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THE DEVELOPMENT AND EMPIRICAL EVALUATION OF AN AFFIRMATIVE DEVELOPMENT COACHING COMPETENCY

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ABSTRACT

Orientation: *Inequalities brought about by exclusionary policies in terms of education as well as employment that characterised South Africa before the advent of democracy meant that many members of the previously disadvantaged groups lack the necessary skills to succeed at work, especially the ability to occupy higher level positions. Theirs was the world of unskilled work. In order to rectify the injustices experienced by members of the designated groups the new post-apartheid government enacted policies and laws based on the principle of affirmative action. However, the preferential hiring in favour of Blacks required by the affirmative action measures disadvantages organisations and the economy because most members of the previously disadvantage groups lack the necessary job competence potential to succeed at work. Affirmative development has to play an important role in rectifying the injustices of the past. Coaching in addition has to play an important role in honing the newly developed abilities and skills.*

Aim/Objective: *The objective of the research was to develop the Chikampa Coach Competency Questionnaire (CCCQ) aimed at measuring the seventeen coach competencies and to empirically evaluate the psychometric properties of the CCCQ.*

Method: *This study made use of an ex post facto correlational research design. A sample of 250 units of observation was selected by means of a non-probability convenience sampling procedure. Data was analysed via item analysis, exploratory factor analysis as well as structural equation modelling.*

Results: *The hypothesis of exact measurement model fit was rejected but the hypothesis of close fit could not be rejected ($p>.05$). The position that the CCCQ measurement model fits the data closely in the parameter was found to be a tenable position. The fit indices reflected good model fit in the sample. The measurement model parameter estimates indicated that the indicator variables represented the latent coaching competencies satisfactorily. Discriminant validity was problematic. The seventeen latent coaching competencies as measured by the CCCQ are not clearly separate but tend to flow into each other*

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Background

The need for improving employee job performance through fostering employee development brings out the need for the adoption and usage of coaching in South African organisations. The driving force behind engaging in affirmative development coaching in South African organisations is the deficiencies in skills among members of formerly designated groups. Colonial and Apartheid policies have had a devastating impact on the development of Black human capital (Groenewald and Schurink, 2007). Inequality beliefs in the Apartheid era in South Africa expressed themselves in forms of laws that significantly disadvantaged members of the designated groups in terms of education and employment. Inequalities prior to democracy in terms of education were advanced by laws such as the Bantu Education Act 47 of 1953 and the Extension of University Education Act 45 of 1959 (Kruger, 2008). For the first three quarters of the century, social spending on education, pensions and other social benefits for the disadvantaged group was per capita more or less ten to eight times smaller than on Whites (Burger, 2013). In 1970, the per capita spending on White education was twenty times higher than the per capita spending on the previously disadvantaged group (Verwoerd, 1999). This invariably resulted in the provision of poor-quality education to Blacks. These inequalities in terms of education lead to a shortage of skilled Black workers (Blacks, Coloureds and Indians) in the South African economy because the system denied them the opportunity to acquire the much-needed knowledge, skill, abilities and other person characteristics (i.e. competency potential2 latent variables) needed to succeed in the world of work.

Secondly discrimination also extended to labour issues. Job discrimination in South Africa was institutionalised by law which included job reservation clauses in the Industrial Conciliation Act of 1956 (Horwitz, Falconer & Searll, 1996). Before the 1979 amendments to the Industrial Conciliation Act, recruitment, employment levels and access to skilled work was controlled by established White trade unions (Horwitz et al., 1996). Furthermore, employees from designated groups were denied apprenticeship training. Coupled by the fact that they were denied access to good education, such a scenario invariably meant that Blacks had little opportunity for advancement to managerial and skilled jobs.

In order to address these issues inherited from the past, the new post-Apartheid government enacted new laws such as the Employment Equity Act 55 of 1998, the Broad-Based Black Economic empowerment Act of 2003 and the associated Codes of Good Practice on B-BBEE to protect people

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from designated groups against unfair labour practices and to counteract the legacy of past unfair discrimination. The new laws and policies are based on the principle of affirmative action that aims to tilt the playing field towards a preference for Blacks (Keswell, Lee, as cited in Myres, 2011). Organisations are required by law to take affirmative action measures as a way of addressing inequalities caused by the Apartheid system. According to the Employment Equity Act 55 of 1998 affirmative action measures are measures designed to ensure that suitably qualified people from designated groups have equal employment opportunity and are equitably represented in all occupation categories and levels in the workforce of a designated group. Secondly it states that affirmative action measures must include measures to identify and eliminate employment barriers, including unfair discrimination, which adversely affect people from designated groups. It should in addition include measures designed to further diversity in the workplace and also make reasonable accommodation for people from designated groups in order to ensure that they enjoy equal opportunities and are equitably represented in the workforce of a designated employer Most South African organisations strive to obtain and maintain their BEE rating based on a score card comprising of seven key areas namely ownership, management control, employment equity, preferential procurement, skills development, enterprise development and socio-economic development (Myres, 2011).

In order to succeed in transforming the factors of production organisations need to have access to competent high performing employees (Oehley & Theron, 2010). The scenario dictated by affirmative action which demands that among other things organisations should display a preference for Blacks in terms of employment have created a dilemma for organisations. Organisations have to remain productive and competitive in the interest of owners, employees, shareholders and society in general. At the same time, they have to transform their workforce so that it reflects the demographics of the labour market. Organisations, however, find it difficult to simultaneously meet these two responsibilities. Strict top-down selection based purely on merit under the labour market conditions created by the Apartheid system creates adverse impact (Theron, 2007,2011). Members of former designated groups lack the competency potential required to succeed in the world of work because a socio-political system denied them the opportunity to develop it and as such their chances of succeeding at work are significantly less because of this deficiency. An interpretation of affirmative action that does not formally and explicitly acknowledge the consequences of the

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Apartheid system (i.e. skills deficiencies) will invariably result in the ability of organisations to remain productive and competitive being eroded (Oehley & Theron, 2010).

The traditional interpretation of the affirmative is fundamentally flawed because it only benefits an already privileged few but ultimately hurts society due to the impact of a lack of motivated and competent personnel on organisation performance. There is consequently a need to revisit the interpretation of affirmative action. Affirmative action according to Human (1996) is the process of creating equal employment opportunity (employment equity). Affirmative action is not merely a process of recruiting greater numbers of historically disadvantaged employees but that it is part and parcel of a holistic system of human resource management and development and impacts on all the policies and procedures relating to the selection, recruitment, induction, development, promotion and severance of people.

This interpretation of affirmative action means that for affirmative action programme to be meaningful and effective there is firstly a need to strongly emphasise the identification of learning potential and its realisation through off-the-job affirmative development. Once appointed the development process should, however, continue. In this case line managers should play a key role in on-the-job coaching and the development of staff (Human, 1996). On-the-job coaching is a potentially effective means of people development (Humans, 1996).

By way of analogy. When seedlings in a nursery are transplanted from the tray in which they germinated to the flower bed but they are left unattended with no proper protection and care they have a slim chance of surviving because at this time they are tender and fragile and they need to be protected from the harsh elements such as strong winds, birds, the sun and even animals. According to Tucker (2007) the drivers of affirmative action in this case employment equity and Broad Based Black Economic Empowerment has often led to previously disadvantaged individuals being thrown into the deep end where they are expected to sink or swim. More often than not they fail. Derailment is too often expected because individuals from previously disadvantaged groups are promoted too fast and too far out of their depth (Strauss, 2010). The chances of success on the job for people from designated groups will be slim if left to fend for themselves. They need guidance hence coaching is primarily required once the "young seedlings are planted out" (Theron, 2012).

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If affirmative development coaching is a necessary human resource intervention to make organisational transformation through affirmative development succeed, the performance of affirmative development coaches should be purposefully managed. This means that the affirmative development coaching performance of managers acting as affirmative development coaches should be measured and purposefully managed through an array of proactive and reactive human resource interventions (Human, 1996). This implies that the identity of the coaching competencies and coaching outcome variables comprising coaching performance should be known as well as the manner in which these latent variables structurally combine. This, moreover, implies the need for measuring instruments to measure managers' level of competence on the affirmative development coaching competencies and to measure the level of success that mangers achieve on the outcome variables they are meant to affect as affirmative development coaches.

Objective

The objective of the research study was to develop and psychometrically evaluate a coach competency questionnaire (CCCQ-Chikampa Coach Competency Questionnaire). The CCCQ was developed to measure affirmative development coaching performance so as to [a] enable the eventual development and empirical testing of a comprehensive affirmative development coaching performance structural model and [b] to offer an instrument that can provide formative feedback to affirmative development coaches. The CCCQ can, however, only be used with confidence to operationalize the seventeen latent behavioural performance dimensions in the coaching competency framework if credible evidence on the reliability and construct validity of the instrument exists. The overarching substantive research hypothesis is that the CCCQ provides a construct valid and reliable measure of affirmative coaching performance as defined by the instrument, amongst South African managers.

