SWP 32/92  THE DIMENSIONALITY AND WELL-BEING CORRELATES OF WORK LOCUS OF CONTROL

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Theoretical and empirical developments with the locus of control construct demonstrate that it is a context specific multi-dimensional construct that has implications for stress, well-being and job performance. In this paper, the multi-dimensionality of work specific locus of control is explored by subjecting Spector’s work locus of control scale to principal components analysis. Using samples of 221 university staff and 399 accountants, a two dimensional structure was uncovered; external agents control and personal control. Test-retest data with a sub-sample of 244 accountants revealed that work locus of control may be best thought of as a state rather than trait measure. Correlations with constructs that have been theoretically and empirically associated with locus of control indicate different results for the two dimensions, thus demonstrating the importance of treating locus of control as domain specific multi-dimensional construct.
INTRODUCTION

A great deal of evidence has accumulated to suggest that high perceived control over the workplace is associated with greater job motivation, performance, satisfaction, health, tenure, organizational commitment, job involvement, and lower levels of emotional distress, role stress, absenteeism, intent to turnover and actual turnover (Spector, 1982, 1986, Aronsson, 1989). Clearly, perceived control and its measurement have implications for job performance and employee well-being. One construct that relates to perceived control in the workplace is locus of control.

Locus of control is thought to be the generalized expectancy that behaviours lead to desired outcomes (Rotter, 1966). The person with an internal locus of control perceives him/herself to be the primary determinant of what happens to him/her. The person with an external locus of control perceives extra-personal factors such as luck and powerful others as the determinants of what happens to him/her. Hence, locus of control is a generalized perception of control.

Although Rotter (1966) originally suggested that locus of control is a stable personality trait, more recent developments suggest that it is better to treat locus of control as more situationally/contextually specific.
Work on the dimensionality of locus of control shows this to be true.

Early factor analyses of Rotter’s I-E measure of locus of control (1966) show that the scale consists of more than one factor, although these analyses produced inconsistent results (Lefcourt, 1982), possibly due to differences between samples (cf. Tyler et al, 1989).

Two lines of theory have produced a more stable empirical and theoretical base for the multi-dimensionality of locus of control. Levenson (1981) considers locus of control to be determined by three separate components; internality, chance and powerful others. Paulhus and Christie (1981, Paulhus, 1983) consider the individual to be in the centre of three spheres; personal achievement, interpersonal and socio-political. Paulhus and Christie consider there to be a generalized perception of control for each of these spheres. Other researchers have attempted to formulate locus of control scales for particular domains, such as health (Hartke & Kunce, 1982) and unemployment (Taylor, 1988).

Spector (1988) has presented the sixteen item Work Locus of Control Scale (WLCS) that relates specifically to the work context. Each item is rated on a six-point Likert type scale, ranging from strongly agree to strongly disagree. However, the problem with the WLCS is that it is scored uni-dimensionally, despite theoretical and
Empirical evidence that locus of control is multidimensional. It is clearly important to determine the appropriate structure of work locus of control in order to increase the accuracy of its measurement. Therefore, one aim of the study reported here is to subject the WLCS to principal components analysis as a preliminary exploration of the dimensionality of work related locus of control.

Rees and Cooper (1992) have suggested that the locus of control scale from the Occupational Stress Indicator (Cooper et al., 1988) is measuring a state perception of control, rather than a trait. It may be that work related locus of control is a state construct. The extent to which the WLCS is a state rather than a trait measure will also be assessed in this study.

Locus of control has been shown to be associated with a wide range of health and well-being measures (Lefcourt, 1982, Kasl, 1989). Some studies have also reported correlations between locus of control and social support (Revicki & May, 1985, Krause, 1987). Parkes (1989) also considers perceived control to be related to actual control in the work place. It is therefore important, if work locus of control is indeed multi-dimensional, to determine the extent to which different work locus of control dimensions relate to stress, well-being and related constructs, such as social support and work place autonomy. As noted earlier in the introduction, locus
of control may also have implications for job performance. Unfortunately, job performance data were not gathered in this study.

In summary, the aims of this paper are to explore the dimensionality of work locus of control as measured by the WLCS, determine the extent to which work locus of control is a trait or state measure and to explore the well-being related correlates of work locus of control.

METHODS

Respondents.
Respondents were drawn from two samples. The first consisted of 221 university staff (response rate = 38.5%). This sample had a modal age value of 41 to 50 years and 57.0% were male. The second sample consisted of 399 accountants (response rate = 28.5%), of which 244 responded to a follow-up questionnaire one month later. This sample had an average age of 39.1 years (std dev = 9.5), and 334 (83.7%) were male. The low response rates for the second sample may be attributed to the length of the questionnaires mailed to the target sample, including a long follow-up questionnaire. Daniels (1992) reports analyses which suggest that both samples are representative of the populations under study.
Questionnaire design.

