

THE ROLE OF LOCUS OF CONTROL AND ACHIEVEMENT MOTIVATION IN THE WORK PERFORMANCE OF BLACK MANAGERS

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OPSOMMING

Die primêre doelwit van hierdie studie was om die werkverrigting van Swart bestuurders te voorspel deur gebruik te maak van drie metings van Lokus van Beheer en vyf metings van Prestasie-motivering. Werkverrigting is deur bogeskiktes met behulp van die Prestasiebeoordelingsvraelys van Schepers (1994) beoordeel, wat drie tellings lewer, naamlik Werkverrigting, Inisiatief/Kreatiwiteit en Bestuursvaardighede. Die steekproef het uit 102 Swart manlike werknemers in toesighoudende en meer senior posisies in 'n gediversifiseerde en geografies verspreide chemiese maatskappy bestaan. In die ontleding van die data is die drie stelle metings geïnterkorreleer en aan 'n faktorontleding onderwerp. Drie faktore is geïdentifiseer onder andere, 'n faktor wat werkverrigting verteenwoordig. Gevolglik is 'n saamgestelde telling bereken wat as kriteriummeting in 'n regressieontleding gedien het. Verder is 'n kanoniese korrelasieprosedure aangewend om die korrelasie tussen die voorspeller veranderlikes en die afhanklike veranderlikes te maksimeer. Twee statisties beduidende kanoniese korrelasies is verkry.

Dit is bevind dat sowel die Lokus van Beheer-vraelys as die Prestasie-Motiveringsvraelys as voorspellers van werkverrigting, soos beoordeel deur middel van die Prestasiebeoordelingsvraelys, gebruik kan word.

SUMMARY

The primary objective of this study was to predict the work performance of Black managers by using three measures of Locus of Control and five measures of Achievement Motivation. Work performance was assessed by superiors with the aid of the Performance Appraisal Questionnaire of Schepers (1994) which yields three scores, viz. Work Performance, Creativity/Initiative and Management Skills. The sample comprised 102 Black male employees in supervisory and more senior positions in a diversified and geographically dispersed chemical company. In analysing the data, the three sets of measures were intercorrelated and subjected to a factor analysis. Three factors were identified; amongst others a factor representing work performance. A composite score was accordingly computed which served as the criterion measure in a regression analysis. Furthermore, a canonical correlation procedure was used to maximise the correlation between the predictor variables and the dependent variables. Two statistically significant canonical correlations were obtained.

It was found that both the Locus of Control Inventory and the Achievement Motivation Questionnaire can be used as predictors of work performance as assessed by means of the Performance Appraisal Questionnaire (PA).

In an attempt to create a workforce that is representative of the demographic profile of the new South Africa, recruitment and appointment of racial groups and minority groups in meaningful positions are the order of the day. In order to maintain high and increased levels of productivity and competitiveness, organisations will have to take care to appoint individuals who can sustain high levels of work performance. Due to inadequacies of the past and current educational systems and varying standards in South Africa, proof of educational qualifications bear little evidence of competence and do not ensure high levels of work performance. A problem arises when employers ask how they can ensure that a new appointee will sustain high levels of work performance.

Unfortunately the majority of predictors of high levels of work performance originate from Western societies (Manese, 1986). Most pre-employment selection tests bear no direct relationship to the level of work performance an individual is likely to sustain. In the future, psychometric testing of different ethnic groups during the recruitment process will come under greater scrutiny for their cultural fairness or lack thereof. New or alternative assessment instruments will need to be developed in order to provide more credible predictors of work performance during the recruitment process. If this can be done, then the problem of appointing applicants without an assurance of their

ability to sustain high levels of work performance, will be partially solved.

In future organisations will need to identify assessment techniques that can predict work performance levels which are directly translatable to an organisation's required competencies and bottomline, rather than psychometric tests that are questionable in terms of being culturally biased and/or have no bearing on actual work performance.

The present research was prompted by the need for assessment instruments that would have a direct bearing on the work performance of Black Managers. As South Africa moves towards a democracy, the current processes, instruments, and procedures that predict behaviour of people are being challenged, not only with regards to their validity and their cultural fairness but also in terms of their relevance to job success. Instruments that have a direct bearing on the constructs being measured and on work performance will be more readily accepted by both the individual being selected and the organisation searching for the right candidate.

The main objective of this study was to search for instruments that will be good predictors of work performance. As work performance is a human function based upon many inputs and types of learning, the ideal instruments will need to focus on basic psychological constructs related to how the world is perceived and how an individual behaves and orientates himself with respect to the environment.

As soon as acceptable instruments have been found that predict work performance amongst Black managers, employers will be able to select individuals who will sustain high levels of work performance. Once greater success can be achieved in the appointment of individuals who can render high levels of performance, real economic growth will take place in South Africa.

