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ACHIEVEMENT MOTIVATION, LOCUS OF CONTROL AND INDIVIDUALITY AS PREDICTORS OF PARTICIPATIVE MANAGEMENT IN THE SOUTH AFRICAN EDUCATIONAL ENVIRONMENT

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OPSOMMING

Die verskuiwing na deelnemende bestuur in die werkplek word as beide onvermydelik en noodsaaklik beskou. Tot dusver is geen studie in die deelnemende bestuursliteratuur ten opsigte van die voorspellende veranderlikes daarvan gerapporteer nie. Die doel van die studie was om ondersoek in te stel na sekere oriëntasies – en veral, *prestasiemotivering, lokus van beheer,* en *individuele* vs *kollektiewe oriëntasie* – wat as voorspellers van 'n geneigdheid tot deelnemende bestuur, kan dien. Die steekproef het bestaan uit 117 bestuurders van onderwys in 'n regeringsinstelling. Drie voorspellende veranderlikes – aspirasievlak, outonomie en kollektiwiteit – van die geneigdheid tot deelnemende bestuur is geïdentifiseer. Die implikasies van die bevindinge word bespreek

ABSTRACT

The shift to participative management is considered to be both inevitable and necessary. No study has thus far been reported in the participation literature in terms of predictor variables for participative management. The aim of this study was to investigate whether certain orientations – and in particular, *achievement motivation, locus of control* and *individual* vs *collective* orientations – could be identified that would serve as predictors of an inclination towards participative management. The sample comprised 117 education managers from a government institution. Three predictor variables of participative management – aspiration level, autonomy and collectivity – were identified. The implications of these findings are discussed

A characteristic feature of more recent thinking concerning issues such as governance, ownership and management, is the emphasis placed on participative management as a key factor in developing the collective potential of human resources. Political systems all over the world are moving toward democratic forms, as more and more people reject authoritarian government, bureaucracy, and the denial of human rights (McLagan & Nel, 1995). Newstrom and Davis (1993) for example, are of the opinion that the trend away from autocratic approaches, towards collegial, participative models of management is likely to continue. Characteristics depicted in such participative models include: partnership; teamwork; acceptance of self-responsibility for work; self-discipline; self-actualisation and moderate enthusiasm. This would appear to imply that efforts to facilitate improved performance in future will increasingly require effective participative management practices.

This shift in emphasis also appears to be evident in the new democratic dispensation in South Africa and particularly in the educational environment which has been characterised by apartheid, racism, sexism, autocratic control, and repressive labour policies. Consequences of this have included inequality and growing symptoms of non-productivity, low achievement, high drop-out rates, discipline problems, poor attendance, public loss of confidence, and low morale (ANC, 1994; Departement van Onderwys en Opleiding, 1986; Fantini, 1986; Government Gazette, 1991; South Africa (Republic), 1995).

One of the attempts to address the situation has been the integration of the 14 administrative systems within education, resulting in an environment faced with transformational change which includes reformed missions and core values, altered power and status, reorganisation, revised interaction patterns and new executives (Kleiner & Corrigan, 1989; NEPI, 1992). This is indicative of the start of a process towards reaching the aims of the new education dispensation. According to Lange (1983), NEPI (1992) and South Africa (Republic), (1995), other interventions include: new school provisioning policies which reflect the values of democracy and quality performance; an education system which cultivates and liberates the talents of all people without exception; and finally, most importantly, the preparation of a labour force characterised by the standards, norms and attitudes associated with modern management practices which would by implication include participative management.

According to Luthans (1995), the values and ideals of democracy are central in fostering a learning environment that is conducive to high levels of performance. The question arises as to how the above values and ideals could be realized, as well as what demands would be made on the capabilities and style of those appointed with the leadership responsibility for actualising these ideals.

In order to shed light on this issue, the present study was undertaken to investigate whether certain orientations in people – and in particular *achievement motivation, locus of control,* and *individual* versus *collective orientation* – could be identified that would serve as predictors of an inclination towards participative management. This was based on the premise that effective participation is considered to involve, amongst others, three interrelated concepts, namely, the *mental and emotional involvement* of participants, their *motivation to contribute* as well as the *acceptance of self-responsibility* for achieving goals (Newstrom & Davis, 1993).

