

A Construct Validation of a Scale for Measuring Work Motivation*

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The Work Motivation Scale was administered along with an Activity Analysis of subject's jobs, to a sample of professional veterinarians. Factor analyses confirmed the construct validity of the Work Motivation Scale as a measure of Alderfer's (1972) ERG model of need motivation. The use of the independent Activity Analysis as a descriptive measure of job components, allowed comparison of these with their motivational properties. The results identified certain job characteristics which have motivational properties related to growth or self-development. Other characteristics of jobs are seen to be neutral as far as motivational properties are concerned. Some confirmation that values of New Zealand workers differ from those of North American personnel is also obtained. Further evidence relating to the relationship of job and life-satisfaction, suggests that both the 'spillover' and 'compensatory' models may apply in different motivational areas.

After dominating the literature for some time, the Job Characteristics Model (Hackman & Oldham, 1980) suffered a decline in interest, following criticisms (e.g., Roberts & Glick, 1981; Spector, 1985) that problems arose from the common method variance of the model confusing dimensions of job-activity with positive and negative evaluations of those activities. Other criticisms referred to the narrowness and lack of discriminability of the model's variables and difficulty in teasing out cause and effect relationships. More recent research has shown the need to extend the dimensions studied beyond the variables of "complexity" and "growth needs" covered in the Job Characteristics Model. O'Brien (1983) for example, showed that skill utilization plays an important role in job satisfaction and Alderfer's (1972) ERG model points to the importance of existence and relationship needs as well as those associated with growth.

For a recent study of job satisfaction among veterinarians (Shouksmith & Hesketh, 1986), a "Work Motivation Scale" was developed, using Alderfer's model (1972), to measure the extent to which professional veterinarians judge that their jobs are satisfactory in meeting their major needs. Also included in the study were ten 7-point scales, measuring independently the presence or absence of certain job characteristics, including those in the Job Characteristics Model, skill, and ability utilization as suggested by O'Brien (1983) and Karasek's (1979)

dimensions of "job demands" and "decision latitude". This scale has the advantage that it can be applied to both job and non-job activities, which allows the study of relationships among these variables and between job satisfaction and mental health. The results of one such study (Hesketh & Shouksmith, 1986) produced evidence for perception of job activities being related differently to levels of mental health and psychological well being and also demonstrated that non-evaluative descriptions of jobs could be measured independently from job and life satisfaction using evaluative scales.

Of further interest is the relationship between satisfaction with one's job and total satisfaction with one's life-style, a relationship which has not been clearly established. On the one hand, *compensation theory* argues that a person whose job is unsatisfying, will look for compensating satisfactions in other areas of life. *Spillover theory*, holds the opposing view that unhappiness at work is likely to affect one's whole life (Gruneberg, 1979).

The present study forms an extension of the original Hesketh and Shouksmith (1986) one described above adding specifically an investigation of these 'life-style' issues. It aims, firstly, to examine the structure of the Work Motivation Scale and secondly, to establish the relationships which exist between different characteristics of a professional job, satisfaction with that job and satisfaction with life in general.

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Table 1: *The Work Motivation Scale for Measuring Job Satisfaction*

Your job:

Please indicate how strongly you feel that the statement below apply to your job. Indicate for each statement the strength of your agreement or disagreement, on the following scale:

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Please give your ratings for the job *as it is*, and not how you feel it could or should be. From each statement select a number from the above scale to indicate your rating.

Your Job	Your Ratings
1. Has supervisors and leaders who are helpful and fair	_____
2. Gives you status and prestige	_____
3. Provides satisfactory material rewards	_____
4. Allows you to reach and develop your full potential	_____
5. Means working with pleasant and helpful workmates	_____
6. Is a secure one	_____
7. Provides good physical working conditions	_____
8. Is a challenging and exciting job	_____
9. Is one where your good work and hard efforts are appreciated	_____
10. Taken all round and considering all its aspects, is a very good one	_____

Method

Subjects

A sample of 384 professional New Zealand veterinarians participated in the study. There is a distinct male bias in the sample (female n = 42), reflecting a similar bias in the population of New Zealand Veterinarians.

Measures

The Work Motivation Scale: This scale contains 10 evaluative statements about the respondent's job. Nine of these were designed to cover aspects of "Existence, Relatedness and Growth" from Alderfer's (1972) ERG model. A tenth item was added measuring overall job satisfaction. A 7-point scale was used for each item as shown in Table 1.

