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RESEARCH NOTES AND COMMUNICATIONS
DEVELOPMENT AND VALIDATION OF THE STRATEGIC LOCUS OF CONTROL SCALE

GERARD P. HODGKINSON
Sheffield University Management School, University of Sheffield, Sheffield, U.K.

Previous studies investigating the role of locus of control beliefs in relation to strategy-making behavior, organizational structure, performance and environment have employed the well known Rotter (1966) I–E scale. Unfortunately, however, this scale is beset by a number of problems which render it unsuitable for studies of business organizations, namely, that the items comprising the scale lack context-specificity and its well known tendency to correlate with measures of social desirability response set. This paper describes the development of a new measure designed to overcome these limitations. The measure, intended specifically for investigating locus of control beliefs in relation to issues of strategic management, assesses the extent to which respondents regard their own and other organizations' strategic issues to be resolved by the systematic application of strategic management techniques (e.g. environmental analysis, strategic planning, etc) or through external environmental forces (e.g. the actions of powerful competitors, unforeseen chance events, etc) largely beyond the control of organizations. Data is presented from two samples which indicate that the measure demonstrates acceptable reliability and construct validity.

INTRODUCTION

Within recent years a number of strategic management researchers and organization theorists have devoted considerable attention to the role of managerial locus of control beliefs in the formulation of business strategy and organizational structure–environment relationships (Miller *et al.*, 1982; Miller, 1983; Miller and Toulouse, 1986; Miller, 1987; Boone, 1988; Govindarajan, 1988). However, there are a number of problems associated with the way in which this construct has been operationalized in previous strategic management studies, to be described shortly. The purpose of this paper is to describe the development of a new locus of control scale designed to overcome these limitations.

Key words: locus of control

The concept of locus of control originates with the work of Rotter (1966) and reflects the belief individuals have about who controls the key events in their lives, themselves or various external factors such as other people, chance events, or the Government. Those people who perceive their lives to be controlled by their own actions, skills and abilities are said to be 'internals'. Conversely, those who perceive their lives to be controlled by external forces, are said to be 'externals'.

Previous research has shown that externally oriented Chief Executive Officers (CEOs) are less likely to belong to organizations which engage in long-term strategic planning or seek information about the business environment. Internal CEOs, by contrast, are more likely to belong to firms which plan ahead (often for a period of several years hence), actively seek information about the business environment, and have a tendency to lead rather than follow

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competitors. Moreover, these organizations are more likely to inhabit dynamic and hostile environments, to consult specialist technical staff in decision making and have a relatively differentiated organizational structure, than those organizations led by executives with a relatively external locus of control (for reviews of these findings and related studies, see Miller, 1987; Boone, 1988).

In all the studies cited above, the researchers have employed the well known Rotter I–E scale (Rotter, 1966). This measure comprises some 29 items, 23 of which are designed to assess the respondents' locus of control beliefs, the others being 'filler' items. Respondents are required to complete the questionnaire by choosing from a series of two alternatives, the statements that more closely reflect their own beliefs. The scale is arranged such that the respondent receives a point each time he or she selects a statement which is designed to reflect external locus of control beliefs. The scale is scored by simply totalling the number of externally worded items so endorsed. Thus the higher the score, the more external the respondent, and vice versa.

Unfortunately, however, this measure is beset by a number of limitations which, in the present author's view, render it unsuitable for the study of strategic management problems (see also Spector, 1982; Boone, 1988). Firstly, as Phares (1976) notes, the I–E scale is only a rough measure of the construct and researchers should develop their own context-specific scales (c.f. Adler and Weiss, 1988:315). In line with this recommendation a number of domain-specific scales have been devised by researchers in recent years, in order to investigate generalized control beliefs in contexts as varied as health (e.g. Lau and Ware, 1981; Wood and Letak, 1982), politics (Davis, 1983), economics (Furnham, 1986) and work settings (Spector, 1988).

A second limitation of Rotter's general measure concerns its tendency to correlate with social desirability response set (Spector, 1982). As Boone (1988) observes, unfortunately, strategy researchers investigating the role of locus of control beliefs have not generally controlled for social desirability response set in their studies and so it is possible that some, or all, of the relationships previously observed between locus of control, strategy-making, structure and environment, are a function of respondents attempting to present themselves in a socially desirable manner. The objective of the present study, therefore, was to develop an instrument that was domain-specific and not prone to correlate with social desirability.

