Journal of Industrial Phychology, 1986, 12(2),
Tydskrif vir Bedryfsielkunde, 1986, 12(2),

ACHIEVEMENT MOTIVATION AND LOCUS OF CONTROL OF BLACK UNIVERSITY STUDENTS

RONEL ERWEE

Graduate School of Management
University of Pretoria

ABSTRACT

The objective of the study was to research the dimensionality of achievement motivation and locus of control in black university students. The Achievement Motivation Questionnaire (Pottas, Erwee, Boshoff & Lessing, 1980) and the Internal-External Locus of Control Scale (Rotter, 1966) were completed by 251 students. Three locus of control factors were extracted by means of principal factor analysis with varimax rotation, viz. *Personal control, Political control,* and *Control over social relationships.* The hypothesis that locus of control is a multi-dimensional construct was accepted. No significant sex differences occurred in the total scores obtained on the questionnaire. However, analyses of the subscales indicated that females seem to be more action-orientated, but believe that they can exert less control over political and world events than males. The hypothesis that locus of control and achievement motivation are two separate but interrelated constructs was supported.

OPSOMMING

Die doelwit van die studie was om die dimensionaliteit van swart studente se prestasiemotivering en lokus-van-kontrole na te vors. Die Prestasie-motiveringsvraelys (Pottas, Erwee, Boshoff en Lessing, 1980) en die Interne-Eksterne Lokus van Kontroleskaal (Rotter, 1966) is deur 251 studente voltooi. Drie lokus-van-kontrolefaktore, naamlik *Persoonlike kontrole, Politieke kontrole* en *Kontrole oor interpersoonlike verhoudings,* is deur middel van 'n hooffaktorontleding (met varimax-rotasie) onttrek. Die hipotese dat lokus-van-kontrole 'n multidimensionele konstruk is, is aanvaar. Geen beduidende geslagsverskille in die totaaltellings op die meetinstrumente het voorgekom nie. Analises van die subskale het egter aangetoon dat die vroue hulself as meer aksie-georiënteerd beskou het, maar oortuig was dat hulle nie veel beheer oor politieke en wêreldgebeure het nie. Die hipotese dat prestasiemotivering en lokus-van-kontrole twee afsonderlike maar verwante konstrukte is, is aanvaar.

The objectives of this study were threefold. The first aim was to broaden the informational base about the interrelationship between two theories of motivation, viz. social learning theory (Rotter, 1966) and need for achievement (Atkinson, 1970; McClelland 1965). The interrelationship between the two main constructs of these theories, viz. *"locus of control"* and *"achievement motivation"* has not been studied intensively. It is postulated that the two constructs should be linked as personality constructs rather than be viewed as unrelated elements. This study focussed on the interrelationship between locus of control and achievement motivation.

The second objective was to use the information gathered during the study to facilitate the practical application of the achievement motivation and locus of control constructs in training programmes. It is postulated that both constructs (see Durand, 1975; Naumes, 1978; Pandey & Tewary, 1979) are relevant for the motivational training of entrepreneurs. The interrelationship between the two constructs (locus of control and achievement motivation) needs to be investigated to ascertain how training inputs should be structured.

The third objective was to study the dimensionality of the constructs. Considerable evidence has accumulated, suggesting that both achievement motivation and locus of control are multidimensional constructs (see review by Erwee & Pottas, 1982). However, a paucity of research regarding the dimensionality and interrelationship of these two constructs in the South African context exists. Furthermore, many local studies tend to use groups such as whites or indians as research subjects. The aim of this study was to research these constructs with black university students while bearing in mind that this sample was a highly selected one. The aim of the literature survey was to focus mainly on recent South African studies but not to give a detailed review of the literature since the early 1960's.

Requests for reprints should be addressed to R. Erwee, Graduate School of Management, University of Pretoria, Pretoria, 0002.

Achievement motivation

The theoretical question that one faces when studying achievement motivation is whether it is a unidimensional or multidimensional construct. McClelland's (1965) description of achievement motivation as a striving for challenging and moderately difficult goals supported by high personal standards of excellence indicated a unidimensional approach. The impetus for regarding the construct as multidimensional was provided by Heckhausen (1968) and Atkinson's research (Atkinson and Birch, 1970; Atkinson and Raynor, 1978).