The two constructs, Achievement Motivation and Locus of Control were selected by virtue of the fact that these constructs showed promise in a number of local research projects. (De Wet, 1990; Erwee, 1986; Thebe, 1992)

The locus of control construct is a multi-dimensional construct which aims at determining the causality of behaviour (Erwee, 1986). The Need for Achievement or Achievement Motivation construct predicts an individual's orientation towards excelling in the way he/she behaves. Achievement Motivation is also a multi-dimensional construct.

As both constructs are multi-dimensional it necessitates an intercorrelational study so as to determine which dimensions of one construct relate to the dimensions of the other.

The concept of locus of control stems from attribution theory. Attribution theory is a theory of the relationship between person-perception and internal behaviour (Heider, 1958). It is mainly concerned with the attribution processes by which an individual interprets behaviour as being due to certain aspects of the environment. Although attribution theory stems from the work of the cognitive theorists, the founder is generally recognised as Fritz Heider (1958). Heider speculated that both internal and external forces combined to cause behaviour. He stressed that it is perception and not the actual causation that is important in behaviour. People's behaviour will be determined by the discrepancy in their perception of internal attributes and of external attributes.

The construct of locus of control relates to the expectancy about the outcome of actions (Rotter, 1966; Lefcourt, 1976; Phares, 1976) rather than the actions themselves. It is derived from Rotter's social learning theory.

Rotter's (1954) social learning theory provided the largest body of empirical data about perceived control. The theory stresses that the role of reinforcement, regard, and gratification plays a crucial role in determining behaviour. Rotter (1966) formulated the following definition of locus of control in which he defined the concept of internal-external locus of control. "When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful other, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by the individual, we have labeled this a belief of external control. If the person perceives that the event is contingent upon his own behaviour or his own relatively permanent characteristics, we have termed this a belief in internal control" (Rotter, 1966, p. 1)

O'Brien (1986, p. 52) defined locus of control as "a generalised expectancy about the extent to which reinforcements are under internal or external control".

Locus of control refers specifically to beliefs about the source of control over reinforcement. De Charms (1968, p. 337) argued that the person who feels responsible for the consequences of his actions feels that the locus of control is internal to himself. For example, in order to control level of work performance a manager will control his actions by the achievement of his work objectives, initiative, creative thinking, management skills and other factors that will determine work performance. The manager will not feel that he controls his subordinates, superiors, organisational structures, but rather that there is a

direct link between personal performance, achievement of objectives, and control.

According to Hammerschlag (1984) the concept of locus of control relates to expectancies about the outcome of actions. Spector (1988) and Brewin (1988) believe that these expectancies relate to how rewards, reinforcements, and outcomes in life are controlled by either one's own internal actions or by some other external forces.

Locus of control is not an expectancy concerning a particular type of reinforcement but rather a generalised expectancy of "problem-solving", which addresses the issue of whether behaviours are perceived as important to goal attachment, regardless of the specific nature of the goal or reinforcer (De Wet, 1990). According to Deci and Ryan (1985) locus of control focuses on the belief that a response will, or will not, influence the attainment of reinforcement.

On the one extreme one finds the internally controlled person who believes that reinforcements are determined largely by personal effort, ability and initiative. The opposite extreme type is the externally controlled person who believes that reinforcements are determined largely by other people, social structures, luck or fate (O'Brien, 1986).

The locus of control construct has occupied a central position in personality research for a number of decades. Investigators of the construct have continued to ask new questions about locus of control as a personality variable. Lefcourt (1976) and Phares (1976) each have summarised the earlier research done and have cautioned researchers about a number of misinterpretations and misuses of the scales that had been constructed to assess the variable. The most commonly used assessment instrument used for empirical research is the Rotter Internal-External Control Scale (Rotter, 1966). Phares (1976) developed the first locus of control scales in 1955 which James (1957) expanded into a 60 item Likert scale. This measure, the James-Phares Locus of Control Scale provided the source from which the Rotter I-E Scale was developed. Most empirical researchers use the Rotter I-E Scale in their research.

A number of studies have been undertaken related to achievement. Earlier research was based on the premise that people with an internal locus of control would show more effort and persistence in attempting to achieve than externally controlled people because the latter group would see no connection between their behaviour and the outcome. Warehime (1972) found that studies designed to examine locus of control and academic performance by using unidimensional measures have produced non-significant or inconclusive results.

This construct has also been found to be of importance in managerial behaviour. Managers with high internal scores are reported to be better performers (Anderson, Hellriegel and Slocum, 1977), more considerate of subordinates (Pryer and Distenano, 1971), and inclined towards a more strategic management style (Miller, Kets De Vries and Toulouse, 1982). Although it seems plausible that internal control can be associated with more effective management performance, the evidence is far from conclusive. For instance, Durand and Nord (1976) maintained that the ideal manager is more likely to have an external orientation because externally controlled managers are perceived as initiating more structure and consideration than internally controlled managers.