The sample drawn from the university establishment were administered the WLCS, a fifteen item frequency of stressor scale and the 12 item version of the general health questionnaire (GHQ12, Goldberg & Williams, 1988, alpha = 0.82), in which high scores indicate poor psychological well-being. The fifteen item stressor scale, designed especially for the study of university staff, has been shown to consist of two factors (Daniels & Guppy, 1992); work load stressors (alpha = 0.74) and managerial and role stressors (alpha = 0.63). Full psychometric details of the scales used can be found in Daniels and Guppy (1992).

The sample of accountants were administered the WLCS along with a fifteen item social support scale (three dimensions; help support (alpha = 0.80), esteem support (alpha = 0.71) and social dependability (alpha = 0.90)), an eighteen item stressor frequency scale, an eighteen item stressor intensity scale (both with three dimensions, quantitative work load stressors (alphas = 0.71/0.82), professional/administrative interface stressors (alphas = 0.76/0.78) and nuisance stressors (alphas = 0.57/0.60)), an eight item index of task autonomy (alpha = 0.87) and a nine item environmental clarity scale (alpha = 0.81). This latter scale assesses the extent to which communications and job requirements are clear within the organisation. All these scales were designed especially for the study of stress in
accountants. In addition, the GHQ12 (alpha = 0.87), Warr's (1990) measures of job pleasure (alpha = 0.91), contentment (alpha = 0.86) and enthusiasm (alpha = 0.88) and Aiken and Hage's (1968) four item measure of participation in decision making were also administered (alpha = 0.91). Full psychometric details of these scales can be obtained in Daniels (1992).

RESULTS

Descriptive statistics.
The uni-dimensionally scored WLCS was found to have a mean of 42.48 for the university sample (std dev = 9.34, alpha = 0.77). For the accountants' sample, the WLCS was found to have an overall mean of 39.80 (std dev = 9.47, alpha = 0.82). The high coefficients of reliability may suggest that it is acceptable to score the WLCS as a uni-dimensional measure of generalized perceived control in the work place.

The psychometric properties of the WLCS.
The WLCS was subjected to principal components analysis (PCA) for each sample separately. In both cases a varimax rotation was used. A number of statistics were used to judge the acceptability of the PCA solutions (listed in Norusis, 1988). The Bartlett test of sphericity came to 977.04 for the university sample and 1628.23 for the sample of accountants. Both these values were significant at p<0.00001, indicating suitability for
PCA. The Kaiser-Meyer-Olkin test of sampling adequacy came to 0.74 for the university sample and 0.84 for the sample of accountants. These statistics again indicate suitability for PCA.

In both analyses, Cattell's scree plot (1966) indicated a two factor solution would fit the data sets. Accordingly, two factors were extracted in both analyses. For the university sample, prior to rotation, the first factor accounts for 24.6% of the variance (eigenvalue = 3.93) and the second factor accounts for 14.7% of the variance (eigenvalue = 2.35). These two factors account for 39.3% of the variance in combination. For the sample of accountants, prior to rotation, the first factor accounts for 28.3% of the variance (eigenvalue = 4.53) and the second factor for 13.2% of the variance (eigenvalue = 2.11). Together, these factors account for 41.5% of the variance.

Items with a post-rotation value of greater than 0.35 in absolute value for both analyses were chosen to load upon a particular factor. Table 1. shows the post-rotation factor loadings. Items are arranged according to which factor they load upon.

As can be seen from table 1., items that load upon the first factor relate to external agents of control, items
that load on the second factor relate to perceptions of control in the personal domain. Therefore, the first factor may be called external agents control, and the second factor personal control. The means, standard deviations, reliabilities and inter correlations are shown in table 2. Note that high scores represent an external locus of control.

The test-retest reliabilities of the scales give an indication of how the scales vary with time, and hence whether they are best thought of as a trait or state measure. The sample of accountants was measured at a one month follow-up (n=244). For the external agents control dimension, the test-retest reliability came to $r = 0.77$. For the personal control dimension, the test-retest reliability came to 0.65. The former figure does indicate some degree of stability, although only 59.3% of the variance in the follow-up measures is accounted for by the initial measures. This figure is 42.3% for the personal control dimension. Therefore, it appears that the WLCS is measuring a state of locus of control, or perceived control at work at a given point in time.
The correlates of external agents control and personal control.