The view of achievement motivation as being multidimensional has direct implications for its measurement. McClelland (1965) chose to measure achievement motivation by means of projective tests. Various other researchers constructed questionnaires and projective techniques to reflect the dimensions of the construct. In 1977 Fineman pointed out that 22 instruments were available but the difficulty of non-correspondence of these instruments had not been resolved yet. For the purpose of this study it was therefore decided to utilize a locally constructed questionnaire with proven reliability in the South African context. Based on Atkinson's extensive research, Pottas, Erwee, Boshoff and Lessing (1980) constructed an Achievement Motivation Questionnaire (AMQ) to measure a

respondent's level of achievement motivation. Factor analyses of results obtained from a variety of black and white groups (e.g. South African male and female first-year university students) yielded two main factors. Factor 1 was labelled *Goal directedness* and consists of three clusters (a) persistence – individuals who obtain high scores tend to persevere in seeking solutions to complex problems despite adverse circumstances; (b) awareness of time – high scorers plan ahead for any eventuality and feel guilty about inefficient use of time; (c) action orientation – high scorers describe themselves as active, energetic people. The second factor is labelled *Personal excellence* and includes two clusters, viz. (a) aspiration level – high scorers have an inclination to embark on demanding and challenging tasks, like taking calculated risks, and set high performance standards for themselves and (b) personal causation – high scorers trust their own abilities and skills and are convinced that they can exert control over life events and their environment. Pottas (1981) postulated that the *Personal excellence* factor describes the *origin* of the motive to achieve success, viz. the basic drive which motivates the individual to achieve. The *Goal directedness* factor focusses on the behavioural processes which enable the individual to direct energy, generated by the basic motive to achieve a specific goal. Pottas et al. (1980) gave a detailed description of the development of the questionnaire which included data on the reliabilities of the subscales for black and white students.

Another contentious issue which usually crops up in achievement motivation research is the existence of sex differences in achievement motivation. Horner (1972) initially postulated that women have a disposition to become anxious about achieving success because they expect negative consequences (such as social rejection and/or feelings of being unfeminine) as a result of succeeding. Black American women's "fear of success" tended to be less than that of white women (Horner, 1972; Puryear & Mednick, 1974). However, the fear-of-success hypothesis has been criticised. Various other interpretations have been given to the findings and it was noted that social changes, such as the liberation of women, may have made the concept less relevant. Erwee (1981) investigated the level of achievement motivation in black South African male and female students by using the AMQ and found that black males obtained higher scores than females on only two of the five AMQ subfactors, viz. *Aspiration level* and *Personal causation.* Pottas (1981), using the same scale, found no significant sex differences in achievement motivation but found that black male and female university students obtained higher scores ($p < 0{,}001$) than their white counterparts.

In this study the dimensions and possible sex differences in the level of achievement motivation of black university students were investigated.

Locus of control

Rotter (1966) described "internal versus external control of reinforcements" as a generalized expectancy relating behaviour to reinforcements in a variety of situations. He postulated that internal-external control of reinforcement represents a continuum of individual differences that cuts across specific need areas. The internal pole of this continuum refers to the individual's belief that outcomes or reinforcements are a consequence of his own striving. The external pole reflects the belief that events are independent of their own behaviour and are the results of forces beyond their control such as luck, fate and powerful others.

Although a few South African researchers seem to view locus of control as a unidimensional construct, e.g. Moodley-Rajab and Ramkissoon (1979), the majority contend that the construct is multidimensional (Barling, 1980; Erwee & Pottas 1982; Gilbert, 1980; Reimanis & Posen, 1980; Riordan, 1981). Most of the above studies have accepted Rotter's (1966) definitions of the internal and external poles of the construct. However, some researchers have argued that the meaning of externality has been confused, since causality may be attributed to various other phenomena which Rotter has not taken into account, such as economic determinism, religious fatalism or the power of ancestors (Collins, 1974; Gilbert, 1980; Lefcourt, Von Bayer, Ware and Cox, 1979). Ryckman, Posen and Kulberg (1978), when using the Collins I-E scale, found different factor structures for North American and Rhodesian students. They concluded that researchers should exercise care in cross-cultural research involving the locus of control construct since its components may have different meanings (or not be applicable) in certain cultures. Reimanis and Posen (1980) used the following dimensions (of the Rotter scale) to study locus of control in Western and African groups.

"(a) *Personal control* – referring to an individual's perception of the degree to which he or she has control over his of her fate, (b) *Control ideology* – denoting the degree to which a person perceives that people in general have control over their fate, (c) *Systems control* – representing one's perception of the degree to which ordinary people can have an influence on political decisions."

The conceptual extension of the construct has implications for its measurement. Although most local and overseas studies utilized Rotter's Inter-External Locus of Control Scale (1966), numerous other scales have been developed, e.g. by Collins (1971), Gilbert (1980) and Riordan (1981). The psychometric properties of many of the existing scales, especially when used in diverse cultural settings, are still being questioned (Furnham & Henry, 1980; Munro, 1979). However, Riordan's (1981) findings indicated the usefulness of Rotter's original scale as a measuring instrument for South African populations. She cautions that, because of the dimensionality of the scale, the most fruitful use of it may be in the examination of item clusters rather than a global score.

As the research group is homogeneous regarding race and level of education, the role of sex as a variable will be explored. Moodley-Rajab and Ramkissoon (1979) indicated that black and Indian male and female students do not differ significantly on locus of control, whereas white females were generally more external than white males. Munro (1979) also confirmed the latter finding. Riordan (1981) also noted that the results of past research regarding sex differences in locus of control have been contradictory. In her own research, significant sex differences were obtained when the total sample was tested, with males being more internal than females. Within the four ethnic groups (white, indian, coloured and black) the differences were not significant.