Locus of control has also been found to be relevant in entrepreneurial behaviour. In a review article Venkatapathy (1984, p. 47) concluded: "The review, in general, suggests that internal locus of control is one of the important characteristics to the making of entrepreneurs". Even though some researchers (Brockhaus, 1975; Hull, Boseley & Udell, 1980) concluded that internality is not a prerequisite to entrepreneurship, other investigators (Rao, 1975), strongly contend that entrepreneurs are generally more internal: Thus, locus of

control can be regarded as a continuum of expectancies ranging from extremely internal expectancies to extremely external expectancies (De Wet, 1990).

According to Fineman (1977) the origins of achievement motivation can be traced back to the works of William James in 1890. Although researched for decades, the construct of Achievement Motivation has not yet been unequivocally defined. According to Pottas (1981) the reasons are the following:

- (i) The theoretical paradigm of researchers influence the way in which they conceptualise the construct.
- (ii) Researchers fail to clearly distinguish between achievement and performance in describing motivation in general.
- (iii) A range of different research methodologies has been applied in the studying of Achievement Motivation.
- (iv) The type of samples used are highly restrictive and do not represent all types of people.

According to Thompson (1984, pp. 5-6) definitions of Achievement Motivation start with Murray who defined the concept as "...an accomplishment of something difficult, an ability to master, manipulate, or organise physical subjects, human beings, or ideas. The person with a high Achievement Motivation is able to accomplish these things rapidly and independently. He can overcome obstacles and attain a high standard. He can excel and surpass others". In short, he is challenging and self-reliant. He excels, is competent and has a positive self regard.

McClelland (1970) also pointed out that environmental factors have a great influence on achievement motivation. High achievers will generally be attracted to business environments which offer personal responsibility for accomplishments. Deci and Ryan (1985) distinguish between intrinsic and extrinsic aspects of achievement motivation.

Mehrabian (1969, p. 494) classified high achievers as individuals who have a stronger motive to achieve relative to their motive to avoid failure, as compared with low achievers who have a stronger motive to avoid failure relative to their motive to achieve. It would be less shameful for an achiever to fail at a difficult task than to fail at an easy task. Thus the high achievement motivated person will choose a difficult task if there is a chance of achieving rather than an easy task which can be completed with little effort. High achievers can also be distinguished through the increase in positive feelings that are aroused by their success and the relatively low negative feelings aroused by their failure. Low achievers experience more negative feelings from failure than positive feelings from success. Thus a college student with a strong motive to achieve will strive for and receive a higher course grade when it is related to future career success than when it is not. On the other hand the low achievement motivated person concentrates on avoiding failure, which then inhibits his success-seeking behaviour. The success seeking person is considered to be more effective in seeking realistic achievements than the failure avoiding person.

According to De Wet (1990) and Thebe (1992) high achievers also display more independent behaviour in their interpersonal relationships and are less susceptible to conformity pressures. They are better able to delay gratification in that they will engage in activities which may not be intrinsically satisfying, but which lead to long-term rewards; whereas low achievers will prefer activities which are inherently gratifying, but not necessarily lead to future gains. High achievers tend to possess a more distant future perspective, as compared with low achievement motivated persons who are preoccupied with the present and past. The former also prefer achievement related activities rather than simple tasks which are not challenging and are easy to complete. According to McClelland (1970) the achievement motivated person takes risks in situations where chance rather than skill or personal ability dominate.

Achievement motivation can be characterised as a personality disposition which defines an individual's capability to take pride in the accomplishment of the successes achieved. The fundamentals of achievement motivation are the seeking of success, the desire to excel as an individual and the enjoyment of success.

Individuals with a high need for achievement have a strong belief in their own ability to determine the outcome of their actions, in other words they have an internal locus of control. Clark (1979) found from studies that individuals with an internal locus of control were self-motivated.

Beck (1968, p. 335) stated that people with a need to achieve attribute their own performance to internal factors to a greater extent than to external factors.

Clark (1979) is of the opinion that the development of intrinsic motivation and internal locus of control are important goals in helping people to function in society and find personal satisfaction from their endeavours. He concludes that achieving success and well-being are accompanied by personal power and perception of inner control. He regards motivation as one of the most critical areas of concern and stresses that one important way to foster motivation is to make individuals aware of their own power and to allow them to exercise it.

Erwee and Pottas (1982) identified differences in internal locus of control between business school students who wanted to form a company (entrepreneurs) and those who had a need for achievement. Those who had an internal locus of control had a greater interest in forming a company and becoming entrepreneurs.

Persons with an external locus of control tend to attribute failure or lack of success to some unchangeable characteristic in their person such as a lack of skill or low intelligence. If this type of person succeeds he usually believes that he has been unusually lucky and cannot be held responsible for his success. Erwee and Pottas (1982) reviewed research on the relationship between locus of control and achievement motivation. They found that research confirms that individuals with a high need for achievement have a strong belief in their own ability to determine the outcome of their actions. They refer to Mahoney (1978) who found a significant correlation between internal locus of control and achievement motivation, as well as Haines et al. (1980) who found that a higher degree of internality is associated with persistence on achievement or skill related tasks.

