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## SELECTION-PRESSURE INDUCES A SHIFT TOWARDS MORE INTERNAL SCORES ON ROTTER'S 1-E LOCUS OF CONTROL SCALE

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### ABSTRACT

*Locus of Control is a personality trait which is highly relevant for success in managerial jobs and therefore as a selection criterion. In an experimental simulation we investigated among graduate students in Applied Economics and sophomore students in Medicine how selection-pressure affects their answers on the Locus of Control scale. Results indicate that selection-pressure induces more internal answers independently of the undistorted answers obtained without selection-pressure.*

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### INTRODUCTION

#### Why Locus of Control?

Locus of Control is a construct developed by Rotter (1966) which has potential relevance for understanding individual differences in managerial performance. Therefore, the measurement of this trait can be used as a selection instrument for hiring and promoting candidates for managerial jobs.

The construct refers to individual differences in generalized belief in internal versus external control of reinforcements. Those with an external control (externals) see themselves as relatively passive agents and believe that the events in their lives are due to uncontrollable forces. Externals feel that the things they want to achieve are dependent on luck, chance and powerful

persons or institutions. They believe that the probability of being able to control their lives by their own actions and effort is low. Conversely, those with an internal Locus of Control (internals) see themselves as active agents, feel that they are masters of their fates and trust in their capacity to influence the environment. Internals assume that they can control the events in their lives by effort and skill.

Internal versus external Locus of Control expectancies are associated with behavioral tendencies which have direct implications for successful management and leadership. For a review of the findings see Boone, De Brabander and Van Witteloostuijn (1996).

### **Distortion of Locus of Control Scores Obtained Under Selection-Pressure**

The items of the scale developed by Rotter to measure Locus of Control are forced choice items. One choice reflects an internal Locus of Control orientation while the other reflects an external Locus of Control orientation. In addition, choosing internal answers reflects self-confidence and optimism while choosing external answers expresses a rather fatalistic attitude. In one study we were able to show a relationship between external scores and fatalistic views about one's future (Boone, De Brabander, Gerits and Willemé, 1990). In our competitive society self-confidence and optimism are socially desirable traits especially for persons who have to lead others. Suppose that perceptive respondents know this and can perceive which answers reflect the 'right' attitude. Then we can expect respondents to choose more internal answers when they are instructed to answer as if they were in a selection situation, applying for a managerial job for example.

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### **Context of the Study**

The research results reported in this article can be situated at the periphery of the stream of research about the construct and predictive validity of personality testing in personnel selection. Excellent recent reviews can be found in Ones and Viswesvaran (1998) ; Ones, Viswesvaran and Reiss (1996) and, Rosse, Stecher, Miller and Levin (1998). The latter authors explicitly recommend the following : "Future studies need to address the effects of response distortion on construct validity, rather than looking only at its effects on criterion-related validity" (p. 641)." These researchers found that response distortion is greater among job applicants than among job incumbents, which suggests that the stronger the demand characteristics of the situation the more response distortion is likely to occur. In the present study we also manipulated these demand characteristics in order to see their effect upon the Locus of Control scores. Rosse and colleagues (1998) also found considerable individual differences in response distortion and – as they predicted – the response distortion scores correlated most strongly with scores of job-related personality traits (e.g. neuroticism and conscientiousness). Combined, both findings imply that response distortion does damage to the construct validity of the personality measures but not necessarily to the predictive validity.

In our study we address the question of the effect of response distortion on construct validity indirectly by means of investigating the internal consistency and the test-retest reliabilities of the Locus of Control scores in situations with and without pressure to distort the answers. The differences in test-retest reliabilities combined with differences in internal consistency should

provide information about the degree to which the construct validity might be affected by selection pressure. If the change in test-retest reliability appears to be substantial but the internal consistency is unaffected by selection pressure, then something other than the intended trait is reliably measured under selection pressure. Thus, the latter measure has lost its construct validity. If selection pressure reduces both test-retest reliability and internal consistency, then it would also reduce predictive validity considering that a test's predictive validity cannot be higher than its reliability.

### **Purpose of the Study**

The purpose of the present study is fourfold:

1. Check whether test instructions that induce subjective selection pressure change the internal consistency of the answers on Rotter's I-E Locus of Control scale as compared to answers obtained when instructions do not induce selection pressure.
2. Check whether test instructions that induce subjective selection pressure reduce test-retest reliability.
3. Check whether test instructions that induce subjective selection pressure reduce external answers and increase internal answers on the Locus of Control scale.
4. Test the hypothesis that the response distortion expected in hypothesis 3 will be more pronounced among a group of graduate students in Applied Economics who simulate answers as if they were applying for a managerial job than among sophomore students of Medicine who simulate answers as if their scores will be used as selection criterion for an apprenticeship in the hospital at the end of their studies of Medicine. In the first group more selection-pressure is expected to be induced because these students are closer to the time of graduation and because the stakes involved are higher and more similar to real life competition for a job with responsibility.