The current study hypothesized that locus of control is a multidimensional construct and investigated its configuration among black university students by using the Rotter Internal-External Locus of Control Scale (1966).

The interrelationship between achievement motivation and locus of control

The rationale for studying the interrelationship between the two constructs can be stated as follows. First both constructs have been identified as important characteristics of successful entrepreneurs (Durand, 1975; Naumes, 1978; Pandey & Tewary, 1979). Durand (1983) stated that the achievement motive remains one of the most powerful concepts for predicting entrepreneurial behaviour. Pandey and Tewary (1979) argued

that the psychological characteristics of internals make them more suitable for successful entrepreneurship. It must be noted here that Pottas (1981) viewed black university students as a rich source of potential entrepreneurs. This study therefore investigated these two constructs amongst a group of potential entrepreneurs.

Secondly, as stated previously, the dimensionality of both constructs is still a contentious issue. Studies which regarded locus of control and achievement motivation as unidimensional constructs found a significant positive correlation between internality and high need for achievement (Durand, 1975; Haines, McGarth & Pirot, 1980). When both constructs were viewed as being multidimensional, the interrelationship between the two dimensions were more complex. Erwee and Pottas (1982) used the AMQ to test white managers' achievement motivation in respect of five dimensions, viz. *Persistence, Awareness of time, Action orientation, Aspiration level* and *Personal causation*. They also factor-analyzed Rotter's (1966) scale and extracted four factors, viz. *Political control, Control over social relationships, Personal control* and *Belief in luck*. It was evident that *Belief in luck* and *Personal control* had on average more significant intercorrelations with achievement motivation dimensions than *Control over social relationships* and *Political control* (Erwee and Pottas, 1982).

Thirdly, the issue of how need for achievement and locus of control combined to generate motivated behaviour has been investigated intermittently. McClelland, Atkinson, Clark and Lowell (1953) suggested that people who have a high need for achievement tend to have a belief in their own ability to control the outcome of their efforts. Rotter (1966) postulated that internals would show more striving for achievement than externals. Brockhaus (1975) referred to a number of studies which verified that internals have a higher level of need for achievement than externals.

The objectives of the present research were to study the dimensionality of achievement motivation and locus of control in black university students, to investigate further the relationships between the dimensions of the constructs, and to study possible sex differences in locus of control and achievement motivation. The exploratory nature of this study made the formulation of non-directional hypotheses appropriate. It was hypothesized that factors or dimensions in the AMQ (Pottas et al, 1980) and Locus of Control Scale (Rotter, 1966) would be present for the black university students. It was hypothesized that there would be differences in achievement motivation and in locus of control between the males and females, and finally that there would be a positive correlation between the Locus of Control Scale (Rotter, 1966) and the AMQ total score (Pottas et al., 1980).

METHOD

Subjects

The research group consisted of 251 black first-year students comprising 119 males and 132 females enrolled at a South African university. The majority of students were enrolled for the Psychology 1 course.

Procedure

The subjects were tested during their lecture time by student-guidance officers. The testing sessions took place during the beginning of the academic year. Students were assured that the data would be kept confidential. .

Instruments

The Achievement Motivation Questionnaire (Pottas et al., 1980) was constructed to measure five dimensions of achievement motivation, viz. *Persistence, Awareness of time, Action orientation, Aspiration level,* and *Personal causation*. The subjects completed the English version of the questionnaire which consisted of 84 items. The respondent must indicate on each item which one of the two descriptions best described him/her. The subfactors *Persistence* and *Aspiration level* were both measured by responses to 21 items; *Awareness of time* was measured by 20 items; *Action orientation* was measured by responses to 9 items, and the subfactor *Personal causation* was measured by 13 items. The maximum score for each subfactor is reflected in Table 2, and the minimum score in each case is zero. Kuder-Richardson reliabilities for the subscales ranged from 0,490 to 0,899 for black male and female university students (Pottas et al., 1980). The AMQ manual (Pottas, et al., 1980) contains information on item and factor analyses, scoring keys and norms for black and white South African groups.

Rotter's (1966) Internal-External Locus of Control Scale (I-E-scale), which consists of 29 items, was used (six of the items are filler items). The respondent had to indicate on each item which one of the two descriptions best describe him/her. As the scale is keyed in an external direction a high score (maximum = 23) indicates externality whereas a low score (minimum = 0) suggests an internal locus of control. The construction, reliability and validity of the scale are described by Rotter (1966). Kuder-Richardson reliabilities ranged from 0,601 to 0,711 for black Zambian and Rhodesian students (Munro, 1979).