Participative management

Participation may be considered to take place when managers and employees are jointly involved in making decisions of mutual interest (Armstrong, 1977; Beck & Hillmar, 1986; Mitchell, 1973). Participative managers consult with their employees and work together as a team. According to Newstrom and Davis (1993) participative managers are not free-rein managers who abandon their responsibility as managers. Participative managers still retain ultimate responsibility for the operation of their work divisions, but they share operating responsibility with those who perform the work. The result is that employees feel a sense of involvement in group goals. Hall (1993) is of the opinion that participative practices were never intended as a panacea, but rather as the beginning of a *process*

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aimed at a total approach to effective management, addressing the total organisation from top to bottom. This allows for work plans to be representative of subordinates because they are directly involved with decisions which affect them (Beck & Hillmar, 1986; Loveridge, 1980; Probart, 1989). Participative management practices are typically considered to be characterised by: shared mission and value statements; flexibility and autonomy; rewards for employee participation and no punishment of employees for taking risks; ongoing involvement programmes ensuring that participation remains standard operating procedure; and recognition and support of every employee's need to integrate work and family life (Garfield, 1992). Newstrom and Davis (1993) are of the opinion that participative management outcomes include higher output, improved quality, creativity, innovation, increased self-efficacy, less stress, and job satisfaction. A number of recent studies show strong economic reasons for adopting participative management practices.

Research conducted by Kravetz (1988), found that companies using participative human resource practices significantly outperformed companies that did not. In this study the management practices of highly successful companies, from a financial point of view, were compared with the participative management practices of less financially successful companies. The study revealed that 70% of the highly successful companies, made use of a participative management style. Management practices in the highest-performing organisations are practices that optimize involvement (Kravetz, 1988). Lewin's (1988) study revealed that participative work practices are not just related to financial success, but actually help to cause it. Another study conducted by Huselid and Becker (1995) revealed that participative practices are significantly associated with decreased turnover and absenteeism, increased productivity and improved financial performance (cited in McLagan & Nel, 1995). In a study conducted by Locke and Schweiger (1979), it was found that as a result of participative management, productivity and efficiency had increased in the work place. Other investigations established positive relationships with constructs such as loyalty, self-esteem, productivity, job satisfaction and manager-subordinate relations (Leana, Ahlbrandt & Murrel, 1992; Rafaeli, 1985; Wagner, 1994). Furthermore, in an environment of participation, individuals are considered to have the opportunity to manage themselves and experience payoffs at the emotional and performance levels (Hall, 1993; Hall, Harvey & Williams, 1988; Mink, Schultz & Mink, 1979; Newstrom & Davis, 1993; Vroom & Deci, 1989; Vroom & Jago, 1988). On the other hand, negative relationships have been found with inefficiency and incompetence, as well as high production costs (Latack & Voster, 1985; Mohrman & Ledford, 1985). Increased dissatisfaction and frustration, as well as common consequences of decreased productivity and withdrawal behaviour (drugs and alcohol abuse, absenteeism, and so forth) become very expensive for an organisation. In studies conducted by Coch and French (1948) as well as French, Israel and Asch (1960) it was found that participative management facilitated the solutions of problems such as these.

The above provides evidence that the shift towards increasing involvement and participation is not merely advantageous from a moral point of view, or just a response to political pressures in the sense that it represents a democratic ideal. Participation also appears to have positive impacts on productivity (McLagan & Nel, 1995).

Achievement motivation

Over the years several researchers have attempted to identify and describe *achievement motivation* and in this process, a wide variety of descriptions of it have been generated. When comparing the descriptions of authors like Atkinson (1968); Heckhausen (1967); Heyns, Veroff and Atkinson (1958); Luthans (1995); McClelland (1967); Murray (1938); Pottas, Erwee, Boshoff and Lessing (1980), it becomes evident that they are noticeably similar in terms of the dimensions related to achievement motivation. These would include:

- The desire to accomplish difficult tasks.
- The desire to do work as rapidly and independently as possible.
- The desire to attain standards of excellence.
- A driving force focused on effectiveness.
- The striving towards an achievement goal.
- To be successful in competitive situations.

In an effort to measure the nature of the construct, the Achievement Motivation Questionnaire was developed by Pottas et al. (1980). A factor analysis was performed which identified two factors, each with a number of sub-factors. Factor 1 (goal directedness), includes persistence, awareness of time, and action orientation as sub-factors. Factor 2 (personal excellence), on the other hand, includes aspiration level and personal causation as sub-factors. With regard to the factor *goal directedness,* Pottas et al. (1980) and Van der Merwe (1991) state that achievers are people who are conscious of time and results. An achiever may be regarded as a person who is intent on achieving goals and who will confront problems despite adverse circumstances. *Personal excellence* on the other hand, can be characterised by: a willingness to accept challenging tasks and the taking of calculated risks; a strong belief in and trust in one's own abilities; and a strong belief in setting high standards of excellence.

