

THE VALIDATION OF FURNHAM'S LOCUS OF CONTROL SCALE FOR A BLACK SOUTHERN AFRICAN GROUP

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ABSTRACT

This is a replication study to investigate the validity (factor structure) and reliability (alpha internal consistency, and test-retest reliability) of Furnham's Economic Locus of Control Scale (ELOC) for a Southern African black group. Three factors emerged, viz. an 'Internal' factor, a 'chance' factor and 'Powerful Others'. Alpha coefficients and test-retest coefficients indicated sufficient levels of reliability. Possible reasons for different answering patterns as well as possible application areas are discussed.

OPSOMMING

Hierdie is 'n repliseringstudie om die geldigheid (faktorstruktuur) en die betroubaarheid (alfa interne konsekwenheid en toets-hertoetsbetroubaarheid) van Furnham se "Economic Locus of Control Scale" (ELOC) op 'n Suider Afrikaanse swart groep te ondersoek. Drie faktore is onttrek, naamlik 'n "Interne" faktor, 'n "Kans"-faktor en 'n "Magtige Ander Persone"-faktor. Alfa koëffisiënte en toets-hertoets koëffisiënte dui aanvaarbare betroubaarheid aan. Moontlike redes vir verskillende patrone van beantwoording asook toepassingsmoontlikhede word bespreek.

Rotter's I-E Scale has been a consistently popular research topic since its inception, with the number of studies now running into thousands. During the years 1969-1977, Rotter's original article (1966) was referred to in the literature some 1 345 times (Rotter 1982). Rotter (1966) described 'internal versus external control of reinforcements' as a generalized expectancy relating behaviour to reinforcements in a variety of situations. Researchers seem to agree that an internal locus of control is in general beneficial to individuals because it has been reported to relate to higher levels of self-esteem (Rykman and Sherman, 1974), psychological adjustment (Linn and Hunter, 1979; Rao and Murphy, 1984), and to lower levels of depression (Evans 1981), anxiety (Rao and Murthy 1984), death anxiety (Hyams, Domino and Spencer, 1982) and job burnout (McIntyre, 1984).

The notion that the locus of control concept should be viewed as a multi-dimensional construct was first proposed by, amongst others, Hersch and Scheibe (1967). This conception led to a number of factor analytic studies which accentuated the importance of a multidimensional perception of this construct (Abrahamson, Schludermann and Schludermann, 1973; Anderson, Madonna, Baily and Wesley, 1987; Collins, 1974; Duffy, Shiflett and Downey, 1977; Erwee

and Pottas, 1982; Lefcourt, 1981; Mirels, 1970). Four factors seem to appear most frequently in research findings: belief in a difficult world, a just world, a predictable world, and a politically responsive world (Ashkanasy, 1985; Collins, 1974). New items were also developed to measure related *traits* (Levenson, 1974; Levenson and Miller, 1976), and other questionnaires to measure related *constructs*, such as 'Ascription of Responsibility' (Hakstian, Suedfeld, Ballard and Rank, 1986; Suedfeld, Hakstian, Rank, and Balard, 1985).

The locus of control construct has also received its fair share of interest among South African researchers (Barling, 1980; Erwee and Pottas, 1982; Erwee, 1986; Gilbert, 1980; Heaven, Rajab and Bester, 1986; Moodley-Rajab and Ramkissoon, 1979; Reimanis and Posen, 1980; Riordan 1981; Werbeloff, 1984).

In view of Mischel's (1968) well-known critical treatment of personality assessment and Kurt Lewin's (1935) contention that personality functioning is a reflection of the interaction of personality and the psychological situation, the later trend to develop situation – specific locus of control scales should be welcomed. Specific scales have indeed been developed to measure locus of control pertaining to, for instance, *health situations*, e.g. the Lau-Ware Health Locus of Control Scale (Lau, 1982; Lau and Ware, 1981); the Multidimensional Health Locus of Control Scale (Wallston, Kaplan, and Maides, 1976; Wallston, Wallston, and Devellis, 1978; Wallston & Wallston,

1981) a Weight Locus of Control Scale (Saltzer, 1982); a Children's Health Locus of Control Scale (Parcel and Meyer, 1978) and a Mental Health Locus of Control Scale (Calhoun, Peirce, and Dawes, 1973; Calhoun, Johnson, and Boardman, 1975; Wood and Letak, 1982). Scales have also been developed for application to religious beliefs and behaviours (Berman and Hays, 1973; Furnham, 1982; Sexton, Leak and Toemies, 1980) educational settings (Weiner, Beckhauser, Meyer and Cook, 1972; Feather, 1975), and political behaviour (Davis, 1983).

