validation be performed whenever possible. The study sample consisted of participants ($n = 679$) who were randomly selected from the dataset, while the replication sample ($n = 726$) consisted of the remaining participants.

Measurement invariance of the PEQ was tested using the likelihood ratio test (LRT) (Vandenberg & Lance, 2000). The LRT assesses the difference in chi-square (i.e. $\Delta\chi^2$) per degree of freedom between the initially developed model and a more restricted model including equality constraints. Resultant from the LRT, a nonsignificant $\Delta\chi^2$ indicates that the parameters constrained to equality are not significantly different across groups. All tests of invariance across the samples began with a global test of the equality of their covariance structures (Jöreskog, 1971). In testing for these equivalencies, sets of parameters are tested in a logical order and by increasing restrictions in every step. The sets of parameters that are of most interest regarding group variances are (a) factor loading paths, (b) factor variances/covariances and (c) structural regression paths. The results of the multigroup analyses to assess the factorial invariance of the PEQ for test and replication samples are reported in Table 4.

Table 4 indicates that an χ^2 value of 515.79 ($df = 98$) was obtained for the baseline (unconstrained) model in the test and replication samples. In the first step of the multigroup analysis,

TABLE 4
Model fit statistics for the two samples of the PEQ

MODEL	χ^2	df	p	$\Delta\chi^2$	Δdf	p (Δ)	χ^2/df	AGFI	CFI	RMSEA
Unconstrained	515.79	98	0.00	-	-	-	5.26	0.90	0.96	0.06
Measurement weights	519.98	106	0.00	4.19	8	0.84	4.91	0.91	0.96	0.05
Structural weights	524.23	109	0.00	8.44	11	0.67	4.81	0.91	0.96	0.05
Structural covariances	524.47	110	0.00	8.69	12	0.73	4.77	0.91	0.96	0.05
Structural residuals	529.74	115	0.00	13.95	17	0.67	4.61	0.91	0.96	0.05
Measurement residuals	549.89	127	0.00	34.10	29	0.24	4.33	0.92	0.96	0.05

TABLE 5

Descriptive statistics, Cronbach alpha coefficients and intercorrelations of the PEQ

CONSTRUCT	MEAN	SD	α	1	2	3	4
1. Competence	17.45	3.51	0.81	-	-	-	-
2. Meaning	16.90	3.71	0.89	0.74*	-	-	-
3. Impact	13.46	4.73	0.86	0.38*	0.48*	-	-
4. Self-determination	14.80	4.35	0.85	0.49*	0.56*	0.68*	-
5. Psychological empowerment	62.24	13.53	0.91	0.74*	0.83*	0.81*	0.85*

* $p < 0.01$

the measurement weights of PEQ for the two samples were constrained equal. However, the change in χ^2 was not statistically significant ($\Delta\chi^2 = 4.19$, $\Delta df = 8$, $p > 0.01$). In subsequent steps the measurement weights, structural weights, structural covariances, structural residuals and measurement residuals were constrained equally between the two samples. No significant changes in χ^2 values were found. This finding confirms the factorial invariance of the PEQ for the test and replication samples. Therefore the conclusion can be drawn that the factor structure of the PEQ in the replication sample was equivalent to that of the test sample.

These findings as well as the fit of Model 1 on a slightly adapted version of the originally hypothesised model provide support for Hypothesis 1. It seems that the construct validity of the PEQ is acceptable.

Descriptive statistics, reliability and correlations

The descriptive statistics, alpha coefficients and intercorrelations of the PEQ are given in Table 5.

From Table 5 it is evident that the internal consistencies of the four subscales of the PEQ as well as the total scale are highly acceptable, compared to the guideline of 0.70 as set by Nunnally and Bernstein (1994). Statistically significant correlations are evident among all the subscales. As could be deduced from the confirmatory factor analysis, self-determination and impact correlated strongly with psychological empowerment. The highest correlation between the subscales of the PEQ was found between competence and meaning. Based on the above-mentioned findings, Hypothesis 2 is accepted.

DISCUSSION

The aim of this study was to assess the construct validity and internal consistency of the PEQ for employees in selected organisations in South Africa. The results show that the PEQ second-order and first-order structure can be assumed invariant across a test and replication sample of employees in selected organisations in South Africa. A four-factor model (including competence, meaning, impact and self-determination) of psychological empowerment fits the data best. The four subscales of the PEQ and the total scale show highly acceptable internal consistencies.

The results of this study provide support for the construct validity of the PEQ in selected South African organisations. The conclusion of the present study is similar to those of other related empirical studies conducted by Kraimer *et al.* (1999) and Spreitzer (1995). A four-factor structure is consistent with literature findings across various samples, groups and countries (Griggspall & Albrecht, 2003; Henken & Marchiori, 2003; Hochwalder & Brucefors, 2005; Hu & Leung, 2003; Kraimer *et al.*, 1999; Moye & Henkin, 2006; Vardi, 2000). The finding that the PEQ measurement model parameters are invariant across test and replication samples from the same population provides further evidence for the construct validity of the PEQ.