The overarching substantive research hypothesis can be dissected into the following specific operational hypotheses:

- The measurement model implied by the scoring key and the design intention of the CCCQ can closely reproduce the covariances observed between the items comprising each of the sub-scales,
- The factor loadings of the items on their designated latent behavioural performance dimensions are statistically significant ($p<.05$) and large ($\lambda_{ij} \geq .50$),
- The measurement error variance associated with each item is small
- The latent coaching competencies explain large proportions of the variance in the items that represent them, and

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• The latent coaching competencies correlate low to moderate with each other;

• The 95% confidence intervals for the latent coaching competencies correlations do not contain 1;

• The average variance extracted (AVE) by the items of each latent coaching competencies is larger than the squared correlations between the latent coaching competencies.

A Review of Literature

DEVELOPMENT OF THE COACHING @ WORK COMPETENCY MODEL

In order to achieve the outlined objective, there is a need to build a coaching@work competency model that will help in identifying competencies that affirmative development coaches need to be competent in order to affect coachee work performance. The coaching competency model to be developed should map coach competencies on outcome variables that the coach is meant to affect. The process of identifying and defining the competency potential latent variables that drive the competencies necessary to achieve the outcomes for which a specific position exists and to map the structural linkages that exist within and between these three domains is called competency modelling (Rothwell & Lindholm, 1998).

A competency model in essence is a structural model (Diamantopoulos & Siguaw, 2000) that depicts the manner in which competency potential latent variables, competencies and outcome latent variables are structurally linked. A competency model is a three-domain structural model that maps a network of causally inter-related person characteristics onto a network of causally inter-related key performance areas and that maps the latter onto a network of causally inter-related outcome variables (Myburgh, 2013). The coaching@work competency model as shown in Figure 1.1 has three primary domains namely a domain of competency potential latent variables, a domain of competency latent variables and a domain of outcome latent variables

Jobs are created to achieve specific outcomes and as such, since competency requirements are derived from outcomes for which the job exists, specific structural relationships can be assumed between job competencies and outcomes (Myburgh, 2013). This suggests that the outcomes that the affirmative development coach is meant to achieve needs to be identified first. Once these have been identified, the affirmative development coaching competencies that are instrumental in achieving these outcomes can be inferred.

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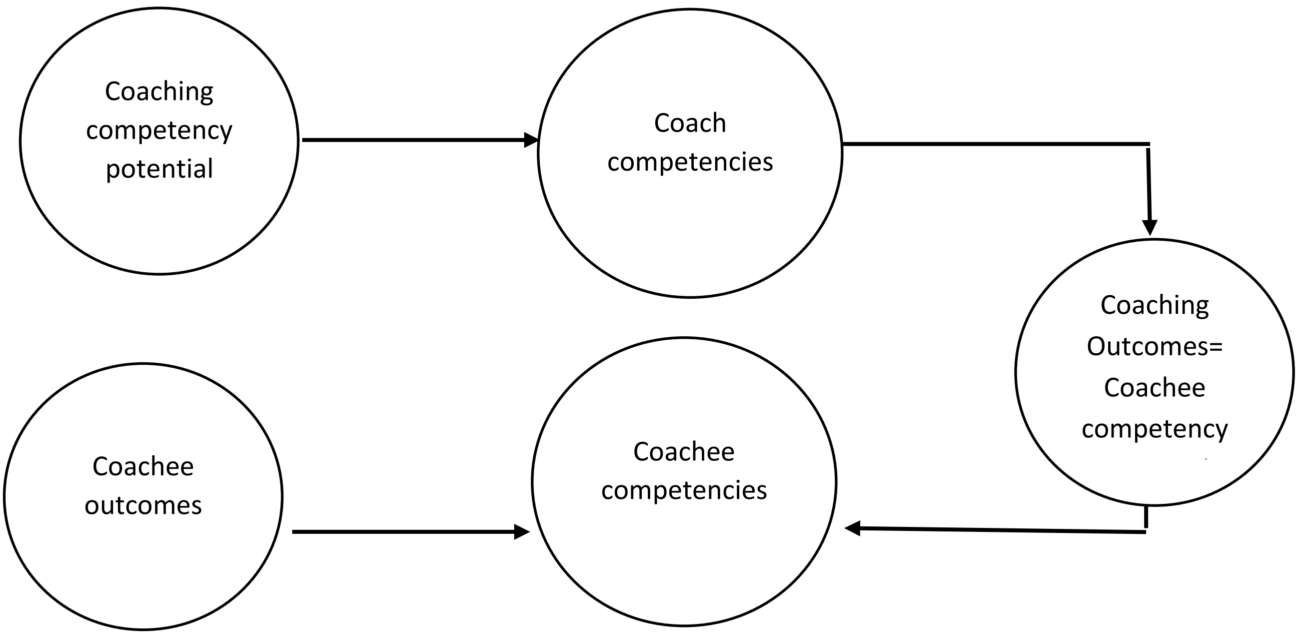

Figure1. Affirmative development coaching@work competency model

OUTCOMES OF AFFIRMATIVE DEVELOPMENT BASED COACHING.

Outcomes in this case represent the output/objective that the coach should achieve. The outcomes that the coach should achieve are defined in terms of specific malleable characteristics of the coachee. In the context of affirmative development coaching, the coachee has been admitted onto an affirmative development programme aimed at developing malleable job competency potential latent variables that the candidate has been prevented from developing earlier because of Apartheid's discriminatory practices.

Several studies have identified outcomes of developmental coaching. Ellinger (2003) identified employee learning as one outcome of coaching behaviour. Lankau and Scandura (2002) talked of personal learning that comes as a result of coaching. One of the primary purposes of coaching is to facilitate learning of relevant skills and job-related knowledge (Yukl, 2010). According to Park (2007) employees grow by learning skills and knowledge to perform their jobs better. Individuals learn a great deal through their interactions with others especially those with different backgrounds,

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expertise and seniority in their organisations (Hayes & Allison as cited in Lankau & Scandura, 2002). One Important work relationship that can serve as a platform for personal learning is coaching.

Ellinger, Ellinger and Keller's (2003) examination of supervisory coaching behaviour found that job satisfaction and employee performance were positively related to supervisory coaching. Garavan and Morley (1997) also found that managerial coaching was positively related to performance. A study done by Onyemah (2009) on the effects of coaching on sales people attitudes and behaviours found that coaching at work was negatively associated with role ambiguity. Role clarity comes about because coaching helps to clarify the coachee's performance expectations.

Coaching is a useful technique for facilitating job satisfaction, organisational commitment and lower turnover (Yukl, 2010). According to Park (2007) other outcomes identified in literature include job commitment, decreased turnover, personal capability and motivation. Wageman (2001) argues that managerial coaching behaviour can directly affect coachee engagement with work. A study done by Xanthopoulou, Bakker, Demerouti and Schaufeli (2009) investigating how daily fluctuations in job resources were related to employees' levels of personal resources found that job resources, particularly coaching, had a direct positive relationship with work engagement as well as self-efficacy. Learning motivation according to Burger (2012) and Van Heerden (2013) should be considered a coaching outcome. Learning motivation is the desire on the part of trainees to learn the content of the training programme task. Motivation influences direction of the coachee attentional effort, the proportion of total coachee attentional effort directed at a task and the extent to which attentional effort toward the task is maintained over time. Commitment to vision, trust in the coach and psychological empowerment are other coaching outcomes (Kantabutra, 2008, Rasch, 2012 &Stander & Rothmann, 2009).

AFFIRMATIVE DEVELOPMENT COACH COMPETENCIES

Although the ultimate outcome of coaching is the performance, effectiveness and wellbeing of a particular coachee this can only be achieved through specific behavioural actions of the coach. The affirmative development candidate under coaching is appointed in a job that exists to achieve specific objectives. The superior of the affirmative development candidate who acts as managerial/supervisory coach aims to achieve these objectives through specific coaching behaviours. The objectives set for the affirmative development candidate reflect desired target levels of performance. Coaching outcomes refer to conditions or states required for achieving the desired target levels. Specific coaching behaviours (competencies) are required to achieve these outcomes. Competencies are sets of behaviour arising from underlying aspects of the individual which are determinants of job success (Spangenberg as cited in Theron, 2012).

REVIEW OF GENERIC MODELS OF MANAGERIAL COACHING BEHAVIOURS

Ellinger and Bostrom (1999) used the critical incident technique to identify the performance dimensions for managers acting as coaches in four organisations. They identified 13 coaching behaviour sets or coaching competencies depicted in two competency clusters namely empowering and facilitating behaviours as shown in table 1. Beattie (2002) conducted a study also using the critical incident technique and came up with categories of managerial coaching/facilitator behaviours/competencies. From sixty informants including senior line managers, first line managers and other people she obtained a range of critical incidents that according to Hamilin, Ellinger and Beattie (2006) served as examples of effective coaching behaviours that facilitated learning. The study identified nine behavioural categories as shown in Table 2. Hamlin's (2004) generic model was derived from several comparative analyses of criteria of managerial and leadership effectiveness. Hamlin also used the critical incident technique (CIT) to obtain examples of observed effective and ineffective manager and managerial leader behaviours. Hamlin's (2004) generic model comprises six positive criteria (see Table 3) measured by forty-eight behavioural items indicative of effective management and leadership plus five negative criteria (see Table 4) measured by forty-nine behavioural items indicative of ineffective management and leadership.