Locus of control

The concept "locus of control" was created by Rotter (1966) who described the internal-external locus of control construct as a generalized expectancy, relating behaviour to reinforcements in a variety of situations (Lefcourt, 1981). The internal pole of this continuum refers to the individual's belief that outcomes are a consequence of own striving, ability and initiative. The external pole, on the other hand, refers to the individual's belief that outcomes are independent of own behaviour (O'Brein, 1986; Rotter, 1966). Since the appearance of Rotter's (1966) locus of control questionnaire, namely the I-E scale, various other instruments have been developed to measure the construct, which include: the Health Locus of Control-scale of Wallston, Wallston, Kaplan and Maides (1976), the Multidimensional Health Locus of Control-scale of Wallston, Wallston and De Vellis (1978), the Nowicki-Strickland Scale of Nowicki and Strickland (1973) and the Economic Locus of Control-scale of Furnham (1986). From these scales the Rotter I-E Scale appears to have the highest frequency of use (cited in Schepers, 1994). According to Schepers (1994), a significant drawback of Rotter's I-E Scale is the fact that the forced choice item format leads to *ipsative* measurements, while a user of the questionnaire generally requires a *normative* measurement. Ipsative measurements are however not necessarily considered inadequate, provided its limitations are recognised. According to Clemans (1956), ipsative scores are relative scores. This implies that it is quite possible that a person obtaining a low ipsative score on a particular trait actually possesses more of the characteristic in question than a person obtaining a much higher ipsative score. According to Clemans (1956) it is therefore imperative that ipsative scores are interpreted in the relative sense only.

The findings of various studies with regard to the relationsip between the constructs *locus of control* and *achievement motivation* have indicated that there are significant correlations between internal locus of control and achievement motivation (Rotter & Murray, cited in Geurin & Kohurt, 1989; Rooter, cited in Erwee & Pottas, 1992). Other studies conducted by De Wet, (1990) and Thebe, (1992) have indicated that there is no significant correlation between internal locus of control and achievement motivation of unskilled non-white employees. In the educational context it was found that students with a high internal locus of control performed better than those with a high external locus of control (Maqsud, Bernstein et al., & Johnson, cited in Walters 1994). Research by Walters (1994) indicates that locus of control is a contributing factor to school drop-out, and that drop-outs tend to display an external locus of control. With regard to the relationship between participa-

tive management and locus of control, Gibson et al. (1994) are of the opinion that externals are more receptive to participation in job-related decision making.

Individualism and collectivism

Given that interaction is required for participative management, it may reasonably be expected that cultural norms regarding social interaction may play a role in a person's inclination towards participative management. According to Hofstede (1980), individualism emphasizes pursuit of individual goals, needs and success. The individualism philosophy is that "I" is more important than "we". It is claimed that the values underlying individuality include rationality, aggression, competition, domination, expansion and analysis (Capra, 1982, cited in Rieger & Blignaut, 1996).

In contrast, the collectivist perspective emphasizes group welfare, satisfaction and performance. The collectivism philosophy is that "we" is more important than "I" (Hofstede, 1980). According to Blunt and Jones (1992), values underlying collectivism include emotional warmth, mutual respect, cooperativeness and tolerance.

According to Rieger and Blignaut (1996), orientation differences, in terms of work related matters, are manifest in, primarily, individualistic or collective behaviours. As a result, it may be expected that the inclination of a person to adopt participative management practices will be influenced by a cultural factor such as orientations towards individualism or collectivism. In a study conducted by Rieger and Blignaut (1996) it was found that a positive correlation exists between individualism and internal locus of control. Collectivism and external locus of control however did not correlate significantly.

Hypotheses

In view of the above, the *principal* aim of this study was to investigate the extent to which achievement motivation, locus of control and individual versus collective orientations, predict the inclination towards participative management.

In order to clarify the hypotheses that follow, the sample studied was portioned in terms of academic level and work experience. Three academic levels as well as three work experience levels were utilised for comparison.

In order to determine whether subjects differ with regard to the inclination towards participative management, the mean test scores of, firstly, the three academic groups, and secondly, the three levels of work experience were compared. To this end use was made of an analysis of variance (ANOVA). In this regard the following hypotheses were formulated:

H1: There is a statistically significant difference between the mean test scores of the three academic groups in respect of participative management.

H2: There is a statistically significant difference between the mean test scores of the three work experience groups in respect of participative management.

In order to determine whether the vectors of means of the test scores of the two groups, namely, those low in participative management (group 1) and those high in participative management (group 2), differ statistically significantly in respect of achievement motivation, locus of control and individuality versus collectivity, use was made of Hotelling's T^2 test for independent samples. The following hypotheses were formulated in this regard:

H3: There is a statistically significant difference between the vector of means between subjects measuring low on participative management and subjects measuring high on participative management in respect of achievement motivation.

H4: There is a statistically significant difference between the vector of means between subjects measuring low on participative management and subjects measuring high on participative management in respect of locus of control.