According to De Charms (1968) behaviour is often said to be extrinsically motivated when the goal of the behaviour is something that is only arbitrarily tied to completion of the task. Intrinsically motivated behaviour, on the other hand, is behaviour that cannot be placed in the extrinsic, "in-order-to" category – a person who is intrinsically motivated will carry out tasks that simply satisfy his need to complete a task. High externally controlled people tend to conform to group pressure to a greater extent than do low externally controlled people, just as low achievers would rather be part of a group than be independent. People who have a low external locus of control also prefer moderate risk taking whilst those with a high external locus of control are more cautious and avoid failures. Beck (1968) confirms that this is the same pattern of risk preference that is characteristic of high need achievement individuals, who also have a high internal locus of control. He emphasises that the strategies for maintaining control and for achieving are very similar.

Biggs and Felton (1977) found that individuals who are highly motivated towards success are internal in their orientation, realistic, persistent and responsible. According to Lefcourt (1976) the causative agent regarded as a person's locus of control is a basic motivation force in man. Erwee and Pottas (1982) also refer to Durand's study, during which black

entrepreneurs were subjected to various programmes following which motivation training was found to be associated with a decrease in externality and an increase in achievement motivation. Further, entrepreneurs with an internal locus of control were found to engage more in business activities than those with an external locus of control.

None of the above-mentioned studies investigated the relationship between locus of control and actual work performance. Erwee and Pottas (1982) were the first to conduct locus of control research amongst Black South Africans in the business and entrepreneurial environments.

A further study followed by Erwee (1986), which focused on the dimensionality of achievement motivation and locus of control in Black university students. This study limited its findings by determining that the two constructs can be separated and are interrelated. The study did not focus on the influence of locus of control and achievement motivation on Black university students as the title might have suggested.

De Wet (1990) did research on locus of control and achievement motivation of unskilled Coloured Eskom employees to select them for participation in training and advancement programmes. Thebe (1992) followed with a similar study of unskilled Black Eskom employees. Unfortunately, both these studies were limited to an overview of the literature on the two concepts and the relationship that exists between them rather than the impact of the two concepts on Black and Coloured unskilled employees. No reference was made to the relationship between the concepts and the level of participation in training as suggested by their respective titles. Thus, no study could be found where both constructs were used to determine the work performance of a specific targeted group.

Work performance can be identified in many ways and for the purpose of this study the focus is placed on Work Performance in managerial type positions i.e. positions that require supervision of other employees. Work Performance is identified as initiative/creativity, work performance related to the tasks at hand and management skills in leading people.

In the light of the primary objective of this study, namely to predict work performance with the aid of a battery of tests comprising measures of locus of control and achievement motivation, the following hypotheses will be examined:

- 1.1 It is hypothesised that the three measures of work performance will be mutually positively correlated with one another.
- 1.2 It is hypothesised that the various measures of achievement motivation will be mutually and positively correlated with one another.
- 1.3 Furthermore, it is hypothesised that internal and external locus of control will be largely uncorrelated and that internal control will be positively correlated with autonomy while external control will be negatively correlated with autonomy.
2. It is postulated that work performance (dependent variable) as a single composite score can be predicted by a battery of predictors (independent variables) comprising the three measures of locus of control and the five measures of achievement motivation.
3. It is postulated that the canonical correlations represented by the three canonical variate pairs will be statistically significant. The canonical variate pairs are formed by assigning weights to the independent variables and to the dependent variables so as to maximise the correlation between the two composites (variates).

The scales of both the Achievement Motivation Questionnaire (AMQ) and Locus of Control Inventory (LCI) served as

independent variables and work performance as the dependent variable.

RESEARCH METHOD

Sample

The targeted population group consisted of Black males who have either been promoted to or appointed to positions where they are to manage subordinates. The positions range from supervisory to senior management positions. Individuals in specialist positions with no subordinates were excluded. All incumbents of the sample group were employed in a diversified and geographically dispersed chemical group of companies. The majority of the sample, 82%, were from the Gauteng area.

In order to maximise the sample size it was decided to include the total targeted population group in the study. The targeted population group consisted of 113 Black Managers who were in supervisory or senior positions in a variety of disciplines. Of the 113 there were three Black women who were excluded from the sample in order to keep the sample as homogeneous as possible in respect to gender. The target sample was thus reduced to 110. When the assessments were made, eight Black Managers refused to participate which reduced the sample to 102.

The LCI (Locus of Control Inventory) and AMQ (Achievement Motivation Questionnaire) were administered to the 102 Black supervisors and managers who were in a divisionalised and geographically dispersed Chemical Company in South Africa.

The number of superiors who completed the Performance Appraisal Questionnaire (PA) was determined by the sample of 102 respondents. In the end 30 superiors completed the questionnaire which yielded a ratio of 3,3 respondents per superior.