Table 1

Clusters of coaching behaviour sets

Empowering cluster
Question framing to encourage employees to think through issues
Being a resource- removing obstacles.
Transferring ownership to employees
Holding back- not providing the answers
Facilitating cluster
Providing feedback to employees
Soliciting feedback from employees
Working it out together-talking it through
Creating and promoting a learning environment
Setting and communicating expectations-fitting into the big picture
Stepping into other to shift perspectives
Broadening employees perspectives-getting them to see things differently.
Using analogies, scenarios and examples
Engaging others to facilitate learning

Ellinger and Bostrom (1999)

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Table 2

Categories of managerial coaching behaviour

Caring-support, encouragement, approachable, reassurance, commitment/involvement, empathy
Informing-sharing knowledge
Being a professional-role model, standard-setting, planning and preparation
Advising-instruction, coaching, guidance, counselling
Assessing-feedback and recognition, identifying development needs
Thinking-reflective or prospective thinking, clarification
Empowering-delegation, trust
Developing others-developing developers
Challenging-challenging

(Hamlin, Ellinger & Beattie, 2006)

Table 3.

Behavioural categories of managerial and leadership effectiveness

Effective organisation and planning/proactive management
Participative and supportive leadership/proactive team leadership
Empowerment and delegation
Genuine concern for people/looks after the interests and development needs of staff
Open and personal management approach/inclusive decision making
Communicates and consults widely/keeps people informed

Table 4

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Behavioural categories of managerial and leadership ineffectiveness

Shows lack of consideration or concern for staff/ineffective autocratic or dictatorial style of management.
Uncaring,self-serving management/undermining depriving and intimidating behaviour.
Tolerance of poor performance and low standards/ignoring and avoidance.
Abdicating roles and responsibilities
Resistant to new ideas and change/negative approach.

Spangenberg and Theron's (2004; 2011) model is not explicitly aimed at coaching per se. It is a leadership model. This study argues that the coach essentially serves as a leader to the coachee. Sufficiently comprehensive leadership models can therefore by implication shed light on the behaviours that effective coaches have to perform. Spangenberg and Theron (2011) developed a leadership behaviour inventory called the LbI-2 in order to measure how effectively leaders are in leading people, driving change and effectively managing work unit performance. A coach is in essence a leader whose aim is to empower the coachee so that they can realise their full potential. A successful leader is one that succeeds in empowering his/her followers to such a degree that he/she essentially becomes redundant (Conger & Kanungo, 1998). The same principle applies to coaching. The coach should eventually be declared redundant because at the end the coachee should be in a position to independently work effectively because he or she would possess the required job competency potential required to succeed in the job. The coaching leadership link is hypothesised by Evered and Selman (1989). Hamlin et al. (2006) found similarity between managerial and leadership effectiveness. According to Kim and Yukl (as cited in Hagen, 2010) a manager must exhibit coaching behaviours in order to be viewed as successful in terms of their leadership skills. The LBI-2 identified 20 competencies which are shown in Table 5 below.

Table 5

LBI-2- 20 leadership competencies

Monitoring the external environment - Identifies and interprets external developments that affect unit performance. Understand the business and positioning of the organisation.

Monitoring the internal environment -Interprets internal dynamics and identifies weaknesses that may affect unit performance

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Developing a challenging Vision- Develops a vision that gives people a sense of purpose, is customer focused and advanced

Conceptualising strategy -Builds strategies based on thorough problem analysis and broad-based fact-finding. Considers consequences of decisions.

Developing performance plans -Ensure that the employee and sectional/ departmental goals and plans support unit strategy and that the employees know what is expected of them.

Leader self-discovery, reflection and self-awareness-Has good insight into his/her own capabilities, weakness and behaviour and manages him/herself well.

Coach personal growth and development- Identifies challenging opportunities for self-development and is committed to continuous learning. Is willing to try new ways of doing things.

Empowering the followers- Facilitates the learning and personal growth of followers by building out and utilising their skills in a hassle-free learning oriented work environment

Optimising processes and structures- Adapts production and people structures, processes and systems to support implementation of strategy in a changing environment.

Articulating the vision -Articulates the vision for the future that provides direction, excites the follower and inspires commitment in the follower

Inspiring and motivating the follower- Raises the aspirations, confidence and motivation of the follower. Conveys important information convincingly.

Building trust and demonstrating integrity- Builds trust in the unit, assures agreed upon values are adhered to, considers ethical implications of decisions, and deals honestly with all stake holders.

Demonstrating decisiveness and hardiness- Acts decisively and makes tough decisions. Performs effectively under stress and reacts positively to change and uncertainty.

Acting entrepreneurial- Develops new ideas, seizes opportunities, and

Initiates projects for the benefit of the unit and the organisation.

Showing concern for the others -Shows understanding and concern for the aspirations, needs and feelings of others.

Displaying sound interpersonal skills -Effectively handles interpersonal relations. Proactively solves conflicts

Facilitating inter-departmental co-ordination -Facilitates inter-departmental co-ordination and helps people to see the wider picture.

Influencing across external boundaries -Builds the image of the department or organisation and practices socially responsible citizenship behaviour.

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Reviewing performance -Provides followers with feedback about unit performance as well as with specific feedback about their own performance.

Acknowledging and celebrating performance- Acknowledges and celebrate positive coachee behaviour or success.

(Spangenberg & Theron, 2011)

The study adapted and made use of the majority of the competencies of the LBI-2. Twelve of the LBI-2 dimensions compare well with those in the models of Beattie (2002a, 2002b, 2004), Ellinger and Bostrom (1999) and Hamlin (2004). An additional five of the LBI-2 competencies not corresponding to coaching competencies identified in the models of Beattie (2002, 2004) and Ellinger and Bostrom (1999), however, also have relevance for coaching (Conceptualising strategy, Coach self-discovery, reflection and self-awareness, Coach personal growth and development, Demostrating decisiveness and hardiness & Acting entrepreneurial) and are therefore also included in the proposed affirmative development coaching competency framework (Spangenberg & Theron, 2011). Three of the LBI-2 dimensions are not regarded as relevant to coaching (Facilitating interdepartmental co-ordination, Influencing across external boundaries and Optimising process and structures) because they are typical of leader competencies in terms of authority and may at times be beyond the coaches reach in terms of authority within an organisation set up.

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The LBI-2 provides an assessment of the capabilities needed by leaders and managers to implement major change while sustaining unit performance in the South African context. The intention is to base the Chikampa Coaching Competency questionnaire on a subset of the LBI-2 dimensions to thereby obtain an assessment of the capabilities needed by affirmative development coaches to affect major change in affirmative development candidates that will enhance the individual work performance of the candidates while sustaining unit performance. The structural relationships that are hypothesised to exist between the coachee outcomes as well as the coach competencies are depicted in a form of a structural model shown in Figure 2.1 below.