RESULTS

Factor analysis of the Locus of Control Scale

A principal component analysis was used to extract initial factors and resulted in ten latent roots greater than unity. Watson (1981) noted that a variety of guidelines (e.g. Scree tests, interpretability of factors, replicability of the factor structure) can be used to determine the optimal number of factors. By applying these criteria, researchers usually extract two, three or four factors. A Scree test indicated that three factors could be extracted. However, two and four-factor solutions were also obtained. It became clear that the three-factor solution was more interpretable and could also be compared to similar studies by other researchers (Erwee and Pottas, 1982; Riordan, 1981; Strickland and Haley, 1980; Tobacyk, 1978).

Accordingly an iterated principal factor analysis was performed with an orthogonal varimax rotation of three factors. The factor matrix and the percentage variance explained by each factor are presented in Table 1. Only items with loadings 0,25 were regarded as significant.

Factor 1 represented 9,3% of the total variance. Eight items (5, 10, 11, 15, 16, 18, 23 and 25) had high loadings on this factor. This finding corresponded to some extent with those of other researchers. Items 5, 10, 11, 18 and 23 had high loadings on the third factor extracted from responses of a sample of white male managers, whereas items 16 and 25 had high loadings on the fourth factor obtained from the managerial sample (Erwee & Pottas, 1982). Seven of these items (5, 10, 11, 15, 18, 23 and 25) also had high loadings on the first factor extracted by Mirels (1970) from the responses of a sample of male and female university students. In the current study the internal pole of Factor 1 reflected the belief that personally relevant goals (e.g. academic and vocational success) can be attained by individual effort and initiative. The external pole suggests that events are controlled by luck and not by the individual. Therefore the factor is labelled as "Personal control".

Factor 2 accounted for 5,9% of the total variance and consists

of items 3, 12, 17 and 22. Similar loadings of these items on one factor is also reported by Mirels (1970), Tobacyk (1978), Strickland and Haley (1980) and Erwee and Pottas (1982). In the current study, the factor reflected the individual's perception regarding his degree of control over political and world events. Internals believed that they can personally exert influence on political events, whereas externals believed that they cannot influence such events. The factor has been described as "Political control".

Four items (2, 13, 20 and 26) had high loadings on *Factor 3* which accounted for 3,8% of the total variance. These items also had high loadings on factors extracted in other studies (Erwee & Pottas, 1982; Furnham & Henry, 1980). This factor appeared to be concerned with the individual's belief regarding the degree of influence he/she may have on his relationship with others. For example, the internal pole of item 26 suggests that "People are lonely because they don't want to be friendly" whereas the external pole reflects the belief that "There is not much use in trying too hard to please people – if they like you they like you". This factor was labelled "Control over social relationships".

Three distinct factors were extracted which only accounted for 19,25% of the total variance. This finding seemed to confirm Riordan's (1981) statement that one should *not* view the Locus of Control Scale (Rotter, 1966) as a unidimensional measure of a unidimensional construct. The hypothesis that locus of control is a multidimensional construct seemed to be supported.

TABLE 1
VARIMAX ROTATED FACTOR MATRIX OF LOCUS OF CONTROL DIMENSIONS
(n = 251)

Items	Factor 1	Factor 2	Factor 3	h^2
2	0,21	-0,05	0,26	0,11
3	0,09	0,26	0,17	0,11
4	0,02	0,01	0,22	0,05
5	0,33	-0,10	0,15	0,14
6	-0,01	0,06	0,14	0,02
7	-0,03	0,19	0,19	0,07
9	0,09	0,14	0,07	0,03
10	0,31	0,01	0,12	0,11
11	0,32	-0,02	0,03	0,11
12	-0,11	0,37	0,04	0,15
13	0,22	-0,01	0,26	0,12
15	0,42	0,05	-0,02	0,18
16	0,35	0,12	-0,01	0,14
17	0,18	0,64	0,10	0,45
18	0,48	0,21	-0,09	0,28
20	-0,07	0,07	0,40	0,17
21	0,12	0,12	-0,03	0,03
22	0,02	0,42	0,06	0,18
23	0,31	0,05	0,02	0,10
25	0,34	-0,02	-0,17	0,15
26	-0,01	0,16	0,43	0,21
28	0,18	-0,02	0,24	0,09
29	-0,03	0,13	0,24	0,08
$\Sigma a^2; \Sigma h^2$	1,495	0,958	0,609	3,08
% of common variance	48,8	31,3	19,9	100,0
% of total variance	9,34	5,99	3,81	19,25

TABLE 2
DESCRIPTIVE STATISTICS OF ACHIEVEMENT MOTIVATION AND LOCUS OF CONTROL DIMENSIONS (n = 251)

Dimensions	M	SD	Maximum possible score	Skewness	Kurtosis
AMQ					
Persistence	15,95	3,7	21	-0,895 *	0,656
Awareness of time	14,44	3,9	20	-0,712 *	-0,117
Action orientation	5,56	2,2	9	-0,514 *	-0,091
Aspiration level	10,42	4,4	21	0,079	-0,598
Personal causation	8,17	2,5	13	-0,227	-0,578
Factor 1	35,94	8,3	50	-0,784 *	0,418
Factor 2	18,59	5,9	34	0,017	-0,441
AMQ total	54,54	12,2	84	-0,453 *	0,376
I-E Scale					
Personal control	2,47	1,5	8	0,560 *	0,125
Political control	2,51	1,2	4	-0,464 *	-0,657
Control over social relationships	1,71	1,1	4	0,102	-0,774
I-E total	6,69	2,5	16	0,064	-0,201

* Skewness and kurtosis coefficients are significant at 1% level for n = 250 (Snedecor and Cochran, 1976, p 552).