METHOD

Participants

Two separate groups of participants were employed in order to develop and validate the Strategic Locus of Control Scale. Both groups participated in the research on an unpaid voluntary basis.

Sample 1 comprised a total of 100 personnel, mainly owner–managers of small businesses from Sheffield, England, of whom 94 returned usable data. Sample 2 comprised a group of 208 real estate brokers/estate agents (various grades) from 58 organizations dispersed throughout the North-East Midlands area of the UK. This sample completed a number of measures, in addition to the measures reported here, as part of a wider investigation, beyond the scope of the present paper.

Research instruments

Strategic locus of control

Strategic Locus of Control was assessed via the 16-item scale shown in the Appendix. This scale was created from an initial item pool comprising a total of 36 questions derived from a conceptual analysis of the locus of control construct as it relates to the strategic management field.

The questions comprising the initial item pool were balanced in terms of the extent to which they were intended to reflect locus of control beliefs about the strategic management of organizations in general and the strategic management of the respondents' own particular firms. The rationale for this design of the item pool, follows directly from an analysis of Rotter's (1966) original conception of the construct.

The I–E Scale contains several items of a personal nature (e.g. 'I have often found that what is going to happen will happen'; 'When I make plans, I am almost certain that I can make them work.') Other items within the scale, however, are of a more general nature (e.g.

'Most students don't realize the extent to which their grades are influenced by accidental happenings'; 'In the long run the people are responsible for bad government on a national as well as on a local level.')

Given that the aim was to develop a domain-specific scale reflecting, as closely as possible, the underlying rationale of the original concept of locus of control as conceived by Rotter, it was deemed appropriate to develop a set of items which were balanced, in terms of their content, between statements relating to Strategic Locus of Control beliefs about organizations in general and belief statements pertaining to the respondents' own particular organization. The items were also balanced with respect to the number of internally and externally worded items. Respondents were required to indicate the extent to which they agree with statements on a five-point Likert Scale ranging from 1 ('strongly disagree'), through 3 ('unsure') to 5 ('strongly agree'). Internally worded items were reverse-scored in order to render the scoring system compatible with the Rotter I–E and Work Locus of Control scales.

Four criteria were employed in order to select items for the final scale, namely, acceptable item-total correlations, lack of correlation with social desirability, and that the scale should be balanced with respect to the number of general and specific items on the one hand, and, on the other, internally and externally worded items, thus following the rationale adopted in the design of the initial item pool, as discussed above. As noted previously, a 16-item scale emerged from the application of these criteria.

General I–E and work locus of control

General and Work Locus of Control were assessed using the Rotter I–E scale (Rotter, 1966) and Spector's (1988) Work Locus of Control scales, respectively. These measures were incorporated in the study in order to assess the convergent validity of the Strategic Locus of Control Scale. It was predicted that the Strategic, Work and Rotter I–E locus of control scales would all be positively intercorrelated with one another, but that the Strategic Locus of Control Scale would be more strongly related to the Work Locus of Control Scale than the Rotter.

Social desirability

Social desirability was assessed using the Crowne and Marlowe (1964) social desirability scale. Following Spector's work (Spector, 1982, 1988), it was predicted that the Marlowe–Crowne social desirability scale would correlate negatively with the Rotter I–E scale, but not with the Work Locus of Control Scale.

Strategy making, organizational structure and environment

Perceptions of various aspects of strategy making, organizational structure and environment were assessed using slightly modified versions of the scales initially devised and employed by Miller and his associates in their studies of chief executive locus of control (Miller *et al.*, 1982). These measures were selected for the present exercise because they are known to correlate negatively with the Rotter I-E scale. Following Miller's work, it was predicted that the various strategy making, structure and environment measures would all correlate negatively with the Strategic Locus of Control Scale.

Environmental scanning

Previous studies by Miller and his associates have demonstrated that organizations with internal CEOs tend to scan the environment more frequently than organizations with external CEOs. However, in these studies environmental scanning has been operationalized at the organizational level. It is not clear from previous research how locus of control beliefs relate to individual scanning strategies. From the work reviewed earlier, we would expect to find that strategic internals generally seek more information on a more frequent basis than their external counterparts in an effort to retain control of their environment. On the other hand, it is also likely that the type of information internals seek is of a qualitatively different nature. Given our earlier observations, we would expect to find that internals on balance more actively seek information relating to opportunities rather than threats and vice versa (cf. Dutton, Walton and Abrahamson, 1989).