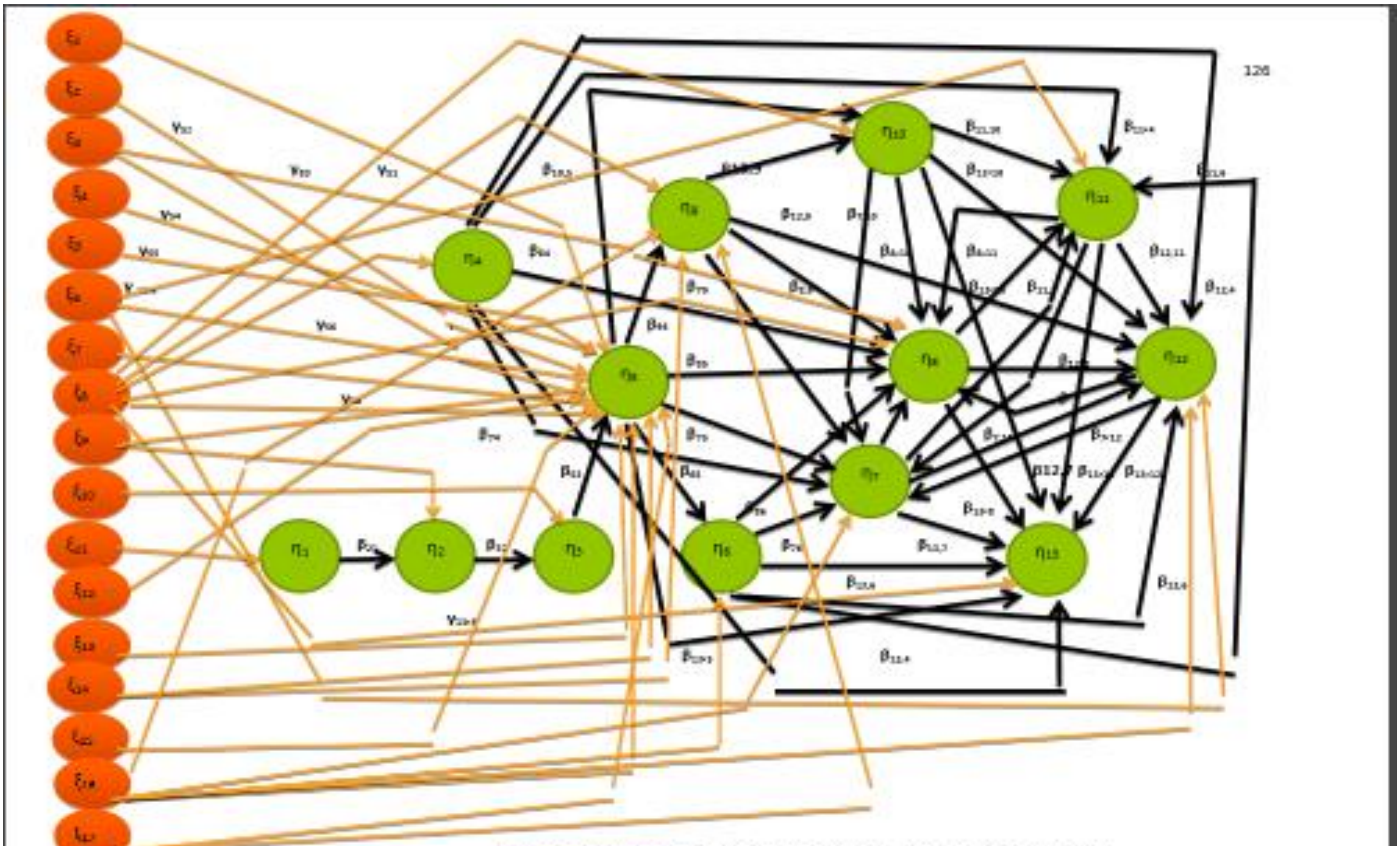

Figure 2.1 Proposed affirmative development coaching structural model

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Key to understanding the structural model

COACH COMPETENCIES (RED)

ξ_1 : Monitoring external environment

ξ_2 : Monitoring internal environment

ξ_3 : Developing a challenging coachee vision

ξ_5 : Developing coachee performance plans

ξ_4 : Conceptualising strategy

ξ_6 : Coach self-discovery, reflection and self-awareness

ξ_7 : Coach personal growth and development

ξ_8 : Empowering the coachee

ξ_9 : Articulating the vision to the coachee

ξ_{10} : Inspiring & motivating the coachee

ξ_{11} : Building trust and demonstrating integrity

ξ_{12} : Demonstrating decisiveness and hardiness

ξ_{13} : Acting entrepreneurial

ξ_{14} : Showing concern for the coachee

ξ_{15} : Displaying sound interpersonal skills

ξ_{16} : Reviewing performance

ξ_{17} : Acknowledging and celebrating performance

OUTCOMES (GREEN)

η_1: Trust in the coach

η_2: Commitment to coach vision

η_3: Learning Motivation

η_4: Psychological empowerment

η_5: Employee personal learning

η_6: Role clarity

η_7 Job satisfaction

η_8: Organisational commitment

η_9: Self-efficacy

η_{10} Job(work) engagement

η_{11} Contextual performance

η_{12} Task performance

η_{13} Turnover intentions

Research Design

Research approach

The objective set for this study was achieved through the use of structural equation modelling (SEM)

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Research Method

Sample

In this study a non-probability sampling procedure was used with a sample of (N=398) observation units from an alcoholic beverage company in the Western Cape. The sample was comprised of males (58.4%) and females (41.6%).Level of qualification in the sample was: matric (40.1%), bachelor's degree (17.5%), honours degree (5.3%), master's degree (4.0%), Phd (0.3%) and other qualifications (32.8%).

Development of the Affirmative development Chikampa Coaching Competency Questionnaire/Measurement

Affirmative Development coaching competencies were measured using the Chikampa Coaching Competency Questionnaire (CCCQ).The CCCQ is consequently an adaptation of the LBI-2 developed by Spangenberg and Theron (2011a). Permission was obtained from the developers of the LBI to adapt the LBI items for the purpose of the CCCQ .The definition of each performance dimension in conjunction with the original LBI item formulations were used to generate items for the Chikampa Coaching Competency Questionnaire (CCCQ]. Items were generated by identifying critical behavioural incidents associated with a high and a low standing on the latent performance dimension. The constitutive definition of each latent performance dimension was used to evaluate the content validity of each critical behavioural incident. The CCCQ comprises 82 items measuring seventeen affirmative development coaching competencies. The number of items per dimension ranged from four to seven. The critical incidents were written as short, specific statements to which respondents have to respond by indicating on a 5-point rating scale the relative frequency with which the behaviour described in the incident had been displayed by the focal employee during the indicated rating period. The five scale points were anchored with the following descriptions: rarely (1), once in a while (2), sometimes (3), fairly often (4) and very frequently (5). Provision was also made for a not observable response that was coded as 6. The latter responses were treated as user-defined missing values. The LBI-2 has reported Cronbach alpha values between .774 and .902 for the 17 subscales adapted for inclusion in the CCCQ.

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Statistical Analysis

The success with which the indicator variables comprising the CCCQ represent the latent variables comprising the affirmative development coaching competency framework was evaluated empirically via item analysis, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Item and Exploratory factor analysis was done using statistical package of the social sciences (SPSS) version 20. Confirmatory factor analysis was done via structural equation modelling (SEM).

Structural Equation modelling

Structural equation modelling is a multivariate statistical analysis tool that enables researchers to examine measurement and structural hypotheses as explanations for correlation and test both direct and indirect impacts among constructs (Hair, Anderson, Tatham & Black, 1995).

Confirmatory factor analysis

Confirmatory factor analysis (CFA) was used to evaluate the degree to which the design intention underpinning the development of the CCCQ succeeded. LISREL 8.8 was used to perform a confirmatory factor analysis to determine the fit of the CCCQ measurement model and expressed as Equation 1.

The CCCQ measurement model is specified as a

measurement equation in Equation 1.

$X = \Lambda \xi + \delta$ --- (1)

Where:

• X is a 1x82 column vector of CCCQ item scores

• Λ is a 82x17 matrix of factor loading describing the slope of the regression of X_i on ξ_j.

• ξ is a 1x17 column vector of latent coaching competencies.

• δ is a 1x82 column vector of measurement error terms

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The original CCCQ measurement model was subsequently revised in response to the sample size limitations. The reduced model was expressed as equation 2and as shown in figure 2. This model illustrates how item parcels of subscales should load on their underlying latent coaching dimension. The confirmatory factor model was fitted by analysing the covariance matrix calculated from the CCCQ item parcel data set containing 398 observations.

$X = \Lambda \xi + \delta$ ---(2)

Where:

• X is a 1x34 column vector of CCCQ item parcels12

• Λ is a 34x17 matrix of factor loading describing the slope of the regression of

X_i on ξ_j.

• ξ is a 1x17 column vector of latent coaching competencies ξ_j.

• δ is a 1x34 column vector of measurement error terms ζ_i.

In terms of the design intention of the CCCQ the measurement error terms are assumed to be uncorrelated whereas the seventeen latent coaching competencies are assumed to correlate less than unity. The full specification of the CCCQ measurement is therefore given by Equation 1 and the claim that:

• the variance-covariance matrix $\Theta\delta$ is a 34x34 diagonal matrix in which only the diagonal measurement error variance terms are freed to be estimated but all off-diagonal terms are fixed to zero; and that

• the variance-covariance matrix Φ is a 17x17 symmetric matrix in which all lower off-diagonal covariance terms are freed to be estimated and the main diagonal variance terms are fixed to unity.

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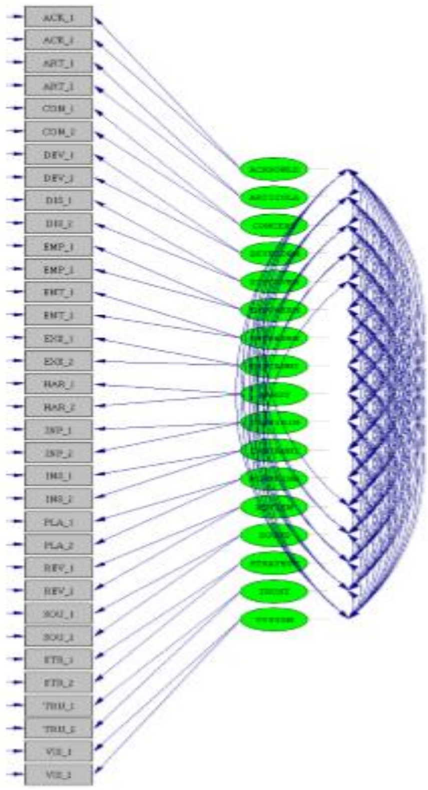

Figure 2 : CCCQ Measurement Model

Results

Missing Values

Treating missing values is the process of dealing with data sets with incomplete responses. Missing values presented a problem that had to be addressed before the data could be analysed. Multiple imputation (MI) was used as the method to solve the problem of missing values. The multiple imputation method conducts several imputations for each missing value. Each imputation creates a completed data set, which could be analysed separately in order to obtain multiple estimates of the parameters of the model (Raghunatha and Schafer as cited in Dunbar-Isaacson, 2006).A total of 492 completed survey questionnaires were received. After treating for missing values the effective sample size was reduced to 398.