A further fruitful extension is the application of the locus of control construct to *economic behaviour*. In a study covering nearly 3 000 subjects, Andrisani and Nestel (1976) found that locus of control significantly relates to occupational attainment, job satisfaction, income, and perceived financial progress. Hamner and Vardi (1981) report that internals take a more active role in their career progress if organizations create a climate where initiative in career progress is reinforced. In a review article Spector (1982) reported that locus of control had a bearing on, inter alia, motivation, performance, and satisfaction, as well as acting as a moderator variable between motivation and incentives. More recently Perrewe (1986) found that "external locus of control strengthened the negative relationship between perceived job demands and satisfaction" (p. 620).

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 that internal control can be associated with more effective managers, evidence is far from conclusive. For instance, Durand and Nord (1976) report that the ideal manager is more likely to have an external orientation because externally controlled managers were 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) concludes: "The review, in general, suggests that internal locus of control is one of the important characteristics to the making of entrepreneurs" (p.99). Even though some researchers (Brockhaus, 1975; Hull, Boseley, and Udell, 1980) concluded that internality is not a prerequisite to entrepreneurship, other investigators, (Rao, 1975; Venkatapathy, 1983) strongly contend that entrepreneurs are generally more internal.

Watson (1984) reports a number of studies relating *attitudinal career maturity* to locus of control. Although support for an association between career maturity and internal locus of control was forthcoming, he does however caution on the generalizability of some of the findings (Froke, 1976; Gable, Thompson, and Glanstein, 1976; McIntyre, Drummond, and Ryan, 1978; Thomas, 1974; Wilson, 1975).

All the studies applying the locus of control construct to economic behaviour have used generalized scales or slightly adapted versions thereof. The first attempt to develop a specific scale for economic behaviour was by Furnham (1986). He developed his 'Economic Locus of Control Scale' by following the method of other researchers in this field (Lau and Ware, 1981; Snyder, 1974). More than 70 items were collected from other sources, sorted, classified and improved. Forty items were eventually retained and factorially analysed (VARIMAX rotation), using 250 subjects, to investigate the factor structure. Four factors were extracted with eigenvalues larger than unity, these were labelled "Internal" (Factor 1), "Chance" (Factor 2), "External/denial" (Factor 3) and "Powerful others" (Factor 4).

Alpha coefficients for the subscales as well as for the whole scale were calculated and can be considered as satisfactory (see Table 3). Construct validity was confirmed with satisfactory correlations with the Mirels and Garrett (1971) "Protestant Work Ethic Scale" (PWE-Scale) and Rotter's original (1966) Locus of Control Scale. Test-retest reliability, testing ten people one week apart, was calculated to be 0,86.

The main purpose of the present study was to investigate the construct validity (as indicated by the factor structure) and reliability (as estimated by internal and temporal consistencies) of the Economic Locus of Control Scale for a South African group. On the basis of previous research findings (see Venkatapathy, 1984) it was hypothesized that internality would relate to entrepreneurial success, and it was therefore hoped that the results of this pilot study would indicate whether the measure of Economic Locus of Control Scale could have any utility in the context of identifying black entrepreneurs in South Africa.

METHOD

Subjects

One hundred and fifty eight black first year psychology students at a Southern African university were tested. The mean age was 22 years with a standard deviation of 5,35. Ninety-six were female, fifty-eight were male and four did not indicate to which sex they belong.

Instruments

— Furnham's (1986) Economic Locus of Control Scale.

Furnham's original 40-item scale was used (see Table 1). One alteration was, however, made to the scale, viz. the original seven alternative choice format, from "strongly disagree" through "disagree", "slightly disagree", "undecided", "slightly agree", "agree" to "strongly agree" was changed to a three alternative choice format "disagree", "undecided" and "agree".

The rationale behind this change is the finding by Morris and Van der Reis (1980 p. 113) who concluded, after extensive research in the transport industry, that the way in which less educated blacks naturally express their levels of feeling is reflected in the availability of suitable equivalents in the vernacular

and they suggest that, "five categories may be the maximum number that these respondents may be expected to remember." The target population for whom the validated questionnaire is intended, viz. Third World entrepreneurs, can be expected to be less educated than Furnham's original group.