The general level of Locus of Control and Achievement Motivation
A mean locus of control score of 6,69 (SD = 2,5) was obtained by the total group (see Table 2). In this study only *sixteen* (see Table 1) of the original 23 items had high loadings on the three factors that were extracted. Most other studies (see page 4) used all 23 items to calculate means. Mean scores of 10,60 (SD = 3,55) to 13,44 (SD = 3,79) were obtained by South African black students in Moodley-Rajab and Ramkissoon's (1979) study. A comparable research group, tested by Riordan (1981) obtained a mean score of 21,75 (SD = 4,83), but her score was calculated on a 46-item questionnaire. In the current study, scores on the *Personal control* dimension were positively skewed whereas scores on the *Political control* dimensions were negatively skewed (significant at the 1% level). As the scale was marked in the external direction the lower *Personal control* score seemed to suggest that the students believed that they could attain personally relevant goals. The relatively higher external score on *Political control* suggested that they believed it would be more difficult for them to influence political events. As these scales were abbreviated, the latter conclusions must be viewed with caution.

The general level of achievement motivation of the total group (n = 251) was also reported in Table 2. Coefficients of skewness for the dimensions *Persistence, Awareness of time, Action orientation,* as well as the AMQ total score, indicated that the scores were negatively skewed (significant at the 1% level). This implied that the black students viewed themselves as a highly motivated group. The total achievement motivation score (M = 54,54; SD = 12,2; n = 251) was lower than scores obtained by comparable black university students (M = 59,29; SD = 11,5; n = 745; t = 1,96; $p < 0,05$), but higher than those by white first-year students (M = 51,31; SD = 14,02; n = 1879; t = 2,575; $p < 0,01$ – Pottas, et al., 1980).

As can be seen from Table 3, no significant sex differences occured in the total scores obtained on the locus of control and achievement motivation scales. This confirmed previous findings by Pottas (1981) regarding black students' achievement motivation. Riordan (1981) also found that no sex differences occurred within a black subsample (n = 295). However, in the current study, the females seemed to be more action orientated than the males ($p < 0,05$ see scores on cluster Action orientation of the AMQ). A significant difference ($p < 0,01$) on the factor Political control (Locus of Control Scale) suggested that the females believed that they can exert less control over political and world events than males.

TABLE 3
SEX DIFFERENCES IN ACHIEVEMENT MOTIVATION AND LOCUS OF CONTROL

Dimensions	MALE (n = 119, df = 118)		FEMALE (n = 132, df = 131)		F	t
	M	SD	M	SD		
AMQ Scale						
Persistence	15,75	3,7	16,12	3,8	0,644	-0,7728
Awareness of time	14,09	4,8	14,75	3,9	0,587	-1,3073
Action orientation	5,24	2,2	5,85	2,2	0,987	-2,2299 *
Personal causation	10,61	4,3	10,24	4,5	0,577	0,5028
Aspiration level	8,13	2,6	8,21	2,5	0,550	0,8081
Factor 1	35,08	8,1	36,71	8,5	0,532	-1,5570
Factor 2	18,75	6,0	18,45	5,9	0,747	0,3894
AMQ total	53,83	11,9	55,17	12,4	0,715	-0,8699
I-E Scale						
Personal control	2,58	1,5	2,36	1,5	0,789	1,1059
Political control	2,23	1,2	2,77	1,1	0,672	-3,6733 **
Control over social relationships	1,66	1,1	1,76	1,1	0,594	-0,7471
I-E total	6,46	2,4	6,89	2,5	0,8662	-1,3650

** p 0,01
* p 0,05

Intercorrelations between dimensions of achievement motivation and locus of control

The intercorrelations between the dimensions within each measuring instrument were calculated. The five AMQ dimensions, as well as its two factors and the total score, were all significantly intercorrelated ($p < 0,001$). The three locus of control dimensions each had a high correlation with the I-E total score. A low, but significant intercorrelation existed between *Political control* and *Control over social relationships*.

The intercorrelations between the achievement motivation and locus of control dimensions were negative. It must be borne in mind that a high AMQ score indicates that the person is highly motivated to achieve, whereas a low I-E score indicates a belief in internal control of reinforcements. The total scores on both questionnaires are significantly intercorrelated ($p < 0,001$). The hypothesis that a relationship exists between need for achievement and locus of control as constructs, can be accepted.