Item Analysis

Item analysis or scale reliability analysis assesses the consistency between items in a particular subscale (van der Bank, 2007). Good items will have high internal consistency and weak items will

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be inconsistent with the rest of the items. Item analysis was performed to determine how well items on each subscale represent the content of any particular underlying factor. Item statistics were calculated with the purpose of detecting poor items. Poor items are items that fail to discriminate between different states of the latent variable they are meant to reflect and items that do not in conjunction with colleagues reflect a common latent variable (Moyo, 2009).

Item analysis was performed on the data before and after the treatment of missing values to assess the impact of the chosen procedure on the quality of item level measurements (Smuts, 2010). SPSS version 20 (SPSS, 2013) for windows (2010) was used to perform the item analyses. These statistics included the item-total correlations, the squared multiple correlations, the inter item correlations and the Cronbach alpha coefficients. To the extent that the intention succeeded the item-total correlations, the squared multiple correlations, the inter item correlations should be moderately high and the Cronbach alpha coefficients should exceed .80. The results of the item analysis performed on the various scales used to operationalise the latent coaching dimension indicated that generally the design intention as described above did succeed. The item analysis results can generally be considered satisfactory. All the seventeen (17) subscales meet the benchmark reliability standard of 0.70 (Nunnally & Berstein, 1994; Pallant, 2010 and exceed the research threshold of .80. Two items from two subscales namely monitoring the internal environment as well as the acting entrepreneurial were identified as somewhat problematic but both were not deleted from the CCCQ due to the small number of items in these two subscales. Therefore, no items were deleted from the instrument. Table 7 gives a summary of the item analysis results for each of the CCCQ subscales. A more detailed account of the separate item analyses the researcher performed on each subscale is available in Chikampa (2013).

Table 6. Summary results of the item analyses

Subscale	Sample Size	Mean	Number of items	Variance	Standard Deviation	Cronbach Alpha
EXS	398	14.55025	4	13.835	3.719543	.826
INS	398	14.53015	4	15.348	3.917647	.858
VIS	398	14.70603	4	16.480	4.059571	.878
STR	398	14.85176	4	15.280	3.908994	.866
PLA	398	15.54271	4	14.727	3.837628	.880
DIS	398	18.93970	5	24.792	4.979189	.893
DEV	398	14.58794	4	17.124	4.138175	.880
EMP	398	26.99749	7	43.166	6.570102	.915
ART	398	15.04271	4	16.318	4.039563	.891
INP	398	15.39196	4	15.574	3.946383	.899
TRU	398	30.94975	8	54.662	7.393406	.916
HAR	398	15.36683	4	14.888	3.858467	.876
ENT	398	21.64824	6	32.964	5.741438	.885
CON	398	23.41960	6	33.821	5.815580	.926
SOU	398	22.46231	6	35.247	5.936892	.921
REV	398	15.55779	4	15.678	3.959547	.892
ACK	398	15.62563	4	18.487	4.299616	.914

Exploratory Factor Analysis

Exploratory factor analysis (EFA) was used to examine the unidimensionality assumption with regards to each of the seventeen subscales. The objective of the EFA analysis is to evaluate the assumption that a single underlying coaching competency factor can satisfactorily account for the variance shared by the items in a subscale. The objective of the analysis was to confirm the unidimensionality of each subscale and to remove items with inadequate factor loading and/or split heterogeneous subscales into two or more homogenous subsets of items if necessary. Unrestricted principal axis factor analyses with oblique rotation were performed on the various subscales. There were no items deleted in the preceding item analyses hence the factor analyses were performed on the same item sets. The decision on how many factors are required to adequately explain the

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observed correlation matrix was based on the eigenvalue-greater-than-one rule and on the scree test (Tabachnick & Fidell, 2001). Factor loadings of items on the factor they were designated to reflect was considered satisfactory if they were greater than .50. The adequacy of the extracted solution as an explanation of the observed inter item correlation matrix was evaluated by calculating the percentage of large (> .05) residual correlations. Table 8 gives a summary of the results of the factor analyses. A more detailed account of the separate exploratory factor analyses the researcher performed on each subscale is available in Chikampa (2013).

With regard to the results of the dimensionality analyses, all of the subscales satisfied the unidimensionality assumption as was originally hypothesised. All items in all subscales showed satisfactory loadings on the single extracted factor. All but one of the single-factor factor solutions provided highly credible explanations for the observed inter-item correlation matrix. In the case of the monitoring the external environment the credibility of the single-factor solution was found to be somewhat tenuous

Table 7. Summary results of the factor analyses

Factor matrix for the CCCQ

Subscale	Determinant	KMO	Bartlett X^2	% Variance explained	No. of factors extracted
EXS	.214	.760	608.441*	54.885	1
INS	.132	.803	798.550*	62.192	1
VIS	.121	.828	834.096*	64.860	1
STR	.146	.818	760.699*	62.278	1
PLA	.120	.829	838.545*	65.212	1
DIS	.063	.876	1091.832*	62.684	1
DEV	.112	.811	865.551*	65.319	1
EMP	.011	.904	1761.031*	60.770	1
ART	.100	.841	910.223*	67.508	1
INP	.089	.847	954.838*	69.103	1
TRU	.008	.935	1921.092*	58.623	1
HAR	.134	.833	794.425*	64.039	1
ENT	.040	.889	1265.214*	57.696	1
CON	.014	.921	1691.406*	67.764	1
SOU	.015	.906	1651.511*	66.433	1
REV	.101	.841	905.815*	67.580	1
ACK	.062	.846	1100.640*	72.755	1

*$p < .01$

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Measurement model fit

The default method of estimation when fitting measurement models to continuous data (maximum likelihood) assumes multivariate normality (Baez & Taylor, 2011). The maximum likelihood estimation technique that LISREL uses by default to obtain estimates for the freed model parameters assumes that the indicator variables follow a multivariate normal distribution (Smuts, 2009). The univariate and multivariate normality of the composite indicator variables were consequently evaluated via PRELIS (Jöreskog & Sörbom, 1996b). The null hypothesis of univariate normality had to be rejected (p<.05) in the case of all of the 34 composite indicator variables. The null hypothesis that the data follows a multivariate normal distribution also had to be rejected (χ^2= 4031.574; p <.05). Robust maximum likelihood estimation was used because the assumption of the

Test of multivariate normality for item parcels

Skewness			Kurtosis			Skewness & Kurtosis	
Value	Z-Score	P-Value	Value	Z-Score	P-Value	Chi Squar	P-Value
246.900	57.153	0.000	1617.436	27.660	0.000	4031.574	0.000

multivariate normal distribution did not hold.

Table 8 Test of multivariate normality for item parcels

Goodness of fit of the measurement model

A full array of fit statistics calculated by LISREL to assess the absolute and comparative fit of the measurement model are shown in Table 9. The purpose of this section is to assess the goodness of fit of the measurement model. According to Bollen and Long (1993),Schumaker and Lomax (1996), Diamantopoulos and Siguaw (2000), Thompson and Daniel (1996) and Thompson (1997) a final decision should not be based on any single indicator of fit. Rather it is proposed that an integrative judgment on the model fit should be made by taking all the fit indices into consideration. For evaluating model fit this study therefore employed various goodness fit indices as recommended by Bollen (1989). The full range of fit indices have been combined with information on the magnitude and distribution of the standardised residuals, evaluation of the number of large modification indices calculated for the factor loading matrix (ΛX) and the measurement error

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variance matrix (Θδ). Judgment on the measurement model fit was therefore obtained by integrating this basket of evidence.

Table 9. Fit statistics

Fit statistics for the CCCQ measurement model

Goodness of Fit Statistics

Degrees of Freedom = 391
Minimum Fit Function Chi-Square = 950.875 (P = 0.0)
Normal Theory Weighted Least Squares Chi-Square = 957.238 (P = 0.0)
Satorra-Bentler Scaled Chi-Square = 713.785 (P = 0.0)
Chi-Square Corrected for Non-Normality = 13452445539769.280 (P = 0.0)
Estimated Non-centrality Parameter (NCP) = 322.785
90 Percent Confidence Interval for NCP = (251.774 ; 401.625
Minimum Fit Function Value = 2.395
Population Discrepancy Function Value (F0) = 0.813
90 Percent Confidence Interval for F0 = (0.634 ; 1.012)
Root Mean Square Error of Approximation (RMSEA) = 0.0456
90 Percent Confidence Interval for RMSEA = (0.0403 ; 0.0509)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.914

Expected Cross-Validation Index (ECVI) = 2.826
90 Percent Confidence Interval for ECVI = (2.647 ; 3.024)
ECVI for Saturated Model = 2.997
ECVI for Independence Model = 311.875

Chi-Square for Independence Model with 561 Degrees of Freedom = 123746.283
Independence AIC = 123814.283
Model AIC = 1121.785
Saturated AIC = 1190.000
Independence CAIC = 123983.822
Model CAIC = 2139.021
Saturated CAIC = 4156.939

Normed Fit Index (NFI) = 0.994
Non-Normed Fit Index (NNFI) = 0.996
Parsimony Normed Fit Index (PNFI) = 0.693
Comparative Fit Index (CFI) = 0.997
Incremental Fit Index (IFI) = 0.997
Relative Fit Index (RFI) = 0.992

Critical N (CN) = 256.280
Root Mean Square Residual (RMR) = 0.0187
Standardised RMR = 0.0175
Goodness of Fit Index (GFI) = 0.876
Adjusted Goodness of Fit Index (AGFI) = 0.811
Parsimony Goodness of Fit Index (PGFI) = 0.576

Table 9 indicates that this model achieved a Satorra-Bentler scaled chi-square value of 713.785 with 391 degrees of freedom (calculated as ½k(k+1)-t, where k is the number of observed variables and t is the number of parameters to be estimated) reflecting a statistically significant result ($p<.01$), indicating that the model is not adequate (Kaplan, 2000). This means that the null hypothesis of model exact fit is therefore rejected (H01: RMSEA=0). This rejection implies that the first-order measurement model is unable to reproduce the observed covariance matrix in the sample to such a degree of accuracy that the difference between the observed sample covariance matrix and the reproduced sample covariance matrix can be explained in terms of sampling error only.