– Career Maturity Inventory (Attitude Scale) (Crites, 1965)

The Attitude Scale is a 50 item, true-false inventory which measures relevant career behaviours that differentiate levels of career development in individuals (Crites, 1965). Although the Attitude Scale yields a total score, it is a composite of the following attitudes related to work: decisiveness, involvement, independence, orientation and compromise. The Scale's reliability on both black (van Niekerk, 1983; 1984) and white (Pendell, 1980) groups has been established. While Crites (1973) reports that the Scale possesses construct and criterion related validities, Laubsher (1977) claims that the Attitude Scale is "relatively free of cultural content" (p. 52). Van Niekerk (1987) has also established evidence for construct validity for a black Southern African sample. The Attitude Scale has been extensively used in research

on both whites (Berg, 1980; Laubsher, 1977; Newman, 1982) and blacks (Achebe, 1982; Bresnan, 1976; Dillard and Perrin, 1980).

Procedure

The two scales were handed to the subjects with an explanation that they were not required to divulge their identities as the intention was not to test them, but to 'test the tests'. Testing was conducted during psychology practical lectures and it coincided with a lecture on test validity and reliability. Each questionnaire took about 15 – 20 minutes to complete.

RESULTS

Answering Patterns

The answering patterns for both Furnham's British research group and the Southern African research group are given in Table 1. From inspection it is evident that the answering pattern is relatively similar between the two groups. The *direction* of answering is different on only eleven items (viz. 4, 9, 11, 14, 23, 24, 25, 28, 29, 34 and 39). Some possible reasons for this are discussed later.

TABLE 1
ECONOMIC LOCUS OF CONTROL SCALE: ANSWERING PATTERNS FOR
FURNHAM'S STUDY AND FOR THIS STUDY

	% Agree		% Disagree		% Undecided	
	Furnham	This Study	Furnham	This Study	Furnham	This Study
1. Becoming rich has little or nothing to do with chance.	42,1	30,5	47,2	48,1	10,6	21,4
2. Saving and careful investing is a key factor in becoming rich.	57,5	89,0	28,7	7,1	13,8	3,9
3. Whether or not I get to become wealthy depends mostly on my ability.	55,9	83,1	31,1	9,1	13,0	7,8
4. Accountants can rarely do very much for people who are poor.	54,7	28,1	33,5	34,6	11,8	37,3
5. Anyone can learn a few basic economic principles that can go a long way in preventing poverty.	52,4	59,1	35,7	18,2	11,8	22,7
6. To a great extent my life is controlled by accidental happenings.	42,1	23,4	44,5	60,4	13,4	16,2
7. People's poverty results from their own idleness.	24,4	25,3	64,5	48,7	11,0	26,0
8. Social workers relieve or cure only a few of the finance problems their clients have.	73,2	49,4	13,4	35,1	13,4	15,6
9. I feel that my finances are mostly determined by powerful people.	47,2	24,8	37,5	40,5	14,2	34,6
10. There is little one can do to prevent poverty.	28,0	32,0	60,2	52,9	11,8	15,0
11. No matter what anybody does, there will always be poverty.	66,1	31,2	25,0	54,5	7,9	14,3
12. When I make plans I am almost certain to make them work.	50,4	87,0	31,5	6,5	18,1	6,5
13. Whether or not people get rich is often a matter of chance.	51,6	42,2	35,8	37,3	12,6	20,1
14. People who never become poor are just plain lucky.	26,0	42,2	53,9	39,6	20,1	18,2
15. Often there is no chance of protecting my savings from bad luck happenings.	33,5	29,9	64,6	40,9	11,8	29,2