H5: There is a statistically significant difference between the vector of means between subjects measuring low on participative management and subjects measuring high on participative management in respect of individuality versus collectivity.

METHOD

Sample

The organisation from which the sample was drawn is a government educational institution. This organisation consists of an administrative head office and 18 district offices throughout the Gauteng geographical boundaries. As the study was directed at persons in a managerial capacity within the institution, managers from the head office and 12 district offices were invited to take part in the study. It should be noted that managers in six of the outlying offices could not be reached. The sample population of managers in the head office and 12 district offices in which the study was carried out, amounted to 210. All 210 education managers were invited to take part in the study. Of the 210 managers who were invited, 117 responded, resulting in a response rate of 56%. As various and diverse reasons were given for not attending, the assumption was made that those who did not attend, did so in a random fashion. The sample was drawn from all cultural groups within the organisation. All staff members are permanently employed by the organisation. Table 1 sets out the composition of the sample with regard to certain demographic information.

TABLE 1
COMPOSITION OF THE SAMPLE (n = 117)

Age	Mean	44,90
	Std. deviation	8,39
Gender	Male	67,52%
	Female	32,48%
Level	Director	1,71%
	Deputy Director	9,40%
	Assistant Director	21,37%
	Chief Education Specialist	4,27%
	Senior Deputy Chief Education Specialists	35,04%
	Deputy Chief Education Specialists	28,20%
Level of Education	Less than or equal to standard 8	0,85%
	Standard nine or ten	4,27%
	Technical College – Certificate or diploma	0,85%
	Technikon – Certificate or diploma	2,56%
	Teachers diploma only (no degree)	5,13%
	University diploma (for e.g. H.R.M. diploma)	2,56%
	University Bachelor's degree (for e.g. B.A.)	9,40%
	University Bachelor's degree plus a teachers diploma (for e.g. B.A. Ed. or B.A. plus N.H.E.D.)	10,26%
	Post graduate degree	64,10%
Number of months experience in this post	Mean	33,17
	Std. deviation	52,48

Measuring Instruments

To measure *achievement motivation,* the instrument developed by Pottas, Erwee, Boshoff and Lessing (1980) was used. As achievement motivation is seen as a multidimensional construct, five dimensions were distinguished, namely: persistence, awareness of time, action orientation, aspiration level and personal causation.

These dimensions according to Erwee and Pottas (1992) were grouped into two factors. Factor 1 consisted of the first three dimensions and was labelled "goal directedness". Factor 2 included the last two dimensions and was labelled "personal excellence". The Kuder-Richardson reliability index was calculated for each sub-factor which varies from 0,490 to 0,907 (Smit, 1991).

The second measuring instrument used was Schepers' *Locus of Control Questionnaire* (1994). In a factor analysis of the locus of control construct, Schepers identified the following factors:

External control
The individual believes that outcomes are independent of their own behaviour.
Internal control
The individual believes that outcomes are a consequence of their own behaviour.
Autonomy
The individual practices internal locus of control and prefers working alone.

The Cronbach alpha reliability coefficient for internal control is 0,832 and for external control is 0,841. Autonomy was measured at 0,866 (Schepers, 1994).

The third measuring instrument used to measure *individuality* versus *collectivity* was developed by Rieger and Blignaut (1996). The alpha coefficient for Factor 1 (collectivity) was found to be 0,910 and for Factor 2 (individuality), 0,860 (Rieger & Blignaut, 1996).

The final questionnaire used was the *Participative Management Survey* (PMS) initially developed by Teleometrix International. The PMS was adapted and analysed by the author of this article. It can be reported that the Cronbach alpha reliability coefficient for the adapted measuring instrument is 0,975.

Procedure
Questionnaires were administered to 117 education managers during scheduled meetings at the head office and the 12 district offices. Completion of the questionnaires was voluntary. In order to protect anonymity it was not possible to investigate reasons for non attendance systematically.

Statistical analysis
With regards to the PMS, the statistical procedure as described by Schepers (1992) was followed. The PMS was subjected to *factor analysis* and thereafter, *item analysis.* The factor analysis focuses specifically on the identifying of sub-scales. First-order and second-order factor analyses were performed on the PMS. According to Kim and Meuller (1978), the aim of a factor analysis is to reduce a relatively large number of observed variables to a smaller number of hypothetical constructs. On the other hand, the major goal of the item analysis is the improvement of total score reliability. It must be ensured that all items in a test are functioning, that is, they do something in the way of measurement of the construct (Guilford & Fruchter, 1978).

In order to investigate the correlations between the scales (variables), the scale-scores of the survey questionnaires were *intercorrelated. A stepwise regression analysis* was performed to predict the managers' inclination to practice participative management.