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In our study the subjects are students and the pressure to distort responses is simulated rather than real. Also no real job is performed. Therefore there are no performance measurements. As a consequence we cannot evaluate if response distortion affects the possible predictive validity of Locus of Control scores. Also the tendency to give distorted responses as a function of self-deception or impression management tendencies (Barrick and Mount, 1996) cannot be estimated because they are not measured. But this was not the purpose of the present study. We only wanted to know if Locus of Control scores themselves would be susceptible to distortion as a consequence of induced pressure to depict oneself favorably and thus maximize one's chances to obtain a desirable job (strong pressure) or apprenticeship (less pressure) and in which direction. We expect that an internal Locus of Control orientation will be considered as more desirable personally (affecting self-deception) and socially (affecting impression management). We also speculate that persons who perceive that the self-confidence and optimism implied by an internal Locus of Control enhance professional success have the capacity to steer their behavior in that direction. Persons who are not aware of the social benefits are less likely to take matters in their own hands.

### **METHODS**

## Dependent Variable

Locus of Control was measured with a Dutch translation of the well-known and widely used Rotter scale (Rotter 1966). The original scale contains 29 forced-choice items, 23 of those items being designed to measure the Locus of Control expectancies (and 6 being filler items). Each item consists of a pair of statements. The respondents have to choose between an internal and an external alternative. The following pair of statements is a clear example: "Many times I feel that I have little influence over the things that happen to me" (external alternative) and "It is impossible for me to believe that chance or luck plays an important role in my life" (internal alternative). A total Locus of Control score is obtained by counting the number of external alternatives chosen (with minimum 0 and maximum 23). The translated scale contains 14 filler items in order to make the purpose of the test more obscure. The reliability and validity of this Dutch translation were demonstrated in several studies (Boone et al. 1990; De Brabander, Boone and Gerits, 1992).

## Subjects, Experimental Procedures and Design

Forty-six graduate students in Applied Economics and 73 sophomore students in Medicine agreed at the start of a class to answer three questionnaires: a health symptom check list, the sensation seeking questionnaire and our Dutch version of Rotter's Locus of Control scale. The instructions asked respondents to answer spontaneously and honestly according to their true beliefs. At the start of a lesson one week later, the instructor randomly put Rotter questionnaires on the school banks with two types of instructions. The incoming students were asked to fill in the places consecutively as they entered the classroom. Thus we obtained two randomly divided groups: S (selection pressure) and not-S (no selection pressure). The students were asked to answer the Rotter scale a second time and carefully read the new instructions. They had not been warned about this. The instructions for the Rotter scale in groups S were:

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- in Applied Economics: "We ask you to answer the questionnaire a second time. Please give the answers you would give if you had to respond the questionnaire as part of a selection procedure for an attractive managerial job."
- in Medicine: "We ask you to answer the questionnaire a second time. Please give the answers you would give if you had to respond the questionnaire as part of a first round screening procedure to be admitted to a selection interview for being accepted as an hospital apprentice."

The instructions in the not-S groups were the same as the first time. Because some of the students were not present in both lessons several cases were lost for the analysis. In the analysis we use two experimental factors namely selection-pressure (S) or not (not-S), and faculty (Applied Economics versus Medicine) which in this case also implies different S-instructions. In the analysis we also use as control variables gender and nationality of the respondents. In our university we have many Dutch students besides our Belgian students. We have no specific hypotheses about the influence of these factors but it seemed possible that they might interact with the effect of selection-pressure.

## Data Analysis

We used the SPSS 8.0 Windows version of Generalized Least Square Multiple Analysis of Variance with Repeated Measures to analyze the influence of the experimental and control factors on the Rotter scores obtained on the first and second measurement. Correlations between scores of the first and second measurement are calculated by means of Pearson's product moment correlation coefficient R and Spearman's rank correlation coefficient Rho. Internal consistencies of the answers on the separate items of the Rotter scale are calculated by means of Cronbach's Alpha. The normality of the Locus of Control score distributions in the different experimental conditions is tested by means of the Kolmogorov-Smirnov Z test.

## RESULTS

Table 1 shows the average Locus of Control scores, standard deviations, number of cases, the asymptotic significance (2-tailed) of the Kolmogorov-Smirnov Z-test of normality, the Cronbach Alpha coefficient of internal consistency and Pearson's R as well as Spearman's Rho between the first and second Locus of Control measurement in the 4 experimental groups: S in Economics, not-S in Economics, S in Medicine and not-S in Medicine.

The Kolmogorov Smirnov tests do not allow us to reject the hypothesis that the Locus of Control scores obtained in the different experimental conditions are representative of a normal distribution. The standard deviations show that the scores are fairly homoscedastic.