	%Agree		% Disagree		% Undecided	
	Furnham	This Study	Furnham	This Study	Furnham	This Study
16. The seriousness of poverty is overstated	14,2	33,1	878,0	36,4	7,9	30,5
17. When it comes to wealth, there is no such thing as 'bad luck'.	22,0	27,9	60,7	59,7	17,3	12,3
18. When I get what I want, it's usually because I am lucky.	25,6	18,2	59,4	70,1	15,0	11,7
19. In the long run, people who take very good care of their finances stay wealthy.	72,4	79,7	18,5	8,5	9,1	11,8
20. Relief from poverty requires good hard work more than anything else.	45,7	81,2	41,3	12,3	13,0	6,5
21. Although I might have ability, I will not become better off without appealing to those in positions of power	47,2	56,5	39,2	24,7	13,4	18,8
22. In the Western world there is no such thing as poverty.	18,5	11,0	77,3	64,9	4,1	24,0
23. Becoming rich has nothing to do with luck.	28,7	56,5	56,7	28,6	14,6	14,9
24. How many friends I have depends on how generous I am.	15,9	39,6	76,0	35,1	9,0	25,3
25. Most people are helped a great deal when they go to an accountant.	37,8	47,5	39,4	20,8	22,8	31,8
26. There are a lot of financial problems that can be very serious indeed.	82,6	89,0	8,7	5,2	5,1	5,8
27. People like myself have little chance of protecting our personal interests when they are in conflict with those of strong pressure groups.	50,8	50,6	35,9	30,5	13,4	18,8
28. Regarding money, there isn't much you can do for yourself when you are poor.	40,2	62,3	50,8	31,2	9,1	6,5
29. Politicians can do very little to prevent poverty.	23,6	36,4	67,7	31,8	8,7	31,8
30. Its not always wise for me to save because many things turn out to be a matter of good f good or bad fortune.	27,2	15,6	57,2	61,0	14,6	23,4
31. If I become poor, it's usually my own fault.	42,5	24,7	49,2	59,7	8,3	15,6
32. Financial security is largely a matter of good fortune.	32,7	28,6	52,3	44,2	15,0	27,3
33. Getting what I want financially requires pleasing those people above me.	33,1	29,2	45,6	48,7	20,5	22,1
34. Whether or not I get to be well-off depends on whether I'm lucky enough to be in the right place at the right time.	56,5	32,5	27,5	36,4	15,7	31,2
35. I can pretty much determine what will happen to me financially.	48,0	39,6	39,8	35,7	12,2	24,7
36. I am usually able to rprotect my personal interests.	67,7	74,0	15,0	13,k0	17,3	12,3
37. When I get what I want, it's usually because I worked hard for it.	74,4	90,0	13,8	5,2	11,8	3,9
38. My life is determined by my own actions.	62,6	79,2	24,4	14,3	13,0	6,5
39. It is chiefly a matter of fate whether I become rich or poor.	33,5	35,1	51,6	22,7	15,0	42,2
40. Only those who inherit or win money can possibly become rich.	14,2	17,5	79,6	74,7	6,3	7,8

Factor Analysis

To investigate the factor structure of the Economic Locus of Control Scale for a group of black Southern African students, a factor analysis using a VARIMAX rotation was performed on the data. Following Furnham's study in which four factors were identified, the rotation was initiated with four factors; however, only three factors with eigenvalues larger than unity emerged. (See Table 2).

As can be seen from Table 2, the three factors which

emerged accounted for 26% of the total variance (Furnham 38%). The first factor, which accounted for 13% of the total variance (Furnham 12,5%), can be explained in terms of personal control over financial matters because most of the items with a loading higher than 0,3 had a bearing on this. The second factor, which accounted for 8% of the total variance was labeled a *chance* factor since most of the items loading on this factor incorporated luck or chance aspects. This corresponds with Furnham's second factor that explained 11,8% of the total variance.

TABLE 2
VARIMAX ROTATED FACTOR MATRIX OF THE ECONOMIC LOCUS
OF CONTROL SCALE FOR A SOUTHERN AFRICAN GROUP
 (n = 185)