To determine whether subjects differ statistically significantly between the mean test scores of, firstly the three academic groups, and secondly, the three work experience groups in respect of participative management, use was made of an *analysis of variance* (ANOVA). In order to determine whether the vectors of means of the different scores (low in participative management and high in participative management), in respect of the three measuring instruments, differ statistically significantly, use was made of *Hotelling's* T^2-test for independent samples.

RESULTS

Participative Management Survey
The Participative Management Survey (PMS) was adapted and although not representing the main focus of the study, the essential results of this analysis will be reported. According to the procedure described by Schepers (1992), the 50 items of the questionnaire were intercorrelated and subjected to a first-order factor analysis which yielded 7 factors rotated to simple structure by means of varimax rotation. Since the intercorrelation matrix is of magnitude 50 × 50, it is too large to reproduce in this paper. According to Kaiser's (1961) criterion, only those factors with eigenvalues greater than *one* should be extracted.

Subscores for each of the seven factors were computed, intercorrelated and subjected to a second-order factor analysis. The matrix of intercorrelations is given in Table 2.

The eigenvalues of this matrix were computed by means of the BMDP programme and are given in Table 3. Upon inspection of the results, it appears that there is *one* eigenvalue greater than *one.* Accordingly one factor was extracted and it appears in Table 4. It is therefore apparent that the PMS has only *one* factor.

Using the item analysis programme of the NIPR (NP50), an item analysis was performed of the items having a loading on Factor 1. This analysis indicates that the scale has an overall reliability of 0,975 according to Cronbach's coefficient alpha.

TABLE 2
MATRIX OF INTERCORRELATIONS OF SIMPLIFIED FACTOR SCORES IN RESPECT OF THE PMS

	SFS I	SFS II	SFS III	SFS IV	SFS V	SFS VI	SFS VII
SFS I	1,00						
SFS II	0,73	1,00					
SFS III	0,76	0,81	1,00				
SFS IV	0,43	0,50	0,54	1,00			
SFS V	0,64	0,63	0,63	0,42	1,00		
SFS VI	0,68	0,70	0,64	0,36	0,58	1,00	
SFS VII	0,50	0,64	0,64	0,50	0,46	0,48	1,00

TABLE 3
EIGENVALUES OF MATRIX OF INTERCORRELATIONS (7 x 7)

ROOT	EIGENVALUE
1	4,5473
2	0,7566
3	0,5197
4	0,4140
5	0,3442
6	0,2407
7	0,1775

TABLE 4
FACTOR MATRIX IN RESPECT OF PARTICIPATIVE MANAGEMENT

	FACTOR I	h^2j
SFS I	0,829	0,6874
SFS II	0,898	0,8058
SFS III	0,901	0,8117
SFS IV	0,570	0,3244
SFS V	0,724	0,5247
SFS VI	0,753	0,5666
SFS VII	0,682	0,4651

Research Questionnaires
In order to investigate the relationships between the scales (factors) of the measuring instruments, the scale scores were intercorrelated. The intercorrelations appear in Table 5. From an inspection of Table 5 it can be seen that there is a negative

correlation between external locus of control (LOC 1) and the achievement motivation subscores. Internal locus of control (LOC 2) as well as autonomy (LOC 3) was found to have a positive correlation with the achievement motivation subscores. The results of this study also found that individuality (Ind 2) correlates positively and significantly with internal locus of control (LOC 2) as well as autonomy (LOC 3). The eigenvalues of the unreduced intercorrelation matrix were computed by means of the BMDP programme to estimate the number of factors present in the intercorrelation matrix. The eigenvalues of this matrix are given in Table 6. Upon inspection of the results, it appears that there are *three* eigenvalues greater than *one*. Accordingly three factors were extracted and rotated to simple structure by means of the Direct Oblimin rotation. The factor matrix is given in Table 7. The first two factors are well determined while the third is in the form of a doublet. The intercorrelations of the factors appear in Table 8. From an inspection of Table 8 it appears that Factors 1 and 2 are moderately correlated. According to the high loadings on Factor 1, Factor 1 can be characterised by autonomy and Factor 2 by the need for achievement. Factor 3 is characterised by collectivity (Ind 1) and participative management.

The results of the regression analysis are given in Table 9.