Although a significant relationship existed between the AMQ and I-E total scores, not all the various dimensions of the construct are as significantly intercorrelated. On the I-E scale, *Personal control* had a more significant intercorrelation ($p < 0,001$) with *Goal directedness* (AMQ Factor 1) than with *Personal excellence* (AMQ Factor 2, $p < 0,01$). *Political control* had low but significant ($r = -0,15$ and $r = -0,16$, $p < 0,01$) correlations with *Goal directedness* as well as *Personal excellence*. *Control over social relationships* had a negative correlation with *Personal excellence* ($r = -0,16$, $p < 0,01$).

Factor analysis of achievement motivation and locus of control dimensions

Although the last hypothesis could be accepted on these results, it was decided to investigate further the relationship between achievement motivation and locus of control for this sample. A principal factor analysis with varimax rotation was executed and yielded three factors with latent roots greater than unity. The first factor explained 72,4% of the common variance, the second factor 18,2% and the third factor explained the remaining 9,4% of the common variance (see Table 4).

TABLE 4
VARIMAX ROTATED FACTOR MATRIX OF ACHIEVEMENT MOTIVATION AND LOCUS OF CONTROL DIMENSIONS

Dimensions	Factor 1	Factor 2	Factor 3	h^2
Persistence	0,68	0,50	-0,11	0,72
Awareness of time	0,71	0,15	-0,11	0,54
Action orientation	0,70	0,11	-0,05	0,50
Aspiration level	0,13	0,71	-0,13	0,54
Personal causation	0,29	0,51	0,33	0,46
Personal control	-0,24	-0,09	0,25	0,12
Political control	-0,08	-0,14	0,22	0,08
Control over social relationships	0,02	-0,05	0,53	0,28
$\Sigma a^2; \Sigma h^2$	2,35	0,59	0,30	3,24
% of common variance	72,4	18,2	9,4	100
% of total variance	29,4	7,4	3,8	40,5

Persistence, Awareness of time, and *Action orientation* had high loadings on Factor 1. These three dimensions also constituted the first factor of the AMQ questionnaire. Therefore, Factor 1 reflected a component of achievement motivation which can be labelled *Goal directedness* (see Pottas et al, 1980).

Factor 2 consisted of three dimensions, viz. *Aspiration level, Personal causation,* and *Persistence.* The latter dimension was factorially complex as it had a higher loading on Factor 1. The cluster *Personal causation* was also factorially complex as it loaded on Factors 1 and 3. The cluster *Aspiration level* and *Personal causation* constituted the second factor of the AMQ. Therefore Factor 2 seemed to reflect a different component of achievement motivation. Pottas (1981) described this as the *origin* of the motive to achieve success, viz. the basic drive which motivates the individual to achieve his goals.

Two clusters had high loadings on Factor 3, viz. *Control over social relationships* and *Personal causation.* The loading on *Personal control* (0,25) approached significance. The achievement motivation cluster *Personal causation* had high intercorrelations ($p < 0,001$, see Table 4) with I-E cluster *Personal control* and *Control over social relationships.* The description of *Personal causation* in the AMQ manual also included the statement that ". . . high scores on this factor indicate . . . a conviction that control can be exerted over life events and the environment" (Pottas et al., 1980). Therefore, Factor 3 primarily reflected the individual's belief in internal locus of control.

DISCUSSION AND CONCLUSION

One of the original aims of the study was to broaden the informational base about the main constructs of two motivational theories. With regard to Social Learning Theory, the current results indicated that locus of control is a multidimensional construct. Riordan (1981, p. 166) also cautioned that if a researcher viewed Locus of Control as unidimensional, he ran the risk of "combining variations on two or more dimensions of expectancies that the subject's own behaviour, skills or attributions determine the reinforcement he receives".

Rotter (1966) originally stated that the Internal-External Locus of Control Scale measured a single general factor. However, the dimensionality of the scale had been demonstrated by a number of studies (Barling, 1980; Collins, 1974; Erwee and Pottas, 1982; Mirels, 1970; Riordan, 1981; Tobacyk, 1978). Not only are a variety of factors extracted but the factor content tends to vary for each ethnic group. Riordan (1981), using an adapted scale, noted that some factors are apparently unique to certain cultural groups, but these can be demonstrated to be stable and meaningful dimensions of locus of control.

No significant sex differences in locus of control were found in the dimensions *Personal control* and *Control over social relationships.* The female students tended to be less convinced ($p < 0,05$) that they can exert control over political events than their male counterparts. In studies which only calculate the I-E total score, no significant sex differences were found (eg. Moodley-Rajab and Ramkissoon, 1979; Riordan 1981). However, when responses were factor-analysed (eg. Strickland & Haley, 1980) more subtle differences in beliefs about locus of control seemed to emerge. It is recommended that possible sex differences in dimensionality of locus of control should be further investigated among the different cultural groups.