The average age of respondents was 33,87 years with a maximum age of 56 and a minimum age of 22. It was found that 43% of the respondents were in the age range of 22 to 33 years and 57% in the range of 34 to 56 years.

It was found that 11,76% of the respondents had a qualification lower than standard 9 and 55,88% had either standard 9 or 10, and 32,35% a tertiary qualification.

The level of seniority was based upon the Peromnes Job Evaluation system. Of the respondent's positions, 50% were between Peromnes 12 and 10 and 50% between Peromnes 9 and 5, the latter representing the more senior positions.

Measuring Instruments

It was important from a South African perspective to find reliable South African designed measuring instruments for both of these constructs. The achievement motivation construct was represented by the Achievement Motivation Questionnaire (AMQ) of Pottas, Erwee, Boshoff and Lessing. Erwee (1981) did a study of the achievement motivation and locus of control of Black University Students in which she used the AMQ and the Rotter I-E Scale (Rotter, 1966) to measure locus of control.

Although Erwee found that there is a relationship between need for achievement and locus of control, her findings cannot be fully accepted due to the ipsative nature of the Rotter I-E scale. Schepers (1995) considers the Rotter I-E scale as being of limited value as it cannot be used to determine inter-individual differences. An alternative to the well known and widely used Rotter scale was found in Schepers' (1995) Locus of Control Inventory (LCI). His instrument can be used for inter-individual comparisons as it is a normative instrument. A factor analysis of the scale yielded three factors i.e. Internal Locus of Control, Autonomy and External Locus of Control. Each of the factors define a separate scale. The three scales were each subjected to an item analysis.

The Locus of Control Inventory consists of 80 items, each in the form of a seven point scale. The reliabilities of the scales were determined with Cronbach's coefficient alpha (Scheppers, 1995):

- Scale 1: The Internal Locus of Control scale with 25 items yielded an alpha coefficient of 0,854
 Scale 2: The External Locus of Control scale with 31 items yielded an alpha coefficient of 0,869
 Scale 3: The Autonomy scale with 24 items yielded an alpha coefficient of 0,862

The second instrument is the Achievement Motivation Questionnaire (AMQ) which consists of 84 items. Each item consists of two statements that are polar opposites and the subject has to indicate which of the two statements best describe him/her. The AMQ was developed by Pottas, Erwee, Boshoff and Lessing in 1988. The instrument was developed in South Africa and norms have been established for Black male students (N=756). The AMQ measures two main factors, each with sub-factors:

1. Goal Directedness (AA)
 - Persistence (A) -21 items
 - Awareness of Time (B) -20 items
 - Action Orientation (C) -9 items
2. Personal Excellence (BB)
 - Aspiration Level (D) -21 items
 - Personal Causation (E) -13 items

There are seven factors that are to be scored. Goal Directedness (AA) is a total score encompassing the following sub-factors: Persistence (A), Awareness of Time (B) and Action Orientation (C). Each of these three sub-factors are scored separately. Personal Excellence (BB) is a total score encompassing the following sub-factors: Aspiration Level (D) and Personal Causation (E). Each of these sub-factors is scored separately.

The dependent variable or predictor is represented by the Performance Appraisal Questionnaire (PA) (Scheppers, 1994). The scale was administered to 278 non-academic staff at a South African university. Due to the fact that six items regarding management skills were not applicable to all job levels, Scheppers decided to produce two separate scales. The first scale included all the items and was administered to a sample of 156 respondents. The second scale excluded the non applicable items and was administered to 278 respondents. The first scale yielded a Cronbach alpha coefficient of 0,983 and the second scale a coefficient of 0,978.

The present instrument consists of 33 items that measure three factors on a 9 point scale, namely:

- i) Work Performance (11 items)
- ii) Initiative/Creativity (11 items)
- iii) Management Skills (11 items)

Procedure

Each Black manager had to complete both the AMQ and the LCI. Subsequently, each Black manager's superior was approached to complete the PA. For each Black manager three questionnaires were prepared: two (AMQ and LCI) which represent the two independent multi-dimensional variables and the third, the PA, a multi-dimensional dependent variable.

First, the different divisions of the company were visited, where the AMQ and LCI were administered in a lecture room environment. The instructions were read and no time limit was set to complete the questionnaires although the respondents could not begin the second questionnaire until all had completed the first.

Second, the respondent's immediate superior's names were requested and sessions were held with the superiors during which the PA was administered. There were 18 superiors who had to complete more than one questionnaire due to the fact that they had more than one Black manager reporting to them.

The third step was to ensure that the two questionnaires i.e. AMQ and LCI matched up with the superiors' questionnaires on the subordinates' work performance.

Statistical Analysis

The order in which the analyses were done is as follows:

- i) The variables were intercorrelated. In order to determine the factor structure of the matrix of intercorrelations it was subjected to a principal factor analysis.
- ii) As will be shown, the 11 variables load on three factors. One of these factors represents the three criterion measures which load on a single dimension. Accordingly, the three criterion measures were combined into a single composite with a mean of 50 and a standard deviation of 10. This composite score (dependent variable) was used as a criterion measure in a regression analysis with the independent measures as predictors.
- iii) A canonical correlation procedure was used wherein the independent variables and the dependent variables are given optimal weights so as to maximise the correlation between the two composites (variates) (Tabachnick and Fidell, 1989).