TABLE 5
MATRIX OF INTERCORRELATIONS

	Ach1	Ach2	Ach3	Ach4	Ach5	LOC1	LOC2	LOC3	Ind1	Ind2	PMS
Ach1	1,00										
Ach2	0,47	1,00									
Ach3	0,47	0,33	1,00								
Ach4	0,52	0,30	0,39	1,00							
Ach5	0,47	0,20	0,26	0,53	1,00						
LOC1	-0,30	-0,21	-0,14	-0,42	-0,44	1,00					
LOC2	0,27	0,22	0,14	0,34	0,32	-0,56	1,00				
LOC3	0,42	0,22	0,18	0,60	0,57	0,63	0,74	1,00			
Ind1	0,03	0,17	0,04	0,04	-0,06	0,03	0,16	0,10	1,00		
Ind2	0,22	0,12	0,12	0,32	0,35	-0,40	0,62	0,64	-0,79	1,00	
PMS	0,19	0,17	0,08	0,09	0,19	-0,20	0,38	0,42	0,33	0,26	1,00

TABLE 6
EIGENVALUES OF UNREDUCED INTERCORRELATION MATRIX (11 x 11)

ROOT	EIGENVALUE
1	4,2628
2	1,5337
3	1,3464
4	0,7468
5	0,6918
6	0,6338
7	0,5301
8	0,4164
9	0,3942
10	0,2874
11	0,1564

TABLE 7
ROTATED FACTOR MATRIX (DIRECT OBLIMIN)

	FACTOR 1	FACTOR 2	FACTOR 3	h^2j
Ach 1	0,062	0,783	-0,013	0,6559
Ach 2	-0,028	0,533	0,208	0,3321
Ach 3	-0,080	0,616	-0,001	0,3451
Ach 4	0,322	0,547	-0,147	0,5475
Ach 5	0,413	0,386	-0,180	0,4577
LOC 1	-0,623	-0,113	0,074	0,4534
LOC 2	0,807	-0,069	0,225	0,6946
LOC 3	0,903	0,100	0,055	0,9124
Ind 1	-0,061	0,069	0,636	0,4087
Ind 2	0,728	-0,069	-0,047	0,4904
PMS	0,334	0,012	0,478	0,3753

TABLE 8
MATRIX OF INTERCORRELATIONS OF ROTATED FACTORS

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1,000		
FACTOR 2	0,409	1,000	
FACTOR 3	0,099	0,078	1,000

TABLE 9
STEPWISE REGRESSION: DEPENDENT VARIABLE (Participative Management)

Multiple R;	0,5422
R Squared:	0,2940
Adjusted R Squared:	0,2753
Standard Error of Estimate:	38,2852

ANALYSIS OF VARIANCE

Source of variation	DF	Sum of squares	Mean square
Regression	3	68975,94	22991,98
Residual	113	165630,69	1465,76

F = 15,69 p(F) < 0,0000

VARIABLES IN THE EQUATION

INDEPENDENT VARIABLES	B	SE B	Beta	t-value	P
1. Achievement 4 (aspiration level)	-2,7949	1,1857	-0,2326	-2,36	0,02
2. Locus of control 3 (autonomy)	1,5232	0,2863	0,5271	5,32	0,00
3. Individuality 1 (collectivity)	0,6822	0,1867	0,2903	3,65	0,00
(Constant)	-28,8380				

Participative management served as the dependent variable and all the other variables in the survey served as independent variables. After *three* steps, the table indicates that three predictor variables – aspiration level; autonomy and collectivity – were included in the regression equation. A multiple correlation of 0,5422 was obtained. This indicates that 29,40 percent of the variance in "participative management" can be accounted for by the three predictor variables. From the analysis of variance it can further be reported that the linear regression accounts for a statistically significant proportion of the total variance, F (3,113) = 15,686, p < 0,0000).

An estimate of the managers' ability to practice participative management can be calculated from the following regression equation:
$\hat{y}$ = -2,7947(Ach. 4) + 1,5232(LOC.3) + 0,6822(Ind.1) – 28,838 (constant).

In order to determine whether subjects differ statistically significantly between the mean test scores of, firstly, the three academic groups, and secondly, the three levels of work experience in respect of participative management, use was made of an analysis of variance (ANOVA). This analysis yielded the following results:

TABLE 10
ANALYSIS OF VARIANCE (ANOVA) FOR THE THREE ACADEMIC GROUPS IN RESPECT OF PARTICIPATIVE MANAGEMENT

	SUM OF SQUARES	MEAN SUM OF SQUARES	F	P
Between Groups	8943,2139	4471,6069	2,26	0,1091
Within Groups	225663,4191	1979,5037		

From an inspection of Table 10 it can be seen that there are no statistically significant differences between the mean scores of the three academic groups in respect of participative management. The null hypothesis is not rejected and the alternative hypothesis, H1 is therefore not supported.

From the results in Table 11 it is apparent that there are no statistically significant differences between the mean scores of the three work experience groups in respect of participative management. The null hypothesis is not rejected and the alternative hypothesis, H2 is therefore not supported.