Locus of control has been shown to correlate with a wide range of measures of well-being, and variables related to well-being (see introduction). Therefore, it may be expected that the both work locus of control dimensions correlate positively with measures of work stress and the GHQ12 and negatively with measures of autonomy at work, social support and work related psychological well-being. Table 2 shows the correlations between such variables and the two locus of control dimensions for each sample. As can be seen from table 2, the correlations conform approximately to the expected pattern (detailed comments on the correlations are given below).

DISCUSSION

Principal components analysis revealed that the WLCS has two dimensions, external agents control and personal control. The result converges with theoretical developments by Levenson (1981), in that locus of control is seen to be multi-dimensional, differentiating personal control (internality) from external agents of control (luck or powerful others). The results reported here differ from those of Levenson’s model, in that Levenson suggests luck and powerful others should emerge as separate dimensions. In the PCA of the WLCS reported here, that was not the case. It may be that the dimensions that emerged were differentiating between the
control over the personal domain and control over the extra-personal domain (cf. Paulhus & Christie, 1981).

It is also possible that the dimensions emerged due to acquiescent response set. The WLCS consists of 16 items, eight of which are reversed scored. These reversed scored items formed the second factor. Thus neither of the factors contained any negative loadings of any significance. However, it is difficult to gauge the extent to which acquiescent response set has affected the findings, since both dimensions were substantively interpretable.

The test-retest correlations indicate that both these dimensions may be best treated as work specific state rather than trait measures. This result converges with Rees and Cooper (1992), who suggest that the work specific locus of control scale in the Occupational Stress Indicator is a state measure.

The correlations of the two dimensions were generally in the directions expected, although not all correlations reached significance. For the university sample, both dimensions correlated to the about same extent with GHQ12 score. Interestingly, external agents control did not correlate with work load stressors, but did correlate with managerial and role stressors. Work load stressors may be thought of as being more in the personal sphere of control than managerial and role stressors, which may be
more interpersonal in their nature. Accordingly, personal control correlated more strongly with work load stressors than managerial and role stressors. These results provide some evidence for the divergent validity of the two dimensions.

For the sample of accountants, personal control exhibited far stronger correlations with the measures of well-being, social support, stressors and work autonomy than external agents control. These results may be reflective of attitudes instilled by professional training. The professional, because of training, may value control and seek control in the personal sphere, since his/her professional work is primarily due to his/her own competence. Therefore, well-being and related variables should be more strongly related to personal control for accountants than external agents control.

Overall, the pattern of the correlations reported for both samples is indicative of the validity of the two dimensions, since they conform to the pattern of correlations suggested in the introduction. The differential pattern of the correlations and the differences between the two samples also indicates that work locus of control may be treated as a multi-dimensional construct.
The high internal reliability for the uni-dimensionally scored WLCS suggests that this scale may be used as an overall measure of generalized perceived work control. Indeed, since the factor structure reported here may be an artifact of acquiescent responding, it may be prudent to score WLCS uni-dimensionally.

There exist several avenues for future research with the locus of control construct as applied to the work place. It was noted in the introduction that an internal locus of control is associated with better job performance. It may be the case the personal control dimension is associated more with performance in solitary spheres (eg. accounting), but the external agents control dimension may be associated more with performance in jobs requiring extensive inter-personal contact (eg. sales).

A pressing issue for further research is to delineate the extent to which the factor solution reported here is due to real differences or acquiescent responding. This issue may be best addressed by designing work locus of control scales that have been specified a priori to be multi-dimensional and then subjected to confirmatory factor analysis (cf. Paulhus, 1985). Such scales should include reversed scored items in the sub-scales.
REFERENCES


Table 1.
Post-rotation factor loadings. University sample loadings are shown before the slash, accountants sample after the slash.

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting a job is mostly a matter of luck</td>
<td>.49/.62</td>
</tr>
<tr>
<td>Making money is primarily a matter of good fortune</td>
<td>.70/.65</td>
</tr>
<tr>
<td>In order to get a really good job, you have to have family members or friends in high places</td>
<td>.70/.70</td>
</tr>
<tr>
<td>Promotions are usually a matter of good fortune</td>
<td>.65/.71</td>
</tr>
<tr>
<td>When it comes to landing a good job, who you know is more important than what you know</td>
<td>.66/.75</td>
</tr>
<tr>
<td>To make a lot of money, you have to know the right people</td>
<td>.73/.70</td>
</tr>
<tr>
<td>It takes a lot of luck to be an outstanding employee on most jobs</td>
<td>.54/.52</td>
</tr>
<tr>
<td>The main difference between people who make a lot of money and people who make a little money is luck</td>
<td>.76/.68</td>
</tr>
<tr>
<td></td>
<td>-.12/.03</td>
</tr>
<tr>
<td></td>
<td>-.04/.05</td>
</tr>
<tr>
<td></td>
<td>-.11/.01</td>
</tr>
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</table>
Table 1. continued.