RESULTS

Factor Analysis

In order to determine which variables cluster together the matrix of intercorrelations of the eleven variables was subjected to a factor analysis. The number of factors was estimated according to Kaiser's criterion (the number of eigenvalues greater than unity). In order to calculate the eigenvalues use was made of the BMDP4M programme.

The matrix of intercorrelations is given in Table 1. From an inspection of Table 1 it appears that Autonomy is moderately positively correlated with all three of the PA measures. Internal Locus of Control is moderately positively correlated with two of the PA measures. As expected, External Locus of Control is uncorrelated with all three of the PA variables. Personal Causation correlated negatively with Work Performance. The highest negative correlation was between Action Orientation and Work Performance.

The relationships found between the PA and the LCI are encouraging and according to expectation. It is also a good sign for predictability as will be seen when the canonical analysis is discussed. The relationship between the PA and the AMQ was not as expected due to the negative correlation obtained in respect of two (Personal Causation and Action Orientation) of the AMQ sub factors and the PA measures. The AMQ did not yield the relationships expected for the study but was included in the canonical correlation analysis.

From an inspection of the eigenvalues it appears that there are three eigenvalues greater than unity. Thus three factors were extracted according to Kaiser's criterion (Guttman, 1954, Kaiser, 1961 and Kaiser, 1970). The obtained factor matrix was rotated to simple structure with the aid of the Direct Oblimin rotation procedure.

Loadings of 0,500 and higher were identified as high. The rotated factor matrix is given in Table 3.

From Table 3 it is apparent that the three criterion measures all have high loadings on Factor 1. It is therefore justified to form a composite measure of these three criterion scores. Furthermore, Autonomy also has a high loading on Factor 1.

TABLE 1
MATRIX OF INTERCORRELATIONS

VARIABLES	Z ₁	Z ₂	Z ₃	X ₁	X ₂	X ₃	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
Z ₁ Work Performance	1,000	0,6200	0,5424	0,2266	-0,1479	0,3196	-0,0196	-0,1765	-0,3289	0,1070	-0,2324
Z ₂ Initiative/Creativity	0,6200	1,000	0,8226	0,2453	-0,0910	0,4188	0,2070	0,1594	0,0255	0,1529	0,1718
Z ₃ Management Skills	0,5424	0,8226	1,000	0,1122	-0,0903	0,3184	0,2017	0,0129	-0,0219	0,2766	0,0454
X ₁ Internal Control	0,2266*	0,2450*	0,1122	1,000	-0,1024	0,4279	0,1938	0,2304	0,1843	-0,0895	0,1015
X ₂ External Control	-0,1479	-0,0910	-0,0903	-0,1024	1,000	0,0983	-0,0595	0,0350	0,0697	-0,4861	-0,2906
X ₃ Autonomy	0,3196***	0,4188***	0,3184***	0,4279	0,0983	1,000	0,0943	0,1003	0,1945	-0,1329	-0,0660
Y ₁ Persistence	-0,0196	0,2070*	0,2017*	0,1938	-0,0595	0,0943	1,000	0,3940	0,3179	0,2278	0,3343
Y ₂ Awareness of Time	-0,1765	0,1594	0,0129	0,2304	0,0350	0,1003	0,3940	1,000	0,4251	-0,1601	0,3404
Y ₃ Action Orientation	-0,3289***	0,0255	-0,0219	0,1843	0,0697	0,1945	0,3179	0,4251	1,000	-0,0257	0,3634
Y ₄ Aspirational Level	0,1070	0,1529	0,2766**	-0,0895	-0,4861	-0,1329	0,2278	-0,1601	-0,0257	1,000	0,1036
Y ₅ Personal Causation	-0,2324*	0,1718	0,0454	0,1015	-0,2906	-0,0660	0,3343	0,3404	0,3634	0,1036	1,000

* r = 0,196 (gv = 100); p = 0,05

** r = 0,258 (gv = 100); p = 0,01

*** r = 0,321 (gv = 100); p = 0,001

TABLE 2
EIGENVALUES OF THE UNREDUCED
INTERCORRELATION MATRIX

ROOTS	EIGENVALUE
1	2,8591
2	2,2535
3	1,7228
4	0,9986
5	0,7649
6	0,7057
7	0,5163
8	0,4319
9	0,3572
10	0,2686
11	0,1214

Thus, the following variables have high loadings on Factor 1:

1. Work Performance	0,784
2. Management Skills	0,764
3. Initiative/Creativity	0,895
4. Autonomy	0,534

The highest loadings relate to the criterion measures (Z₁ to Z₃); hence Factor 1 was interpreted as "Work Performance". Since Autonomy loads fairly high on this factor, it should be a good predictor of overall Work Performance.