In order to determine whether the vectors of means of the test scores of the two groups, namely, those low in participative management (group 1) and those high in participative management (group 2), differ statistically significantly in respect of achievement motivation, locus of control, and individuality versus collectivity, use was made of Hotelling's T^2 test for independent samples. The results are given in Table 12, Table 13 and Table 14.

TABLE 11
ANALYSIS OF VARIANCE (ANOVA) FOR THE THREE WORK EXPERIENCE GROUPS IN RESPECT OF PARTICIPATIVE MANAGEMENT

	SUM OF SQUARES	MEAN SUM OF SQUARES	F	P
Between Groups	2115,5925	1057,7963	0,52	0,5967
Within Groups	232491,04	2039,3951		

From Table 12 it is apparent that there is no statistically significant difference between the vectors of means of the two levels of participative management in respect of achievement motivation (Hotelling's T^2 = 7,3999 with an associated F-value of 1,4 and degrees of freedom of 5 and 70). The obtained F-value is statistically not significant (p = 0,235). Also, the t-values are not significant in respect of the five variables. In the light of these findings, the null hypothesis is not rejected and the alternative hypothesis, H3 is therefore not supported.

From an inspection of the results in Table 13, it can be seen that there is a statistically significant difference (p < 0,0001) between the vectors of means of the two levels of participative management in respect of locus of control. (Hotelling's T^2 = 27,5388 with an associated F-value of 8,9315 and degrees of freedom of 3 and 72). From an inspection of Table 13 it can be seen that those who measured high in participative management also demonstrated a greater degree of internal locus of control (LOC 2) as well as a greater need for autonomy (LOC 3). In the light of these findings the null hypothesis is rejected and the alternative hypothesis, H4 is therefore supported.

From an inspection of the results in Table 14 it can be seen that there is a statistically significant difference between the vectors of means of the two levels of participative management in respect of individuality versus collectivity (Hotelling's T^2 = 34,4053 with an associated F-value of 16,9702 and degrees of freedom of 2 and 73). From an inspection of Table 14 it appears that those demonstrating a stronger inclination towards participative management also demonstrated greater degrees of both collectivity (Ind 1) and individuality (Ind 2). On the face of it this appears contradictory, especially if it is borne in mind that the correlation between the two scales is – 0,79 (Table 5) indicating that they share 62% of the variance of the construct measured. A closer look at Table 5, however, reveals that individuality (Ind 2) to a large extent may be characterised by autonomy (LOC 3) and internal locus of control (LOC 2) with correlations of 0,62 and 0,64 respectively between autonomy (LOC 3) and individuality (Ind 2), and internal locus of control (LOC 2) and individuality. From Table 5 it can however be seen that the correlation between collectivity (Ind 1) and autonomy (LOC 3) and between collectivity (Ind 1) and internal locus of control (LOC 2) is negligible. Given that it was found that those demonstrating a

TABLE 12
SIGNIFICANCE OF DIFFERENCES OF MEANS BETWEEN SUBJECTS MEASURING LOW ON PARTICIPATIVE MANAGEMENT (GROUP 1) AND SUBJECTS MEASURING HIGH ON PARTICIPATIVE MANAGEMENT (GROUP 2) IN RESPECT OF ACHIEVEMENT MOTIVATION: HOTELLING T^2-TEST FOR INDEPENDENT SAMPLES

	GROUP 1 (LOW)			GROUP 2 (HIGH)								
Variable	X_1	S_1	N_1	X_2	S_2	N_2	Levene F	DF	p(F)	t-value	DF	p(t)
Ach 1	17,2368	2,6142	38	18,4211	2,1640	38	2,01	1 & 74	0,1601	-2,15	74	0,0347
Ach 2	13,1316	4,6393	38	15,1053	3,0116	38	8,94	1 & 74	0,0038	-2,20	63,5	0,0315
Ach 3	7,1579	1,7010	38	7,6053	1,8965	38	0,25	1 & 74	0,6169	-1,08	74	0,2825
Ach 4	15,1842	4,3112	38	16,2895	2,7793	38	5,55	1 & 74	0,0211	-1,33	63,2	0,1889
Ach 5	9,4211	2,0353	38	10,2105	1,9335	38	0,01	1 & 74	0,9408	-1,73	74	0,0872

Hotelling T^2 = 7,3999
F-value = 1,4
df = 5 and 70
p-value = 0,235 (not significant)

TABLE 13

SIGNIFICANCE OF DIFFERENCES OF MEANS BETWEEN SUBJECTS MEASURING LOW ON PARTICIPATIVE MANAGEMENT (GROUP 1) AND SUBJECTS MEASURING HIGH ON PARTICIPATIVE MANAGEMENT (GROUP 2) IN RESPECT OF LOCUS OF CONTROL: HOTELLING T^2-TEST FOR INDEPENDENT SAMPLES