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor loading</th>
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<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>A job is very much what you make of it</td>
<td>-02/.07</td>
</tr>
<tr>
<td>On most jobs people can pretty much accomplish what they set out to do</td>
<td>-09/.08</td>
</tr>
<tr>
<td>If you know what you want out of a job, you can find a job that gives it to you</td>
<td>-08/.14</td>
</tr>
<tr>
<td>If employees are unhappy with a decision made by their boss, they should do something about it</td>
<td>.08/.12</td>
</tr>
<tr>
<td>Most people are capable of doing their jobs well if they make the effort</td>
<td>.11/-01</td>
</tr>
<tr>
<td>Promotions are given to employees who perform well on the job</td>
<td>-26/.42</td>
</tr>
<tr>
<td>People who perform their jobs well generally get rewarded for it</td>
<td>-04/.30</td>
</tr>
<tr>
<td>Most employees have more influence over their supervisor than they think they do</td>
<td>-04/-09</td>
</tr>
</tbody>
</table>
Table 2.

Means, standard deviations, internal reliabilities and inter-correlations of the WLCS factors and well-being related variables.

Sample: University staff

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Std dev</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>External agents control</td>
<td>22.95</td>
<td>7.30</td>
<td>0.82</td>
</tr>
<tr>
<td>Personal control</td>
<td>22.62</td>
<td>5.56</td>
<td>0.69</td>
</tr>
<tr>
<td>Inter-correlation between scales:</td>
<td>0.20 (p&lt;.01)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlation

<table>
<thead>
<tr>
<th>Variable</th>
<th>External agents control</th>
<th>Personal control</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHQ12</td>
<td>0.23**</td>
<td>0.24**</td>
</tr>
<tr>
<td>Work load stressors</td>
<td>0.01</td>
<td>0.21*</td>
</tr>
<tr>
<td>Managerial and role stressors</td>
<td>0.31**</td>
<td>0.16*</td>
</tr>
</tbody>
</table>

*p<.05 ** P<.01

Sample: Accountants

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Std dev</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>External agents control</td>
<td>20.13</td>
<td>6.66</td>
<td>0.83</td>
</tr>
<tr>
<td>Personal control</td>
<td>19.68</td>
<td>4.89</td>
<td>0.72</td>
</tr>
<tr>
<td>Inter-correlation between scales:</td>
<td>0.33 (p&lt;.001)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>External agents control</th>
<th>Personal control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantitative work load</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stressors: intensity</td>
<td>.09</td>
<td>.12</td>
</tr>
<tr>
<td>: frequency</td>
<td>-11</td>
<td>-10</td>
</tr>
<tr>
<td>**Professional/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>administrative interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stressors: intensity</td>
<td>.12</td>
<td>.16*</td>
</tr>
<tr>
<td>: frequency</td>
<td>-13</td>
<td>-12</td>
</tr>
<tr>
<td>**Nuisance stressors:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>intensity</td>
<td>.12</td>
<td>.16*</td>
</tr>
<tr>
<td>: frequency</td>
<td>.14</td>
<td>.16*</td>
</tr>
<tr>
<td>Help support</td>
<td>.01</td>
<td>-12</td>
</tr>
<tr>
<td>Esteem support</td>
<td>-10</td>
<td>-14</td>
</tr>
<tr>
<td>Social dependability</td>
<td>-17**</td>
<td>-27**</td>
</tr>
<tr>
<td>Participation in decision making</td>
<td>-18**</td>
<td>-30**</td>
</tr>
<tr>
<td>Task autonomy</td>
<td>-24**</td>
<td>-38**</td>
</tr>
<tr>
<td>Environmental clarity</td>
<td>-17*</td>
<td>-32**</td>
</tr>
<tr>
<td>GHQ12</td>
<td>.23**</td>
<td>.35**</td>
</tr>
<tr>
<td>Job pleasure</td>
<td>-20*</td>
<td>-40**</td>
</tr>
<tr>
<td>Job enthusiasm</td>
<td>-30**</td>
<td>-43**</td>
</tr>
<tr>
<td>Job contentment</td>
<td>-16</td>
<td>-33**</td>
</tr>
</tbody>
</table>

* p<.01 ** P<.001
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