Futhermore, it is apparent from Table 3 that four of the five achievement motivation measures have high positive loadings on Factor 2. The only measure of this questionnaire that has a low loading is Aspirational Level. Factor 2 is accordingly identified as "Achievement Motivation".

Work Performance has a moderately low negative correlation on this factor.

1. Action Orientation	0,675
2. Awareness of time	0,655
3. Personal Causation	0,597
4. Persistence	0,527

The following two variables have high loadings on Factor 3:

1. Aspirational Level	0,758
2. External Locus of Control	-0,570

TABLE 3
ROTATED FACTOR MATRIX (DIRECT OBLIMIN)

Survey Variables	Factor 1	Factor 2	Factor 3	h ²
Z1 Work Performance	0,764	-0,392	0,081	0,6786
Z2 Initiative/Creativity	0,895	0,098	0,140	0,8576
Z3 Management Skills	0,764	-0,210	0,239	0,6491
X1 Internal Locus of Control	0,327	0,254	-0,147	0,2107
X2 External Locus of Control	-0,036	-0,062	-0,570	0,3302
X3 Autonomy	0,534	0,119	0,298	0,3944
Y1 Persistence	0,126	0,527	0,185	0,3424
Y2 Awareness of time	0,025	0,655	-0,141	0,4556
Y3 Action Orientation	0,079	0,675	-0,106	0,4638
Y4 Aspirational level	0,069	0,002	0,758	0,5833
Y5 Personal Causation	0,077	0,597	0,282	0,4240

Aspirational Level has a high positive loading on Factor 3, whilst External Locus of Control has a high negative loading on Factor 3. Thus high scores on Aspirational Level are associated with low scores on External Locus of Control. This factor is identified as aspirational level.

Reliability of criterion measures

In order to estimate the reliability of the criterion measures, the matrix of intercovariances of the three criterion scores (see Table 4) was calculated and the *average intercovariance* and *sum of variances of component parts* (Z₁, Z₂ and Z₃) were computed. These values were used to compute Cronbach's coefficient alpha:

$$\alpha = \frac{K^2 C_{gh}}{S^2_x}$$

$$\alpha = \frac{9 \times 172,2430}{1822,8198}$$

$$= \frac{1550,1870}{1822,8198}$$

$$= 0,8504$$

This coefficient indicates that the measures of work performance are of acceptable reliability.

Regression analysis

The three criterion measures loaded on the same dimension. Accordingly it was decided to allocate equal weights to the three criterion measures and form a single composite with a mean of 50 and a standard deviation of 10. The three criterion measures were combined into a single score which served as the criterion measure (dependent variable). This criterion can best be predicted by means of a regression analysis.

Accordingly the eight independent variables were regressed onto the composite criterion score, using a stepwise regression procedure.

The results of the regression analysis are given in Table 5 (Z-TOT = total composite score).

From an inspection of Table 5 it is clear that a multiple correlation of 0,5188 was obtained using Autonomy, Action Orientation and Aspirational Level as predictors and Work Performance as criterion. Thus 26,92% of the variance of the composite score (Work Performance) was accounted for by the three variables X₃, Y₃ and Y₄. Furthermore, it is apparent from the regression coefficients of Autonomy, Action Orientation and Aspirational Level that all three of them are statistically significant. Thus a regression equation for predicting work performance can be written as follows:

$$\hat{Y} = 1,3056X_3 - 3,0655Y_3 + 2,1126Y_4 - 13,95073.$$

Canonical Correlations

In order to decide on the number of canonical correlations that are statistically significant Bartlett's Chi-square test was performed. The results of this test are given in Table 6. From an inspection of Table 6 it appears that at least the first two

TABLE 4
VARIANCE-COVARIANCE MATRIX

	Z ₁	Z ₂	Z ₃
Z ₁	286,9901	179,2970	133,4653
Z ₂	179,2970	291,3892	203,9666
Z ₃	133,4653	203,9666	210,9827

eigenvalues are significant. The researcher is thus entitled to interpret the first two canonical correlations given in Table 7.

The correlations of the original measures with the first canonical variate pair are given in the third column of Table 7. From an inspection of this column it appears that Persistence, Awareness of Time, Action Orientation and Personal Causation are negatively correlated with the first canonical variate (X-variate), whilst Work Performance is positively correlated with the Y-variate.

The first canonical correlation of the X-variate with the Y-variate is 0,6219. Thus 38,68% of the variance of the Y-variate is accounted for by the X-variate.