ITEMS	FACTOR 1	FACTOR 2	FACTOR 3	h ²
1	0,35	0,06	0,13	0,15
2	0,49	0,32	0,35	0,46
3	0,50	0,32	0,20	0,39
4	0,32	0,14	0,19	0,16
5	0,55	0,06	0,16	0,33
6	0,11	0,28	0,06	0,09
7	0,39	0,18	0,02	0,19
8	0,34	0,12	0,07	0,13
9	0,14	0,31	0,16	0,14
10	0,12	0,32	0,11	0,13
11	0,12	0,24	0,30	0,16
12	0,63	0,13	0,23	0,47
13	0,13	0,55	0,04	0,32
14	0,06	0,57	0,13	0,34
15	0,23	0,27	0,09	0,13
16	0,35	0,16	0,14	0,17
17	0,33	0,16	0,04	0,13
18	0,04	0,46	0,30	0,30
19	0,50	0,16	0,44	0,47
20	0,62	0,17	0,30	0,51
21	0,29	0,16	0,26	0,17
22	0,07	0,31	0,22	0,15
23	0,54	0,08	0,10	0,31
24	0,14	0,40	0,13	0,20
25	0,39	0,26	0,16	0,24
26	0,69	0,14	0,16	0,53
27	0,09	0,39	0,24	0,27
28	0,24	0,17	0,44	0,28
29	0,28	0,22	0,14	0,15
30	0,11	0,29	0,23	0,15
31	0,46	0,09	0,19	0,26
32	0,11	0,34	0,16	0,15
33	0,11	0,10	0,56	0,33
34	0,12	0,24	0,43	0,25
35	0,37	0,14	0,13	0,17
36	0,47	0,13	0,15	0,26
37	0,55	0,41	0,15	0,49
38	0,46	0,53	0,10	0,50
39	0,27	0,49	0,02	0,31
40	0,22	0,20	0,11	0,10
				<u>TOTALS</u>
EIGENVALUE	7,84	1,60	1,04	10,47
% OF COMMON VARIANCE	74,8	15,3	10,0	100
% OF TOTAL VARIANCE	12,78	8,23	5,18	26,18
Σa^2	5,11	3,29	2,07	10,47
Σ LOADING FACTORS ($\geq 0,3$)	4,54	2,34	1,12	8,00
% OF FACTOR VARIANCE EXPLAINED BY ITEMS LOADING $\geq 0,3$	88,85	71,12	54,11	76,41

The third factor explains 5% of the total variance and, although somewhat diffuse, can best be explained in terms of "powerful others", because of the loadings of items 27 and 33. It corresponds with Furnham's fourth which he labelled similarly. Furnham's third factor, *external denial*, did not, however, emerge in this study, and these items distributed mostly over Factors 1 and 2.

Reliability

For an indication of internal consistency, alpha coefficients were calculated and a test-retest coefficient, ten subjects over one week, was calculated as a measure of temporal consistency.

The findings and a comparison with Furnham's findings are given in Table 3.

Regarding construct validity, a VARIMAX rotated factor analysis yielded three factors with *eigenvalues* larger than one. These three factors explained 26% of the total variance. A loading larger than 0,3 was regarded as significant and if an item loaded on more than one factor, only the highest loading was considered. Items loading on the first factor mostly relate to aspects of personal control over financial matters, and can also be labelled "internal", after Furnham. The second factor can also be explained in terms of luck or chance aspects because most of the items loading here relate to either of these. It is therefore also called a "chance" factor. The third factor is not as clear as the first two, but due to the high loading of item 33 and also of item 27, both of which refer to powerful others, it was thought appropriate to also label this factor "powerful others".

TABLE 3
RELIABILITY COEFFICIENTS FOR THE ECONOMIC LOCUS OF CONTROL
SCALE AS REPORTED BY FURNHAM (BRITAIN) AND AS FOUND IN THIS STUDY (S.A.).

	ALPHAS		\bar{x} INTER ITEM r		TEST - RETEST	
	BRITAIN n = 254	SA n = 158	BRITAIN n = 254	SA n = 158	BRITAIN n = 10	SA n = 10
Factor 1						
Internal	0,72	0,86	0,41	0,26		
Factor 2						
Chance	0,63	0,75	0,16	0,21		
Factor 3						
Powerful others	0,65	0,48	0,34	0,24		
Whole scale	0,78	0,89			0,86**	0,64*

* p < 0,05

** P < 0,01

Correlation Analysis

Scales measuring constructs related to Locus of Control and which have been validated for local conditions are virtually non-existent except for Werbeloff's (1984) usage of Levenson's (1972) and Russel's (1982) locus of control scales to validate an "interpersonal styles model". Crites's (1965) Career Maturity Inventory Scale, inter alia, indicates an individual's ability to autonomously and independently become actively involved with the career choice-making process. Crites's Inventory, should therefore, on an *a priori* basis, be expected to relate to locus of control. This was indeed borne out by an $r = 0,23$ ($p < 0,01$) for the full scale and $r = 0,17$ ($p < 0,05$) for Factor 1: $r = 0,12$ ($p < 0,1$) for Factor 2 and $r = 0,17$ ($p < 0,05$) for Factor 3. Subjects who can be described as more career mature in terms of Crites's measurement scale, tend to be more internal in terms of the locus of control scale.