The students' average AMQ score was slightly lower than that of their norm group (Pottas et al., 1980) but still relatively higher than the average scores obtained by comparable groups of white students. These results regarding black students' level of achievement motivation are contrary to commonly held stereotypes, but again support the findings of Erwee (1981) and Pottas (1981). It must be kept in mind that scores were negatively skewed on three of the five dimensions measured by the AMQ. This raised the question whether the students' responses may have been influenced by their assumptions about social desirability. However, results obtained in these studies call this assumption into question. The stereotype that males are more motivated to achieve than females, is also challenged by the results of the current study. On the contrary, the females viewed themselves as being more action-orientated than the male students. The latter finding linked with statements by Moodie (1979) that black tribal women have always worked hard and have played an important role in the tribal economy. Prekel (1982) suggested that employers are realising that black women can be exceptionally reliable, diligent and productive workers. It can also be postulated that the current political climate in the country may make the students more "action-orientated" than at the time of the study.

There was significant common variance between certain locus of control and achievement-motivation dimensions. Students who believed that personally relevant goals can be attained by individual initiative *(Personal control)* also tended to persevere in seeking solutions to problems *(Persistence)*, wanted to use time effectively *(Awareness of time)*, described themselves as busy, energetic people *(Action orientation)*, and trusted their own abilities *(Personal causation)*. Those who believed that they can exert control over political events, tended to persevere, and tried to use time effectively and to have a high aspiration level. The dimension *Control over social relationships* had a more significant correlation ($p < 0{,}001$) with *Personal causation* than with *Aspiration level* ($p < 0{,}05$). These findings do not suggest that the scales (AMQ and Locus of Control Scale) are poorly differentiated from one another. Previous research (Erwee & Pottas, 1982; Pottas, 1981) confirmed that the scales are reliable and that respondents do not merely tend to give socially acceptable answers on these instruments.

Erwee and Pottas (1982) suggested that although locus of control and achievement motivation are interrelated, they must be regarded as two separate psychological constructs. This statement is confirmed by the results of the factor analysis of the constructs reported in Table 4. It is suggested that theorists should attempt to link achievement motivation and locus of control together as personality constructs rather than view them as unrelated elements. While these findings are positive in terms of linking the original motivational theories, one must realize that differentiating these facets of motivation by means of self-report tests is very difficult.

Originally, McClelland (1965) stated that high achievement motivation is a prerequisite for successful entrepreneurship. Researchers (Naumes, 1978; Timmons, 1979) hypothesized that not only high achievement motivation but also internality are essential entrepreneurial characteristics. The current and previous studies' (Erwee & Pottas, 1982) findings that locus of control and achievement motivation are significantly intercorrelated, support the latter hypothesis. Comparison of the factor structures of these studies indicated that there are some differences between the matrices. This suggests that each of the two constructs manifests itself differently in the various cultural groups. It also suggests that in training courses aimed at enhancing entrepreneurial skills, different emphasis on training inputs may need to be provided for each cultural or sex group. Furthermore, it is postulated that training programmes should not only focus on strengthening achievement motivation, but also on altering the individual's beliefs about locus of control. However, studies which include training courses in the research design will have to test the validity of these hypotheses.

Future studies regarding the interrelationships between achievement motivation and locus of control will need to address some of the present study's limitations. Further investigation into the multidimensionality of the two constructs may still be done as some researchers still view the constructs as unidimensional. Scales constructed by Collins (1974) or Gilbert (1980) can be used to investigate the multidimensionality of locus of control. The reliabilities of the Achievement Motivation Questionnaire and the Rotter Internal-External Locus of Control Scale need to be assessed for samples which differ from the reported samples.

REFERENCES

ATKINSON, J.W. & BIRCH, D. (1970). *The Dynamics of Action.* New York: John Wiley.

ATKINSON, J.W. & RAYNOR, J.O. (1978). *Personality, Motivation and Achievement.* Washington: Hemisphere Publications Corp.

BARLING, J. (1980). Multidimensional locus of control beliefs among English-speaking South African mothers. *Journal of Social Psychology, III,* 139-140.

BROCKHAUS, R.H. (1975). I-E Locus of Control scores as predictors of entrepreneurial intentions. *Proceedings of Academy of Management,* 433-435.

COLLINS, B.E. (1974). Four components of the Rotter Internal-External Scale. *Journal of Personality & Social Psychology, 29*(3), 381-391.

DURAND, D.E. (1975). Effects of achievement motivation and skill training on the entrepreneurial behaviour of black businessmen. *Organizational Behaviour and Human Performance, 14,* 76-90.

DURAND, D.E. (1983). Modified achievement-motivation training: A longitudinal study of effects of a condensed training design for entrepreneurs. *Psychological Reports, 52,* 907-911.

ERWEE, R. (1980). *Prestasiemotivering by jong dames in 'n militêre opleidingseenheid.* Unpublished D.Phil. dissertation, University of Pretoria.

ERWEE, R, (1981). Cognitive functioning, achievement motivation and vocational preferences of black university students. *Psychologia Africana, 20,* 29-51.