Activity Analysis Scales: Full details of these bipolar, end-anchored, semantic scales are given in Hesketh and Shouksmith (1986). Ten 7-point scales cover dimensions of discretion (freedom to choose, what, when and how activities are carried out), job demands (control vs lack of control over speed of activity) as well as variety, degree of physical and mental effort, social contact and use of particular skills and abilities. Following Broadbent (1985), speed of activities and discretion in their use are separated.

Life-Satisfaction Measures: Two measures related to general life-satisfaction are included in the study in the hope of throwing light on the relationship between 'life' and 'job' satisfaction, an issue which has gained in importance as unemployment rates have risen. The two items, use the same response format as the Work Motivation Scales:

"Using the same scale, please indicate how strongly you feel the statements below apply to *your total life style* as it is now.

Your total life style:

A. makes the most of your particular abilities or skills.

B. taken all round, and considering all its aspects, is a very good one.

Results

The nine Work Motivation Scales together with the two Life Satisfaction measures were submitted to a Factor Analysis using SPSS. Work Motivation variable 10, measuring overall job satisfaction, was omitted, again following Broadbent (1985), as likely to contaminate the analysis. Normal default eigenvalues of 1.000 were used to decide when factors should cease being extracted, the adequacy of this principle being checked by

Table 2: Factor Structure of the Work Motivation Scales and Life-satisfaction Scales

VARIABLE (Source of Satisfaction)	FACTORS			h ²
	I	II	III	
A. LIFE-STYLE USES ABILITIES/SKILLS	.833			0.76
4. Job develops potential	.777			0.69
8. Job is challenging and exciting	.756	.406		0.76
2. Job gives status and prestige	.555	.345		0.43
5. Involved with pleasant co-workers		.756		0.64
1. Job has helpful and fair supervisors		.706		0.52
7. Good physical working conditions		.638		0.48
9. Good work and hard efforts appreciated	.527	.570		0.61
6. Job security			.785	0.62
3. Satisfactory material rewards			.783	0.63
B. OVERALL LIFESTYLE SATISFACTION	.476		.583	0.57
% Variance	41.6	12.5	8.5	

the "scree" test. This led to three factors accounting for some 63% of the variance being extracted, with eigenvalues of 5.4, 1.63, and 1.11 respectively. Varimax rotation to orthogonal structure produced the final rotated factor loadings shown in Table 2, with loadings of less than .3 being omitted.

Inspection of the major loadings on the factors suggests the following interpretation:

Factor I: The major job components on this factor are variables 4 and 8, referring to jobs perceived as allowing individuals to reach and develop their full potential and as offering challenge and excitement. These jobs are also seen as offering status and personal prestige to the incumbent. The factor would appear to equate with Alderfer's Growth Needs, which are manifested in the satisfaction of an individual's striving for unique personal development.

Factor II: This factor is very similar to Alderfer's Relatedness needs, dealing with positive relationships with others in the job area. Variable 5, the first major identifier for this factor, relates to "working with pleasant and helpful workmates" and Variable 1, the second identifier, refers to the presence of "supervisors and leaders who are helpful and fair". The presence of positive self-other relationships on the job is seen by this New Zealand group to be linked to having one's work and efforts appreciated (Variable 9) and to the provision of good physical working conditions (Variable 7).

Factor III: Identified by loadings for Variables 6 and 7, this factor is concerned with job security and the satisfaction of material rewards. It is clearly identifiable as Alderfer's E need-set, related to the satisfaction of

"Existence needs" by physical and material environmental factors.

A second analysis was made, involving all three measurement sets: the Activity Analysis Scales, the Work Motivation Scales and the Life Satisfaction Measures. Again, normal default eigenvalues and the 'scree' test were used with five factors being extracted and rotated to a varimax solution, using standard SPSS procedures. These factors have eigenvalues of 7.153, 2.124, 1.609, 1.353 and 1.047 respectively and together accounted for 60% of the variance. Table 3 shows the rotated factor matrix, with loadings of less than .3 omitted. In the analysis, scores on the Activity Analysis scales have been converted so that high scores (7) represent positive aspects of the variables concerned.

Interpretation of the factors is as follows:

Factor I: This corresponds to Factor I in the first analysis and is clearly 'G' in Alderfer's terms, concerned with the satisfaction of growth needs.