DISCUSSION

From the outset the purpose of the present study was conceived of as a pilot study towards investigating the validity and reliability of Furnham's Economic Locus of Control Scale for a black Southern African group.

The factors are meaningful in relation to other research in this regard, for instance, Levenson's Internal, Powerful Others and Chance (IPC) Scale (1981) and also Furnham's (1986) original findings. A correlation coefficient of 0,23 ($p < 0,01$) was found between this scale and Crites's Career Maturity Inventory. Although this is not a large correlation, it is in the hypothesized direction and suggests that these two constructs have a common basis.

As far as reliability is concerned, acceptable alpha coefficients (except for Factor 3) were found. A test-retest reliability coefficient of 0,64 ($p < 0,05$) is much lower than the figure of 0,86 reported by Furnham. However, with cogniscance of Roberts and Nesselroade's (1986) remark that "...one simple assessment of stability by test-retest correlation based on, say a two-week interval may tell us very little about the 'traitness' or 'stateness' of measures" (p. 541), one could speculate that more test-retest analyses, further apart and with larger groups, and also P-technique factor analyses of short-term change of the Economic Locus of Control Scale, would be a meaningful endeavour.

From these results it appears that the Furnham questionnaire shows promise for use with a black Southern African population. The differences in

answering patterns, i.e. the differences in the proportions who agree and disagree, should, however, be further investigated. In this respect a possible problem area could well be that particular words and concepts might not have quite the same meaning or connotation within the Southern African context as they would have in Britain. For instance, item; No 4, "Accountants can rarely do very much for people who are poor", elicited different response patterns between the two groups. However, before an assumption can be made regarding the meaning in terms of internality or externality of the two groups, the equivalence in perception of the role and function of an accountant will have to be established.

It could also be speculated that the greater portion of error variance that emerged in this study (74% in relation to Furnham's 62%), can be explained in terms of different perceptions of some of the words and concepts. One should be wary of Munro's (1979, p. 61) warning "that responses may reflect manifest item content more than underlying cognitions about control". Munro (1979) also warns that better measurement scales, with higher reliability, would be needed for cross cultural personality and motivational research with this construct.

Furnham's third factor, which he labelled *external-denial* and which "appeared to relate to the denial that poverty exists" (p. 37), failed to appear in this study. This could probably be attributed to the fact that these subjects are more aware of the reality of Third World poverty and that it could therefore not be denied in such a strong fashion as to emerge as a separate factor. However, the shortening of the scale from a seven to a three alternative choice format could also have contributed to the increased error variance and the disappearance of the *external-denial* factor.

The largest portion of subjects of this group are female (96 out of 158 indicated their sex as female), and although the findings relating the influence of gender to attributions are inconclusive, further research with this questionnaire should be undertaken. Furnham (1986), for instance, reports that females believe more in chance factors (less internal) when it comes to wealth. The effects of sex role stereotypes on attributions seem to be well documented (Brewer and Blum, 1979; Pasquella, Mednick and Murray, 1981; Teglasie, 1978), but their importance has recently been questioned (Frieze, Whitley, Hansua, and McHugh, 1982; Sohn, 1982; Erkut, 1983). In a recent study using 251 females and 84 males, Gaeddert (1987, p. 705) concluded that "students' gender had virtually no impact on their attributions".

Within the limitations mentioned above, and in the absence of other similar scales, the notion could be entertained that Furnham's Economic Locus of Control Scale could be useful in research to understand and explain behaviour relating to economic matters, for instance behaviour in organizations relating to job satisfaction, motivation, and leadership (Andrisani and Nestel, 1976; Spector, 1982), career and vocational psychology, and entrepreneurial behaviour (Venkatapathy, 1983) for Third World populations.

Care should be taken, however, when this questionnaire is used on groups that differ to any large extent, in terms of home language, cultural background, ages and educational levels, from the experimental group of this particular study (Furnham and Henry, 1980). The multidimensional manifestation of this scale could be explained by the fact that people normally distinguish between several relatively distinct sources of control and, although a primary set of beliefs may be common to many populations, it could be argued that beliefs exist that are specific to certain populations which encapsulate some defining aspect of that population (Cherlin and Bourque, 1974). Furthermore, for locus of control research not relevant to economic behaviour, other general scales or scales developed for that particular behavioural area should rather be considered.

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