ERWEE, R. & POTTAS, C.D. (1982). Locus of control and achievement motivation of managers. *Psychologia Africana, 21,* 79-102.

FINEMAN, S. (1977). The achievement motive construct and its measurement: Where are we now? *British Journal of Psychology, 68,* 1-22.

FURNHAM, A. & HENRY, J. (1980). Cross-cultural locus of control studies: experiment and critique. *Psychological Reports, 47,* 23-29.

GILBERT, A.J. (1980). *The parameters of the progress of black workers.* MA-thesis, UNISA.

HAINES, P., McGARTH, P. & PIROT, M. (1980). Expectations and persistence: an experimental comparison of Bandura and Rotter. *Social Behaviour and Personality, 8* (2), 193-201.

HECKHAUSEN, H. (1967). *The Anatomy of Achievement Motivation.* New York: Academic Press.

HORNER, M.S. (1972). Toward an understanding of achievement-related conflicts in women. *Journal of Social Issues, 28,* 157-175.

KEARNEY, M.J. & KEARNEY, J.F. (1977). *Multidimensionality of locus of control in females.* Unpublished research paper, George Mason University.

KHANNA, P. & KHANNA, J.L. (1979). Locus of control in India: A cross-cultural perspective. *International Journal of Psychology, 14,* 207-214.

LEFCOURT, H.M., VON BAYER, C.L., WARE, E.E. & COX, D.J. (1979). The multi-dimensional-multi-attributional causality scale: the development of a goal specific locus of control scale. *Canadian Journal of Behavioural Science, 11* (4), 284-304.

McCLELLAND, D.C., ATKINSON, J.W., CLARK, R.A. & LOWELL, E.L. (1953). *The Achievement Motive.* New York, Appleton Century Crofts.

McCLELLAND, D.C. (1965). Toward a theory of motive acquisition. *American Psychologist, 20,* 321-333.

MIRELS, H.L. (1970). Dimensions of internal versus external control. *Journal of Consulting and Clinical Psychology, 34,* 226-228.

MOODIE, E. (1979). Women: Underrated development resource. *South African Affairs, 9* (2), 64-71.

MOODLEY-RAJAB, D. & RAMKISSOON, R.D. (1979). Inter-external locus of control among South African students – a cross-cultural study. *South African Journal of Psychology, 9,* 145-147.

MUNRO, D. (1979). Rotter internal-external scale in an African context; problems of construct and equivalence. *South African Journal of Psychology, 9,* 61-66.

NAUMES, W. (1978). *The Entrepreneurial Manager in the Small Business,* Reading, Massachusetts: Addison-Wesley.

PANDEY, J.L. & TEWARY, N.B. (1979). Locus of control and achievement values of entrepreneurs. *Journal of Occupational Psychology, 52,* 107-111.

POTTAS, C.D. (1981). Entrepreneurspotensiaal onder swart studente. *Development Studies in Southern Africa, 3* (e), 243-261.

POTTAS, C.D., ERWEE, R., BOSHOFF, A.B. & LESSING, B. (1980). *Manual for the Achievement Motivation Questionnaire (PMV),* Unit for Entrepreneurship, University of Pretoria.

PREKEL, T. (1982). Black Women at work: Progress despite problems. *South African Journal of Labour Relations, 6* (3).

PURYEAR, J.R. & MEDNICK, M.S. (1974). Black militancy, affective attachment and the fear of success in black college women. *Journal of Consulting and Clinical Psychology, 42,* 263-266.

REIMANIS, G. & POSEN, C.F. (1980). Locus of Control and anomie in Western and African Cultures. *Journal of Social Psychology, 112,* 181-189.

RIORDAN, Z.A.V. (1981). Locus of control in South Africa. *Journal of Social Psychology, 115,* 159-168.

ROBERTS, A.E. & REID, P.N. (1978). Dimensionality of the Rotter I-E Scale. *Journal of Social Psychology, 106,* 129-130.

ROTTER, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80* (1), 1-27.

RYCKMAN, R.M., POSEN, C.F. & KULBERG, G.E. (1978). Locus of control among American and Rhodesian students. *Journal of Social Psychology, 104,* 65-173.

SNEDECOR, G.W. & COCHRAN, J. (1967). *Statistical Methods.* Ames, Iowa: Iowa State University Press.

STRICKLAND, B.R. & HALEY, W.E. (1980). Sex differences on the Rotter I-E Scale. *Journal of Personality and Social Psychology, 39* (5), 930-939.

TIMMONS, J.A. (1979). Careful self-analysis and team assessment can aid entrepreneurs. *Harvard Business Review, 57* (6), 198-206.

TOBACYK, J. (1978). Factor structure of Rotter's I-E Scale in female Polish university students. *Journal of Psychology, 106,* 3-10.

WATSON, J.M. (1981). A note on the dimensionality of the Rotter Locus of Control Scale. *Australian Journal of Psychology, 33* (3), 319-330.