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The second fit measure to consider is the root mean square error of approximation (RMSEA) which also like the non-centrality parameter (NCP) focuses on the discrepancy between the observed population covariance matrix and the estimated population covariance matrix implied by the model per degree of freedom (Diamantopoulos & Siguaw, 2000). Values under .05 are indications of good model fit, values above .05 but less than .08 indicate a reasonable fit. Values greater than .08 but smaller than .1 indicate a mediocre model fit, where values greater than .1 indicate a poor fit (Brown & Cudeck, 1993; Diamantopoulos & Siguaw, 2000).In the case of the CCCQ results, the RMSEA value of .0456 signifies a very good fit of the measurement model. The 90 percent confidence interval for RMSEA (.0403 - .0509) also indicates a good fit in that the upper limit of the confidence interval only fractionally exceeds the critical cutoff value of .05. The fact that the confidence interval includes the critical cut off value of .05 implies that the null hypothesis of close fit will not be rejected.

While both the non-centrality parameter (NCP) and the RMSEA focus on error due to approximation (i.e., the discrepancy between Σ and Σ(θ)), Byrne (1998) and Spangenberg and Theron (2005) describe the expected cross-validation index (ECVI) as focusing on overall error (i.e., the difference between the reproduced sample co-variance matrix (Sˆ) derived from fitting the model on the sample at hand and the expected co-variance matrix that would be obtained in an independent sample of the same size from the same population). This means that it therefore focuses on the difference between Sˆ and Σ). Given its (ECVI) purpose, Diamantopoulos and Siguaw (2000) indicate that it is a useful indicator of a model's overall fit. The model ECVI (2.826) is smaller than the value for the independence or null model (311.875) and the ECVI value associated with the saturated model (2.997). This finding comment positively on the measurement model fit as it suggests that the fitted model seems to have a better chance of being replicated in a cross-validation sample than the (more complex) saturated model or the (less complex) independence model. This assumption is based on Kelloway's (1998) suggestion that smaller values on this index indicate a more parsimonious fit.

An assessment of the values of the Akaike information criterion (AIC=1121.785) presented in Table 9 suggests that the fitted measurement model provides a more parsimonious fit than both the independent/null model (123814.283) and the saturated model (1190.000) since smaller values on these indices indicate a more parsimonious model (Kelloway, 1998; Spangenberg &Theron, 2005). The values for consistent Akaike information criterion (CAIC=2139.021), likewise suggest that the

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fitted measurement model provides a more parsimonious fit than both the independent/null model (123983.822) and the saturated model (4156.939). Small values suggest a parsimonious fit although there is no consensus regarding precisely how small values should be (Moyo, 2009).

A number of indices of comparative fit will be considered. These include the normed fit index (NFI), the non-normed fit index (NNFI), the incremental fit index (IFI) and the comparative fit index (CFI).

According to Hoyle (1995) the normed fit index (NFI) represents the portion of total covariance among observed variables explained by a target model when using the null model as a baseline model. The NFI ranges from 0 to 1 with values exceeding .90 indicating a good fit (Kelloway, 1998). In this study the NFI of .994 indicate that the model is 99% better fitting than the null model.

The non-normed fit index (NNFI) uses a similar logic as the NFI but adjust the normed fit index for the number of degrees of freedom in the model (Kelloway, 1998). The adjustment may result in numbers above 0 to 1 range (Oehley, 2007). Higher values of the NFFI indicate a better fitting model and it is common to apply the .90 rule as indicating a good fit to the data (Kelloway, 1998). For this study (NNFI=.996) indicating good fit (NFFI > .90).

The incremental fit index (IFI) includes the scaling factor, so that the IFI ranges between 0 and 1. The comparative fit index (CFI) is based on non-centrality χ^2, with the same range. In both instances indices larger than .90 indicate a good fit to the data. In this study all the two indices had a value of .997 indicating a good fit to the data.

The root means square residual (RMR=.0187), which represents the average value of the residual matrix (S-Sˆ), and the standardised RMR, which represents the fitted residual divided by their estimated standard errors, (.0175) indicate good model fit. According to Diamantopoulos and Siguaw (2000) values less than .05 on the latter index are regarded as indicative of a model that fits the data well.

According to Diamantopoulos and Siguaw the goodness-of-fit index (GFI) is an indication of the relative number of variances and covariances explained by the model (Diamantopoulos & Siguaw, 2000). The adjusted goodness-of-fit index (AGFI) and the parsimony goodness-of-fit index (PGFI) illustrate the degree to which the reproduced sample covariance matrix recovered the observed samplecovariance matrix (Diamantopoulos & Siguaw, 2000). The AGFI adjusts the GFI for the

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degrees of freedom in the model while the PGFI uses model complexity to make adjustments (Diamantopoulos & Siguaw, 2000; Jöreskog & Sörbom, 1993; Kelloway, 1998). These two measures should be between 1 and 0. Values greater than .90 indicate that the model fits the data well. These two values (AGFI=.811) and (GFI=.649) portray reasonable model fit

Standardised residuals can be interpreted as standard normal deviates (Myburgh, 2013). A standardised residual with an absolute value greater than 2.58 would be interpreted as large at a 1% significance level (Diamantopoulos & Siguaw, 2000). Large standardised residuals are an indication of covariance (or the lack of covariance) between indicator variables that the model fails to explain. Large positive residuals reflect a model that underestimates the covariance terms between specific observed variables. The model can therefore be improved by adding paths to the model. Large negative residuals on the other hand are an indication that the model over-estimates the covariance between specific observed variables. To rectify this problem, paths associated with the indicator variables can be removed (Diamantapoulos & Siguaw, 2000; Kelloway, 1998). The existence of 4 large negative residuals indicates that 4 out of the 595 observed variance and covariance terms in the observed co-variance matrix (S) (0.67%) (4/595) *100) are poorly estimated by the derived model parameter estimates. The small percentage of unique variance and covariance terms that are poorly estimated by the fitted measurement model implies good model fit

Modification indices calculated for the factor loading matrix (Λx) identify 0 additional paths that will have a statistically significant positive impact on model fit. Therefore 0 out of 544 possible additions to Λx will result into an improved model fit ($p<.01$). The lack of large modification index values obtained for Λx comments extremely favourably on the fit of the model. Modification indices calculated for the theta-delta matrix ($\Theta\delta$) reveal 48 covariance terms that will have a statistically significant positive impact on model fit. Therefore, allowing for 48 out of 595 possible covariance terms in $\Theta\delta$ to be freed (8.067%) will result into an improved model fit ($p<.01$). The small percentage of large modification index values obtained for $\Theta\delta$ also comments favourably on the fit of the model.

The completely standardised factor loading matrix (ΛX) reflects the slope of the regression of the standardised item parcels X_j on the standardised latent performance dimensions ξ_i. The completely standardised factor loading matrix (Table 10) was used to determine the magnitude of the first-order factor loadings hypothesised by the proposed measurement model represented by Equation 1. All the loadings in the factor loading matrix exceed the critical value of .71 suggested by Hair et al.

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(2006). There are no parcels with loadings lower than this cut-off value. The item parcels therefore generally do represent the latent coaching performance construct that they were designed to reflect acceptably well.

The Squared multiple correlations (R^2) values for the item parcels are shown in Table 11. Hair et al.'s (2006) critical factor loading of .71 implies a critical R^2 value of .50. In this case all the 34 item parcels the latent variable of interest explains more than 50% of the variance in the item parcels.

The completely standardised measurement error variances are reflected in Table 12. Table 12 indicates that all the measurement error variances are satisfactorily small. Measurement error variance accounts for between 15.2% and 35% of the variance in the item parcels. In the case of 25 (73.5%) of the 34 item parcels measurement error accounts for less than 25% of the item parcel variance.

The latent variable inter-correlations are shown in the phi matrix in Table 13. All the inter-latent variables are statistically significant ($p<.05$). The statistical null hypotheses H0i: $\varphi jk = 0$; i =71, 72,..., 206; j=1, 2.....17; k=1, 2.....17 are therefore rejected. Correlations are considered excessively high in this study if they exceed a value of .90. Judged by this criterion most of the correlations in the phi matrix are excessively high.