The extent to which the individual scans the environment for pertinent information (*frequency*)

was assessed via a 13-item Likert scale devised by the present author. Respondents are required to indicate the extent to which they seek information through a variety of sources, including relevant industry reports, personal contacts, clients and the like. A second scale comprising four bipolar items, was designed to assess the extent to which the respondent scans the environment primarily in order to learn of threats which they must defend their business against (low score), vs. *opportunistic scanning* (high score), i.e. scanning with a view to spotting new business opportunities. It was predicted that both these scales would correlate negatively with the Strategic Locus of Control Scale.

Organizational performance

Five aspects of organizational performance (wealth, market position, adaptability to changing circumstances, working climate and future prospects for the immediate year ahead) were assessed using slightly modified versions of the scales developed by Nicholson (1991). Multiple items with a Likert type response format were devised in order to assess respondents' perceptions of the relative performance of the part of their organization for which they have responsibility, or belong to, (section, branch or entire company) in relation to its main external competitor(s). On the basis of the underlying theory of locus of control, outlined earlier, it was predicted that significant negative correlations would emerge between the various performance indicators and the Strategic Locus of Control Scale.

Procedure

Sample 1 completed the entire 36-item pool of Strategic Locus of Control items. In addition they also completed the original Rotter (1966) I–E scale and Spector's (1988) Work Locus of Control Scale, described above, together with the Marlowe–Crowne Social Desirability Scale (Crowne and Marlowe, 1964). Sample 2 completed the final 16-item version of the Strategic Locus of Control Scale together with the various strategy making, organizational structure, environment, performance and environmental scanning scales outlined above. In each case, the order in which the various measures were presented was randomized so as to minimize the possibility of order effects.

RESULTS AND DISCUSSION

Tables 1 and 2 summarize the results relating to samples 1 and 2, respectively. Corrected item-total correlations for the Strategic Locus of Control Scale arising from both samples are shown in the Appendix.

All the scales were generally found to have good reliabilities, with coefficient alphas (Cronbach, 1951) ranging between 0.70 and 0.88. One notable exception was the technocratization scale, which had a coefficient alpha of 0.53. However, in view of the relatively small number of items forming this scale, it was deemed to be sufficiently reliable for use in the study.

The data indicate that the Strategic Locus of Control scale demonstrates acceptable convergent validity with respect to the other measures used in the study. As expected, the Strategic Locus of Control Scale shows significant positive correlations with the Rotter and Work Locus of Control scales, and (with one exception) significant negative correlations with the various strategy, structure, scanning and performance scales. Moreover, there is a very low and nonsignificant correlation between the Strategic Locus of Control Scale and the Marlowe–Crowne Social Desirability Scale. The Rotter I–E Scale, by contrast, correlated significantly with the Marlowe–Crowne scale ($r = -0.26$, d.f. = 89, $p < 0.01$), thus suggesting that the previous studies which have investigated locus of control and strategy as outlined earlier, may be confounded by lack of control for social desirability. Given the overall pattern of these results it would appear that the Strategic Locus of Control Scale is sufficiently reliable and valid, for use in future strategic management studies.

CONCLUSIONS

Previous strategic management studies investigating locus of control beliefs have tended to use Rotter's (1966) I–E scale. However, this measure suffers from a number of limitations which render it unsuitable for research in strategic management, namely, its lack of context-speci-

Table 1. Means, standard deviations, reliability coefficients and scale intercorrelations for the scales completed by sample 1

	Scale	*N*	Mean	*SD*	Alpha	Scale intercorrelations 1	2	3	4
1.	Strategic locus of control[a]	94	2.68	0.53	0.82	—			
2.	Work locus of control[a]	93	2.69	0.69	0.83	0.43**			
3.	General I–E	91	11.65	4.31	—	0.34**	0.42**	—	
4.	Social desirability	93	14.37	5.00	—	0.08	−0.15	−0.26*	—

*$P < 0.01$, **$P < 0.001$, (1-tailed).
[a]The scores for these scales were computed by averaging across the items for each respondent. The Strategic Locus of Control Scale items were evaluated on the basis of a five-point response format, whereas the Work Locus Scale items were evaluated on the basis of a six-point format.