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A MANOVA with repeated measures can be used to provide answers to the research questions. Table 2 shows the results. The repeated measure-factor is designated with the name: Measure.

**Table 1. Descriptive and Test Statistics in Four Experimental Conditions**

Statistic	Group not-S in Economics	Group not-S in Medicine	Group S in Economics	Group S in Medicine
<b>Mean Locus of Control Score</b>				
First Measurement	13.23	13.25	14.50	12.50
Std. Deviation	3.47	3.26	2.95	3.36
N	26	36	20	32
Second Measurement	12.81	13.32	7.60	8.59
Std. Deviation	3.78	3.26	4.37	4.73
N	26	38	20	34
<b>Kolmogorov-Smirnov Z</b>				
First Measurement	0.649	0.688	1.094	0.865
Significance (2-tailed)	0.793	0.732	0.182	0.443

Second Measurement	0.888	0.819	0.447	1.006
Significance (2-tailed)	0.410	0.513	0.988	0.263
<b>Cronbach Alpha</b>				
First Measurement	0.62	0.66	0.54	0.63
Second Measurement	0.69	0.62	0.81	0.83
Pearson R between 1st and 2nd Measurement	0.744	0.781	-0.061	0.527
Significance (2-tailed)	0.000	0.000	0.797	0.002
Spearman Rho between 1st and 2nd Measurement	0.530	0.716	-0.052	0.495
Significance (2-tailed)	0.500	0.000	0.826	0.005

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**Table 2. MANOVA with Repeated Measures of Locus of Control Scores**

Source	Sum of Squares	df	Mean Square	F	Significance
<b>Within-Subjects</b>					
Measure	95.561	1	95.561	14.285	0.000
Measure*Selection-Pressure (S vs. not-S)	310.121	1	310.121	46.359	0.000
Measure*Faculty (Economics vs. Medicine)	40.677	1	40.677	6.081	0.015
Measure*Gender (Female vs. Male)	2.321	1	2.321	0.347	0.557
Nationality (Belgian vs. Dutch vs. Other)	13.846	2	6.923	1.035	0.359
Error	15.782	107	6.690		
<b>Between-Subjects</b>					
Intercept	8124.778	1	8124.778	396.001	0.000
Selection-Pressure	253.437	1	253.437	12.352	0.001
Faculty	0.281	1	0.281	0.014	0.907
Gender	25.616	1	25.616	1.249	0.266
Nationality	80.311	2	40.156	1.957	0.146

Error	2195.326	107	20.517		
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It appears from the data in Table 1 that the respondents provided consistent answers in all the experimental conditions even in conditions with selection-pressure. So selection-pressure does not seem to induce erratic answers. If we further look at the test-retest correlations one can see that selection-pressure seems to cause a reduction but only dramatically in the sample of graduate students in Applied Economics whom we asked to answer as if they participated in a selection for an attractive management job. It seems that these students somehow thought that certain types of answers would improve their chances to get the job.

When we look at the means of the Locus of Control scores we observe that more internal answers are consistently preferred when selection-pressure is present and mostly so among the Economics students. We are inclined to conclude from this that these students perceive that persons who express self-confidence and feelings of control make a better impression, especially in a management environment. However, it also seems that this perception is more or less independent of their Locus of Control orientation because the test-retest correlation is reduced or vanishes in conditions wherein the students are asked to fake a good impression. This implies that in the 'right' conditions a person's self-image does not necessarily overlap with his or her conception of the social desirable self. From the available data we cannot tell if the description of the social desirable self predicts performance in a job with management responsibility. As we mentioned before, we believe it can, independently of the self-image, if we can assume that certain persons know that such a social image can be important for success and will adopt it when needed in his or her professional life.

Because the internal consistency of the answers does not seem to be affected by the experimental treatments, the potential predictive validity of the scores obtained under selection pressure is still possible. Anyhow, from the results of the analysis of variance described in Table 2 it is clear that we cannot reject the hypotheses put forward in the introduction. Selection-pressure clearly seems to induce more internal answers (see interaction effect of Measure\*Selection-pressure in Table 2) and, students subject to more 'important' and possibly more realistic selection-pressure such as the students of Economics as compared to those of Medicine tend to shift more towards internal answers (see interaction effect of Measure\*Faculty in Table 2).

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## DISCUSSION

The findings impose important theoretical as well as practical questions for further research. Self-reported Locus of Control scores can reflect different underlying tendencies, depending on the response conditions. Which tendency is most predictive of success, especially in jobs wherein contextual performance (as in management jobs) is a key factor? Or, do both tendencies have predictive validity or, do they interact? For instance, it is possible that only internal subjects

who fake even more internality under selection-pressure possess the necessary motivation as well as the necessary social insight to effectuate the attitude which leads to more successful contextual job performance. We hope that we will be able to trace the students who participated in this study and obtain data about their career successes. These data might provide some tentative answers.

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