Discriminant Validity

The excessively high correlations between the latent variables in the phi matrix are in itself very strong evidence of lack of discriminant validity. This substantially increases the possibility that latent coaching competencies might correlate unity in the parameter but correlate less than unity in the statistic because of sampling error. To examine this possibility a 95% confidence interval was calculated for each sample estimate in utilising an Excel macro developed by Scientific Software International (Mels, 2009 as cited in Myburgh, 2013).The 95% confidence intervals for the 136 inter-latent variable correlations are shown in Table 14. 30 out of the 136 confidence intervals include unity (22.06%). Most intervals include the value (.90) earlier considered to be a critical value for excessively large correlations. The discriminant validity of the CCCQ dimension measures is thereby seriously compromised

Power assesement

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The close fit null hypothesis was not rejected. The observed population covariance matrix (Σ) could therefore be assumed to closely approximate the reproduced population co-variance (Σ^) matrix derived from the model parameters. The question however is whether the decision not to reject H_{02} was the correct decision. This concern grows when there is a decrease in sample size. A decrease in sample size lowers the statistical power of the analysis. The statistical power of the analysis refers to the probability to reject H_{02} if H_{02} is false (i.e., to reject the claim that a model fits closely in the parameter when it actually has mediocre fit). Statistical power is the conditional probability of rejecting a false null hypothesis (P[reject H0: RMSEA≤.05)|H0 false]). When the decision not to reject the null hypothesis of close fit happens under conditions of low power, uncertainty increases and therefore confidence in the evidence decreases. In such a case it is not clear if the decision was the result of an accurate model or due to insensitivity of the test to distinguish specification errors in the model. The close fit null hypothesis explains that the proposed model closely reflects reality. Not rejecting H_{02}: RMSEA≤.05 indicates a good fit of the model to the extent that the statistical power of the close fit evaluation is reasonably high.

The power associated with the test of close fit was estimated. The close fit null hypothesis explains that the model has a close but an imperfect fit in the population. This is calculated by using the value of the RMSEA statistic. When a model has a close fit in the population, the error caused by approximation is set at .05 and the null hypotheses H02 is tested against Ha2 (Diamantopoulos & Siguaw, 2000). A specified value for the parameter needs to be assumed under Ha2 when determining the test of the close fit hypothesis. The RMSEA=.08 is a good value to use because RMSEA=.08 is the upper limit of a satisfactory fit. Syntax developed by Preacher and Coffman (2006) in R and available at http://www.quantpsy.org/rmsea/rmsea.htm was utilised to determine the statistical power of the test of close fit. For this purpose a significance level of .05 was specified, a sample size of 398, 391 degrees of freedom, RMSEA was set to .05 under H0 and RMSEA was set to .08 under Ha. The Preacher and Coffman (2006) software returned a power value of unity. In the case of poor model fit, H02, would therefore have been rejected. This was not the case which bolsters confidence in the decision.

Table 10: Completely standard factor loading matrix

Completely standardised factor loading matrix

	ACKNOWLE	ARTICULA	CONCERN	DEVELOPM	DISCOVER	EMPOWER
ACK_1	0.882	- -	- -	- -	- -	- -
ACK_2	0.913	- -	- -	- -	- -	- -
ART_1	- -	0.860	- -	- -	- -	- -
ART_2	- -	0.890	- -	- -	- -	- -
CON_1	- -	- -	0.915	- -	- -	- -
CON_2	- -	- -	0.907	- -	- -	- -
DEV_1	- -	- -	- -	0.873	- -	- -
DEV_2	- -	- -	- -	0.877	- -	- -
DIS_1	- -	- -	- -	- -	0.900	- -
DIS_2	- -	- -	- -	- -	0.847	- -
EMP_1	- -	- -	- -	- -	- -	0.915
EMP_2	- -	- -	- -	- -	- -	0.871
ENT_1	- -	- -	- -	- -	- -	- -
ENT_2	- -	- -	- -	- -	- -	- -
EXS_1	- -	- -	- -	- -	- -	- -
EXS_2	- -	- -	- -	- -	- -	- -
HAR_1	- -	- -	- -	- -	- -	- -
HAR_2	- -	- -	- -	- -	- -	- -
INP_1	- -	- -	- -	- -	- -	- -
INP_2	- -	- -	- -	- -	- -	- -
INS_1	- -	- -	- -	- -	- -	- -
INS_2	- -	- -	- -	- -	- -	- -
PLA_1	- -	- -	- -	- -	- -	- -
PLA_2	- -	- -	- -	- -	- -	- -
REV_1	- -	- -	- -	- -	- -	- -
REV_2	- -	- -	- -	- -	- -	- -
SOU_1	- -	- -	- -	- -	- -	- -
SOU_2	- -	- -	- -	- -	- -	- -
STR_1	- -	- -	- -	- -	- -	- -
STR_2	- -	- -	- -	- -	- -	- -
TRU_1	- -	- -	- -	- -	- -	- -
TRU_2	- -	- -	- -	- -	- -	- -
VIS_1	- -	- -	- -	- -	- -	- -
VIS_2	- -	- -	- -	- -	- -	- -

	ENTREPRE	EXSCANNI	HARDY	INSPIRIN	INSCANNI	PLANNING
ACK_1	- -	- -	- -	- -	- -	- -
ACK_2	- -	- -	- -	- -	- -	- -
ART_1	- -	- -	- -	- -	- -	- -
ART_2	- -	- -	- -	- -	- -	- -
CON_1	- -	- -	- -	- -	- -	- -
CON_2	- -	- -	- -	- -	- -	- -
DEV_1	- -	- -	- -	- -	- -	- -
DEV_2	- -	- -	- -	- -	- -	- -
DIS_1	- -	- -	- -	- -	- -	- -
DIS_2	- -	- -	- -	- -	- -	- -
EMP_1	- -	- -	- -	- -	- -	- -
EMP_2	- -	- -	- -	- -	- -	- -
ENT_1	0.896	- -	- -	- -	- -	- -
ENT_2	0.872	- -	- -	- -	- -	- -
EXS_1	- -	0.806	- -	- -	- -	- -
EXS_2	- -	0.887	- -	- -	- -	- -
HAR_1	- -	- -	0.842	- -	- -	- -
HAR_2	- -	- -	0.882	- -	- -	- -
INP_1	- -	- -	- -	0.863	- -	- -
INP_2	- -	- -	- -	0.906	- -	- -

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INS_1	- -	- -	- -	- -	0.832	- -
INS_2	- -	- -	- -	- -	0.886	- -
PLA_1	- -	- -	- -	- -	- -	0.841
PLA_2	- -	- -	- -	- -	- -	0.884
REV_1	- -	- -	- -	- -	- -	- -
REV_2	- -	- -	- -	- -	- -	- -
SOU_1	- -	- -	- -	- -	- -	- -
SOU_2	- -	- -	- -	- -	- -	- -
STR_1	- -	- -	- -	- -	- -	- -
STR_2	- -	- -	- -	- -	- -	- -
TRU_1	- -	- -	- -	- -	- -	- -
TRU_2	- -	- -	- -	- -	- -	- -

VIS_1	- -	- -	- -	- -	- -	- -
VIS_2	- -	- -	- -	- -	- -	- -
	REVIE	SOUND	STRATEGY	TRUST	VISION	
ACK_1	- -	- -	- -	- -	- -	- -
ACK_2	- -	- -	- -	- -	- -	- -
ART_1	- -	- -	- -	- -	- -	- -
ART_2	- -	- -	- -	- -	- -	- -
CON_1	- -	- -	- -	- -	- -	- -
CON_2	- -	- -	- -	- -	- -	- -
DEV_1	- -	- -	- -	- -	- -	- -
DEV_2	- -	- -	- -	- -	- -	- -
DIS_1	- -	- -	- -	- -	- -	- -
DIS_2	- -	- -	- -	- -	- -	- -
EMP_1	- -	- -	- -	- -	- -	- -
EMP_2	- -	- -	- -	- -	- -	- -
ENT_1	- -	- -	- -	- -	- -	- -
ENT_2	- -	- -	- -	- -	- -	- -
EXS_1	- -	- -	- -	- -	- -	- -
EXS_2	- -	- -	- -	- -	- -	- -
HAR_1	- -	- -	- -	- -	- -	- -
HAR_2	- -	- -	- -	- -	- -	- -
INP_1	- -	- -	- -	- -	- -	- -
INP_2	- -	- -	- -	- -	- -	- -
INS_1	- -	- -	- -	- -	- -	- -
INS_2	- -	- -	- -	- -	- -	- -
PLA_1	- -	- -	- -	- -	- -	- -
PLA_2	- -	- -	- -	- -	- -	- -

REV_1	0.886	- -	- -	- -	- -	- -
REV_2	0.874	- -	- -	- -	- -	- -
SOU_1	- -	0.923	- -	- -	- -	- -
SOU_2	- -	0.929	- -	- -	- -	- -
STR_1	- -	- -	0.851	- -	- -	- -
STR_2	- -	- -	0.894	- -	- -	- -
TRU_1	- -	- -	- -	0.921	- -	- -
TRU_2	- -	- -	- -	0.869	- -	- -
VIS_1	- -	- -	- -	- -	0.838	- -
VIS_1	- -	- -	- -	- -	0.880	- -