The results confirm the findings of Spreitzer (1995), which are that psychological empowerment represents a second-order construct consisting of four factors, namely meaning, competence, self-determination and impact. Self-determination

and impact have the strongest loadings on psychological empowerment, followed by competence and meaning. Contrary to the findings of Kraimer *et al.* (1999) and Spreitzer (1995) that the impact dimension did not load strongly on the second-order psychological empowerment factor, this study shows that impact does load strongly. Boudrias *et al.* (2004) suggest that it might be necessary to modify the PEQ to assess the impact more adequately for subordinates. This study argues against such efforts.

Although the four-factor model fitted the data best, a dummy variable (labelled 'attitude') had to be created to improve the model fit. In the dummy variable, the relationship between meaning and competence was modelled to control for unwanted variance. The results of the correlational analysis also showed a strong relationship between meaning and competence ($r = 0.74$). As pointed out by Mishra and Spreitzer (1998), meaning reflects a sense of purpose or personal connection to work, while competence indicates that individuals believe that they have the skills and abilities necessary to perform their work well. It seems that although these are separate dimensions, they are strongly related. The solution is probably not to create a single dimension for the competence and meaning dimensions, because such a model did not fit the data in this study well. It might be more useful to modify items of the meaning and competence dimensions to measure them more adequately.

Boudrias *et al.* (2004) found that the self-determination and impact dimensions of psychological empowerment had something in common and suggested that they could be represented in a single dimension. However, this study tested a model in which the self-determination and impact were represented by a single dimension and the results showed that the model did not provide a good fit for the data. Therefore it seems that self-determination and impact have to be separate dimensions of psychological empowerment.

The reliability analysis confirmed sufficient internal consistency of the four subscales as well as the total PEQ. The alpha coefficients were found to be comparable with the values reported by previous research (Avolio *et al.*, 2004; Dimitriadis, 2005; Hancer & George, 2003; Hu & Leung, 2003; Jansen, 2004; Konczak *et al.*, 2000; Laschinger, 2001; Moye & Henkin, 2006; Seibert *et al.*, 2004; Siegall & Gardner, 2000). This is an indication that the reliability of the PEQ is acceptable.

In conclusion, this study could serve as a standard regarding perceived levels of psychological empowerment of workers in selected organisations in South Africa. The four-factor structure of the psychological empowerment construct was confirmed, as well as the internal consistency of the subscales. Based on the results of this study, it would seem that the PEQ could be regarded as a potential instrument for measuring psychological empowerment in South Africa. Therefore, the PEQ is a useful instrument to use in further research as well as in practice in South Africa. More research on validity is required to confidently use the instrument across different demographic groups.

Limitations

This study had several limitations. Firstly, self-report measures were exclusively relied on. It must be kept in mind that a self-report questionnaire has limitations. Self-report bias as well as respondents' motivation could impact on the results (Kim & George, 2005). Hoyt, Warbassa and Chu (2006) mention that there are pervasive threats to construct validity when researchers exclusively use self-report measures. Secondly, the use of a cross-sectional study design also represents a limitation. Longitudinal data would allow for a better understanding of the true nature of psychological empowerment. Thirdly, the sample size, specifically the distribution of demographic groups, and the sampling procedure in the present study were limitations. It is quite possible that although two random

samples were taken from a non-probability sample, the two samples are not equivalent. Future studies should make use of a stratified random-sample design that would ensure sufficient representation of the different groups in the total population of employees. Finally, the PEQ was administered in English, which could have impacted on the scores of participants.

Recommendations

The healthy work organisation concept centres on the premise that it should be possible to identify the job and organisational characteristics of healthy organisations (Wilson, Deljoy, Vandenberg, Richardson & McGrath, 2004). For an organisation to have a healthy and more productive workforce, it must have leaders who are able to empower their followers in all aspects of the business in pursuit of a healthy organisation. Leaders in service and government organisations need to be trained in the principles of leader empowerment behaviour and organisational support. This can support the organisation's retention strategy and improve the wellness of employees.

Specific programmes to enhance perceptions of empowerment need to be developed for service and government organisations. Training and development could enhance the competence levels of people. Designing positions to ensure meaningfulness and clear performance criteria could assist people in perceiving their actions as making a difference and could contribute to their feeling more empowered. More effort must be put into clarifying expectations of new entrants into the job market and newcomers into positions. If they have a clear picture of expectations and role clarity, it could lead to a higher level of perceptions of empowerment. When managers spend time on getting to know people, setting targets, identifying development needs, facilitating personal development plans and giving positive and corrective feedback, employees' levels of self-efficacy will increase and they will experience that they make a difference in the workplace.

Future studies need to explore the factorial invariance of the four-factor model of psychological empowerment for different race, language and age groups and for employees on different job levels and in different occupations. If the factor structures for these groups are invariant, the psychological empowerment scores of these groups can be compared. Clearly, more research is needed to establish the predictive, convergent and discriminant validity of the PEQ. Larger sample sizes might provide increased confidence that study findings would be consistent across other (similar) groups. Finally, longitudinal research is recommended to establish the levels of psychological empowerment over a period of time.

ACKNOWLEDGEMENT

The financial assistance of the National Research Foundation towards this research is hereby acknowledged.

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