	GROUP 1 (LOW)			GROUP 2 (HIGH)								
Variable	X_1	S_1	N_1	X_2	S_2	N_2	Levene F	DF	p(F)	t-value	DF	p(t)
LOC 1	84,9474	20,3084	38	75,8948	19,6535	38	0,00	1 & 74	0,9475	1,97	74	0,0520
LOC 2	144,9737	13,2756	38	156,7105	10,2163	38	2,49	1 & 74	0,1185	-4,32	74	0,0000*
LOC 3	136,7105	16,1361	38	152,5263	12,2777	38	2,89	1 & 74	0,0931	-4,81	74	0,0000*

Hotelling T^2 = 27,5388
F-value = 8,9315
df = 3 and 72

TABLE 14

SIGNIFICANCE OF DIFFERENCES OF MEANS BETWEEN SUBJECTS MEASURING LOW ON PARTICIPATIVE MANAGEMENT (GROUP 1) AND SUBJECTS MEASURING HIGH ON PARTICIPATIVE MANAGEMENT (GROUP 2) IN RESPECT OF INDIVIDUALITY: HOTELLING T^2-TEST FOR INDEPENDENT SAMPLES

	GROUP 1 (LOW)			GROUP 2 (HIGH)								
Variable	X_1	S_1	N_1	X_2	S_2	N_2	Levene F	DF	p(F)	t-value	DF	p(t)
Ind 1	153,8421	18,1726	38	171,9737	16,5243	38	0,29	1 & 74	0,5928	-4,55	74	0,0000*
Ind 2	140,0000	11,6735	38	146,8684	9,6958	38	0,23	1 & 74	0,6315	-2,79	74	0,0067*

Hotelling T^2 = 34,4053
F-value = 16,9702
df = 2 & 73

stronger inclination towards participative management also demonstrated a greater degree of internal locus of control as well as autonomy (Table 13), it would appear that this group is characterised by people who have a collective orientation, but at the same time also have an internal locus of control with a preference for autonomous functioning. The null hypothesis is therefore rejected and the alternative hypothesis, H5 is supported.

DISCUSSION

The analysis of the measuring instrument used to determine the inclination towards participative management revealed only one factor – an inclination towards participative management – with a Cronbach coefficient alpha of 0,975. The instrument was therefore judged to possess adequate psychometric properties for the purpose of this study.

The findings that a positive correlation exists between internal locus of control and achievement motivation and that a negative correlation exists between external locus of control and achievement motivation lends support to the findings of Rotter (1966), as well as Rotter and Murray (cited in Geurin & Kohurt, 1989). The results do no support Thebe (1992) and De Wet's (1990) observations that there is no significant correlation between internal locus of control and achievement motivation. The results of this study further support the findings of Rieger and Blignaut (1996), that the correlation between collectivity and external locus of control is low and not significant. The results of this study also found that individuality correlates positively and significantly with internal locus of control as well as autonomy, which supports the observations of Rieger and Blignaut (1996). In terms of the relationship between participative management and achievement motivation no significant relationship was found. Arguments presented in the literature point to the notion that achievement motivation is a necessary prerequisite for effective participative management (Newstrom & Davis, 1993). Given that no significant relationship of this nature was found in the sample studied, it appears that this represents an opportunity for further research.

When comparing two contrasting groups in terms of inclination towards participative management it was found that they differed with regard to locus of control and individual versus collective orientation but not with regard to achievement motivation. Those demonstrating a stronger inclination towards participative management also demonstrated a greater degree of internal locus of control as well as a greater need for autonomy. This appears contrary to the conception that people demonstrating an external locus of control are more receptive to participative management (Gibson et al. 1994). These findings are not surprising if viewed in the light of the description of effective participative management presented earlier by Newstrom and Davis (1993). This may imply that participative management is seen as necessary for effectiveness by people who are concerned about issues characteristic of the above predictor variables such as: employees taking full responsibility for their actions and their consequences; respecting the perspectives of others; cooperativeness and tolerance; demonstrating self-leadership; teamwork and the setting of high standards.

In terms of predicting a manager's ability to practice participative management the regression analysis indicated that there were three predictor variables, namely: aspiration level, autonomy, and collectivity. A multiple correlation of 0,5422 was obtained indicating that 29,40 percent of the variance in participative management could be accounted for by the three predictor variables. These results highlight the relevance of the predictor variables selected for investigation in this study, with regard to the question of what the variables are that contribute towards an inclination to manage participatively. In view of the relatively large variance not accounted for by the predictor variables selected in this study, it appears that a further opportunity for research exists in order to identify predictor variables with regard to the inclination towards participative management which could serve as selection criteria for future education managers.

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