Table 2. Means, standard deviations, reliability coefficients, and correlations with strategic locus of control for the scales completed by sample 2

Scale[a]	*N*	Number of items	Mean	*SD*	Alpha	Correlation with strategic locus of control
Strategic locus of control	208	16	2.52	0.46	0.77	—
Env scanning (frequency)	208	13	4.20	0.75	0.74	− 0.25***
Env scanning (threat vs. opportunity)	208	4	5.15	1.03	0.78	− 0.43***
Strategy making						
Innovation	208	4	4.15	1.31	0.74	− 0.41***
Risk taking	208	2	3.59	1.40	0.84	− 0.14*
Proactiveness	208	2	5.08	1.58	0.87	− 0.35***
Futurity	207	5	4.30	1.35	0.84	− 0.33***
Environment						
Dynamism	207	7	4.40	1.02	0.79	− 0.16**
Hostility	208	6	4.43	1.04	0.77	− 0.12*
Heterogeneity	208	8	3.97	0.96	0.75	− 0.13*
Organizational structure						
Env scanning	208	4	4.03	1.39	0.77	− 0.40***
Technocratization	208	3	4.05	1.13	0.53	− 0.21**
Differentiation	208	3	3.69	1.35	0.70	− 0.03
Organizational performance						
Wealth	188	4	4.43	1.30	0.81	− 0.18**
Markets	197	4	4.48	1.10	0.81	− 0.26***
Adaptability	203	5	4.91	1.04	0.85	− 0.28***
Climate	205	4	5.61	1.14	0.88	− 0.16**
Future growth	208	4	5.00	0.94	0.84	− 0.40***

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$ (1-tailed).
[a]All scales were scored by averaging across the items for each respondent. The Strategic Locus of Control Scale items were evaluated on the basis of a five-point response format. All other scale items were evaluated using seven-point formats.

ficity and its tendency to correlate with social desirability. This paper has reported the development of an alternative measure of locus of control, a measure designed specifically for use in strategic management studies. The Strategic Locus of Control Scale, is relatively context-specific and, unlike the Rotter I–E scale, does not correlate with social desirability. The measure has been demonstrated to be both reliable and valid, in terms of its relationship to other theoretically meaningful constructs.

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APPENDIX: CORRECTED ITEM-TOTAL CORRELATIONS FOR THE STRATEGIC LOCUS OF CONTROL SCALE

Item*	Corrected item-total correlations** Sample 1 (N = 94)	Sample 2 (N = 208)
1. There is very little my company can do in order to change the 'rules of competition' in our industry.	0.63	0.52
2. Many of the problems experienced by businesses can be avoided through careful planning and analysis.	0.34	0.35
3. To a great extent the competitive environment in which my company operates is shaped by forces beyond its control.	0.43	0.41
4. Becoming a successful company is a matter of creating opportunities, luck has little or nothing to do with it.	0.26	0.27
5. There is little point in the majority of companies taking an active interest in the wider concerns of their industry because only the larger more powerful companies have any real influence.	0.46	0.29
6. It is not always wise to make strategic plans far ahead because many things may turn out to be a matter of good or bad fortune anyhow.	0.51	0.36
7. My company can pretty much accomplish whatever it sets out to achieve.	0.45	0.27
8. Most companies can have an influence in shaping the structure of the market.	0.22	0.42
9. As regards competing in the market place, most companies are the victims of forces they cannot control.	0.42	0.53
10. There is little point in engaging in detailed strategic analyses and planning because often events occur that my company cannot control.	0.49	0.38
11. Usually companies fail because they have not taken advantage of their opportunities.	0.42	0.36
12. My company is able to influence the basis upon which it competes with other firms.	0.42	0.36
13. Businesses who rarely experience strategic problems are just plain lucky.	0.42	0.15
14. There is a direct connection between the interest you take in your competitors' businesses and the success of your own company.	0.35	0.30
15. My company has a direct role in shaping the environment in which it competes.	0.34	0.45
16. Market opportunities in my industry are largely predetermined by factors beyond my company's control.	0.53	0.48

*Items 2, 4, 7, 8, 11, 12, 14 & 15 are reverse-scored.

**This is the correlation between each item's score and the scale scores computed from the other items in the set.