As far as the first canonical variate pair is concerned, it appears that Persistence (-0,324), Awareness of time (-0,648), Action orientation (-0,702) and Personal causation (-0,762) are negatively correlated with the X-variate whilst Work Performance (0,653) is positively correlated with the Y-variate. Furthermore it appears that the X-variate accounts for 20,38% of the variance of the original independent variables, and

TABLE 5
STEPWISE REGRESSION: DEPENDENT VARIABLE (Z-TOT: WORK PERFORMANCE, INITIATIVE/CREATIVITY AND MANAGEMENT SKILLS)

		ANALYSIS OF VARIANCE				
		Source of variation	DF	Sum of squares	Mean square	
Multiple R:	0,5188					
R Squared:	0,2692					
Adjusted R Squared:	0,2481					
Standard Error:	22,913					
		Regression	3	18948,98	6316,33	
		Residual	98	51448,54	524,99	
		F = 12,031 P = 0,00				
		VARIABLES IN THE EQUATION				
INDEPENDENT VARIABLES		B	SEB	Beta	t-value	P
X ₃	Autonomy	1,3056	0,2438	0,48	5,36	0,00
Y ₃	Action Orientation	-3,0655	1,2912	-0,21	-2,37	0,02
Y ₄	Aspirational Level	2,1126	0,7052	0,26	3,00	0,00

Constant = -13,95073

TABLE 6
STATISTICAL SIGNIFICANCE OF CANONICAL CORRELATIONS: BARTLETT'S TEST

EIGENVALUES	CANONICAL CORRELATIONS	NUMBER OF EIGENVALUES	BARTLETT'S TEST OF SIGNIFICANCE OF REMAINING EIGENVALUES		
			χ^2	DF	P
			92,53	24	0,0000
0,38675	0,62189	1	46,08	14	0,0000
0,29580	0,54387	2	12,76	6	0,0469
0,12573	0,35458				

15,15% of the original dependent variables. As far as redundancy is concerned, it appears that the X-variate accounts for 7,88% of the variance of the dependent variables and the Y-variate accounts for 5,86% of the variance of the original independent variables.

The second canonical variate pair is concerned with Autonomy, Internal Control and Persistence which are positively correlated with the X-variate, whilst Work Performance, Initiative/Creativity and Management Skills are positively correlated with the Y-variate.

TABLE 7
CANONICAL CORRELATIONS OF LOCUS OF CONTROL AND ACHIEVEMENT MOTIVATION MEASURES (IV'S) WITH WORK PERFORMANCE MEASURES (DV'S)

	CORRELATIONS OF ORIGINAL MEASURES WITH CANONICAL VARIABLES	
	FIRST	SECOND
INDEPENDENT VARIABLES		
X ₁ Internal Control	0,026	0,482
X ₂ External Control	-0,163	-0,201
X ₃ Autonomy	-0,011	0,785
Y ₁ Persistence	-0,324	0,311
Y ₂ Awareness of Time	-0,648	0,184
Y ₃ Action Orientation	-0,702	-0,093
Y ₄ Aspirational Level	0,073	0,269
Y ₅ Personal Causation	-0,762	0,179
PERCENTAGE VARIANCE EXPLAINED	20,38%	14,16%
REDUNDANCY INDEX	7,88%	4,19%
DEPENDENT VARIABLES		
Z ₁ Work Performance	0,653	0,748
Z ₂ Initiative/Creativity	-0,166	0,984
Z ₃ Management Skills	0,022	0,802
PERCENTAGE VARIANCE EXPLAINED	15,15%	72,37%
REDUNDANCY INDEX	5,86%	21,41%
	CORRELATIONS OF SET OF DV'S WITH SET OF IV'S	
	FIRST	SECOND
CANONICAL CORRELATIONS	0,6219	0,5439

It appears that the X-variate accounts for 14,16% of the variance of the independent variables and the Y-variate accounts for 72,37% of the variance of the dependent variables. This represents a very high percentage of variance accounted for. The redundancy index of the X-variate accounts for 4,19% of the variance of the dependent variables and the Y-variate accounts for 21,41% of the variance of the independent variables.

The second canonical correlation of the X-variate with the Y-variate is 0,5439. Thus 29,58% of the variance of the Y-variate is accounted for by the X-variate. From the second canonical correlation it appears that high scores on Internal Control, Autonomy and Persistence are positively associated with high scores on all three Work Performance measures. Furthermore, it appears that External Control has a very low negative correlation with the second canonical variate (-0,201). These relationships with Work Performance were anticipated.

CONCLUSION

It is evident from the canonical correlations in Table 7 that the LCI is a better predictor of Work Performance than the AMQ. This implies that the LCI could be used as a selection instrument in the recruitment process of future Black managers in South Africa. This is contingent on the acceptance of the definition of Work Performance as used in the PA. The way work performance is defined will differ from organisation to organisation due to different organisational cultures and values.

A replication of the study with a larger sample is necessary to cross validate the findings of this particular study.

In future selection of personnel both instruments should be used in order to benefit from the unique contribution of each which is evident from the canonical correlations. These two instruments, if used in conjunction with one another, will provide recruiters with good predictors of work performance. Although the sample was limited to 102 respondents it did, however, provide statistically significant relationships. In a future replication of the study it is recommended that a greater sample be drawn and a greater diversity of work performance measures be used.

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