Table 11. Squared multiple correlations for item parcels

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ACK_1	ACK_2	ART_1	ART_2	CON_1	CON_2	DEV_1	DEV_2	DIS_1	DIS_2
0.778	0.834	0.740	0.791	0.837	0.822	0.762	0.769	0.810	0.718
EMP_1	EMP_2	ENT_1	ENT_2	EXS_1	EXS_2	HAR_1	HAR_2	INP_1	INP_2
0.837	0.759	0.803	0.761	0.650	0.787	0.710	0.777	0.745	0.820
INS_1	INS_2	PLA_1	PLA_2	REV_1	REV_2	SOU_1	SOU_2	STR_1	STR_2
0.693	0.785	0.707	0.782	0.785	0.764	0.851	0.862	0.725	0.799
TRU_1	TRU_2	VIS_1	VIS_2						
0.848	0.755	0.702	0.774						

Table 12. Completely standard measurement error variance

ACK_1	ACK_2	ART_1	ART_2	CON_1	CON_2	DEV_1	DEV_2	DIS_1	DIS_2
0.222	0.166	0.260	0.209	0.163	0.178	0.238	0.231	0.190	0.282
EMP_1	EMP_2	ENT_1	ENT_2	EXS_1	EXS_2	HAR_1	HAR_2	INP_1	INP_2
0.163	0.241	0.197	0.239	0.350	0.213	0.290	0.223	0.255	0.180
INS_1	INS_2	PLA_1	PLA_2	REV_1	REV_2	SOU_1	SOU_2	STR_1	STR_2
0.307	0.215	0.293	0.218	0.215	0.236	0.149	0.138	0.275	0.201
TRU_1	TRU_2	VIS_1	VIS_2						
0.152	0.245	0.298	0.226						

Table 13. 95% confidence interval for sample phi estimate

	ACK	ART	CON	DEV	DIS	EMP	ENT	EXS	HAR	INSP	INS	PLA	REV	SOU	STR	TRU	VIS
ACK	-																
ART	0.830-0.938	-															
CON	0.883-0.961	0.892-0.961	-														
DEV	0.833-0.921	0.900-0.987	0.852-0.936	-													
DIS	0.870-0.956	0.899-0.981	-1.00-1.00	0.907-0.980	-												
EMP	0.876-0.949	0.920-0.992	0.920-0.979	0.914-0.983	1.00-1.210	-											
ENT	0.876-0.949	0.893-0.972	0.911-0.973	1.001-1.162	0.915-0.986	0.913-0.981	-										
EXS	0.868-0.948	0.831-0.999	0.877-0.954	1.000-1.950	0.901-0.978	0.894-0.981	0.896 0.997	-									
HAR	0.872-0.958	0.905-0.989	0.905-0.984	0.905-0.989	0.963-1.00	1.000--3.280	0.921-0.989	0.895-0.986	-								
INSP	0.899-0.969	1.000-1.000	0.920-0.997	0.888-0.966	0.921-0.990	0.924-0.994	0.696-1.000	0.895-0.969	0.904-0.984	-							
INS	0.830-0.943	0.881-0.991	0.891-0.965	0.877-0.995	0.881-0.976	0.899-0.982	0.418-1.000	1.009-1.093	0.871-0.974	0.902-0.980	-						
PLA	0.861-0.950	0.910-0.990	0.889-0.968	0.910-0.991	0.870-0.998	0.148-1.000	0.616-1.000	0.883-0.995	0.877-0.995	0.862-0.999	0.895-0.986	-					
REV	0.881-	0.874-	0.889-	0.870-	0.911-	0.896-	0.886-	0.871-	0.865-	0.905-	0.863-	1.000-	-				

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	0.968	0.966	0.954	0.951	0.979	0.971	0.964	0.952	0.955	0.976	0.953	3.935					
SOU	0.836-0.928	0.886-0.964	1.000--1.000	0.885-0.958	1.002-1.080	0.925-0.986	0.918-0.977	0.902-0.973	0.914-0.983	0.925-0.980	0.881-0.958	0.915-0.978	0.902-0.962	-			
STRA	0.833-0.920	1.000-1.000	0.881-0.953	1.000--1.021	0.904-0.991	0.913-0.997	0.925-0.986	1.001-1.208	0.756-1.000	0.907-0.973	1.000-1.000	0.868-0.998	0.868-0.958	0.898-0.968	-		
TRUST	0.904-0.965	1.000--1.000	0.929-0.998	0.898-0.968	0.913-0.996	1.000-1.000	0.891-0.970	0.909-0.983	0.723-1.000	0.878-0.999	0.900-0.984	0.920-0.992	0.884-0.962	0.936-0.990	0.921-0.989	-	
VIS	0.847-0.935	1.000--1.000	0.882-0.960	1.000--1.000	0.884-0.972	0.910-0.987	0.696-1.000	1.001-1.186	0.874-0.972	0.904-0.991	1.002-1.145	1.00-1.00	0.863-0.953	0.896-0.971	1.002-1.110	0.703-1.000	-

Discussion

The objective of the research study was to develop and psychometrically evaluate an affirmative development coach competency questionnaire. The substantive hypothesis tested in this study is that the CCCQ provides a construct valid and reliable measure of affirmative coaching performance as defined by the instrument, amongst South African coaches. The operational hypothesis implied by the substantive research hypothesis is that the measurement model can closely reproduce the covariances observed between the item parcels formed from the items of the various subscales. The operational hypothesis implied by the substantive research hypothesis further implies that the factor loadings of the item parcels on their coaching performance dimensions are statistically significant, that the measurement error variances related to each parcel are statistically significant but small, that the latent coaching competencies explain large proportions of the variance in the item parcels, that the latent coaching competencies correlate low-moderately with each other, that the 95% confidence interval for the latent coaching competencies correlation do not contain 1 and finally that the average variance extracted (AVE) by the item parcels of each latent coaching competencies is larger than the squared correlations between the latent coaching competencies.

Item analysis results indicated that all of the CCCQ subscales reflect high alpha coefficients above the critical cut off value set for this study of .80. The eigenvalue-greater-than-unity rule of thumb and the scree plot were used to determine the number of factors to be extracted. All of the 17 subscales passed the uni-dimensionality test.

Multiple fit indices were utilised to test model fit. The results reflected a good fit of the model. The null hypothesis of close fit was not rejected. The position that the model shows close fit in the parameter was therefore tenable. The basket of LISREL results were indicative of good model fit in the sample. The majority of the fit statistics indicated good fit and the small percentage of large

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standardised covariance residuals corroborated this conclusion. The lack of large modification indices calculated for the Λ^x and the small percentage of large modification calculated for the $\Theta\delta$ matrices also indicated a good fit. The factor loadings of the item parcels on their designed latent behavioural performance dimension were statistically significant. Results also show that the latent coaching competencies explain large proportion of variance in the item parcel that represents them.

The discriminant validity of the CCCQ was, however, seriously compromised. The latent coaching competencies correlated excessively with each other in the sample. A worrisome finding was that the confidence intervals calculated for the latent coaching competencies correlation contained 1. This finding implies that the unique parts of the latent variables have not been adequately measured. The measures therefore do not permit the successfully discrimination between the unique aspects of the latent variables involved.

Limitations

The measurement model was fitted by representing each of the latent coaching competencies by means of two item parcels. Given the objective of the research to psychometrically evaluate the CCCQ as a measure of affirmative development coaching competencies it would, however, have been preferable to fit the measurement model by using the individual items as indicator variables. This was not possible in this study due to the size of the available sample. . In the final analysis the question was whether the CCCQ provides a construct valid measure of the affirmative development behavioural performance coaching construct can only be satisfactorily answered when representing the latent coaching competencies with the individual items of each subscale of the CCCQ. An important question that has not been investigated in this study is whether the measurement model underlying the CCCQ is similar in terms of number of latent coaching competencies and model parameter estimates across Black and White South African managers acting as affirmative development coaches

Recommendations

Future research on the CCCQ should consider having a larger sample size, so as to fit the CCCQ measurement model with individual items. Secondly, future research should also consider fitting using multi-group SEM analyses in which the measurement model is simultaneously fitted to representative samples from different population groups such as race (Black and White managers),

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gender and possibly language groups to investigate the measurement invariance and equivalence of the CCCQ. Discriminant validity presented a serious problem. This means that the latent coaching competencies are not clearly separated but flow into each other. If similar findings would emerge when the CCCQ measurement model is fitted with the individual items as indicator variables the problem should be the focus of attention in future studies. Future studies should also investigate the relationships hypothesised between the affirmative development coaching competencies and coaching outcomes

Conclusion

Although the above noted limitations are important and must be taken into account, the CCCQ has demonstrated evidence of psychometric credentials (reliability and construct validity). Practically this study will contribute to a better understanding of the psychometric properties of the CCCQ as a valuable affirmative development coach competency assessment tool in South Africa as required by the *Employment Equity Act* (*No. 55 of 1998*) and the *Amended Employment Equity Act of South Africa* (Republic of South Africa, 1998)

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