Factor 2: Factor 2 is a job component factor concerned with the extent to which the job incumbent is able to exercise control. Its main identifiers are AA5, referring to the degree of control over what is done on the job, and AA1, control over 'when' something is done. Other identifiers are AA3, which relates to an employee having control over 'how' the job is carried out and AA7, a 'pacing' item, relating to control over the speed at which job activities have to be carried out. It would appear to equate with Karasek's (1979) 'decision latitude' concept which refers to the amount of decision freedom or discretion an individual has in the job. In Karasek's original model, control over speed (pacing) was separated from other aspects of discretion. In the present context,

Table 3: *Factor Structure of all Three Sets of Measurement Variables (Activity Analysis, Work Motivation and Life-Satisfaction).*

Variables:	Factors:					h ²
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
WM4 Develop Potential	.787					0.70
LSB Overall use of Abilities and Skills	.786			.315		0.72
WM8 Challenge and Excitement	.765					0.77
WM10 Overall J.S.	.720					0.74
AA6 Mental Effort	.540	.444				0.59
WM9 Appreciation of Work Done	.517	.382			.408	0.61
AA2 Variety of Activities	.513	.448				0.66
WM2 Status and Prestige	.512	.404				0.49
AA5 Control — What		.782				0.65
AA1 Control — When		.763				0.66
AA3 Control — How		.493				0.57
AA7 Control — Speed		.489	.319			0.41
WM7 Physical work conditions	.329	.471			.308	0.44
AA9 Variety of Places			.736			0.65
AA4 Physical Effort			-.661			0.61
AA8 Work with others			.544			0.33
WM3 Material rewards				.767		0.65
WM6 Security				.729		0.55
LSB Overall satisfaction with LS	.409			.627		0.60
WM1 Quality of supervision					.725	0.60
WN5 Pleasant co-workers	.387	.355			.578	0.61
%Variance	32.5	9.7	7.3	6.1	4.8	

there appears to be no qualitative distinction between control over speed and other discretionary components of a job, though it does have a lower quantitative loading.

Factor 3: This is a further factor reflecting the nature of the job which appears to be concerned essentially with whether the job is carried out in one place or in a variety of places. Jobs carried out in a variety of places are perceived as involving work with others and also as requiring less physical effort.

Factor 4: Factor 4 equates with Factor III of the first analysis and reflects Alderfer's "Existence needs".

Factor 5: The final set of needs identified by Alderfer, the "Relationship needs" are covered by this factor.

Discussion

The results of the first analysis, presented in Table 2, offer a clear construct validation for this sample, of the Work Motivation Scale as a general motivation measure which reflects Alderfer's (1972) ERG model. Three factors assess separately the extent to which a job meets workers' material needs, provides positive interpersonal support and offers potential for development, growth and self-actualization.

The size of the sample and the diversity of jobs within the veterinary profession, ranging from standards control in the freezing industry, through commercial and business involvement, research work in MAF, to private and Club practice, suggest that these results could well be generalizable to other professional job areas.

One interesting result from Table 2 is the fact that "overall life satisfaction" loads on both E and G factors but not on the R factor. The quality of interpersonal-relations on the job and the job's ability to satisfy relationship needs do not appear to be important elements in producing general life-satisfaction. The findings may reflect others reported by Shouksmith (1987) that New Zealand workers often have qualitatively different work values from those in North America or the United Kingdom, for example, so that lifestyle satisfaction is less closely linked to one's job satisfaction than it is in many other countries. These differing attitudes towards jobs are reflected also in the fact that for this New Zealand sample "relationship" items, such as 1 and 5, linked to general physical working conditions (item 7) as a central variable in job satisfaction. A general conclusion is that Alderfer's model being set within the context of need-satisfaction theory, makes the scale one which measures

the extent to which a job satisfies an individual's major needs. Thus, it may also be seen as a three factor job-satisfaction measure.

The second analysis isolates relationships between these motivational or job satisfaction factors and different aspects of jobs as reflected in the descriptive categories used in the Job Activity Analysis. As might be anticipated this analysis reveals a more complex set of overlapping factors, although at the same time, the three factors from the first analysis do reappear as a further validation of the model and the Scale. Factor 1 equates with I, the "Growth" factor, Factor 4 is identical with Factor III and the main identifiers of Factor II (WM1 and 5) are the core components of Factor 5. These three can be distinguished from Factors 2 and 3 whose major identifiers are items from the Job Activity Analysis. Thus, the results confirm that dimensions of job activity can be measured separately from job satisfaction. What now becomes interesting is in assessing how the measures are related and isolating what motivational, satisfaction items are related to the nature of activities actually performed on the job.

From Factor 1, for example, we see that job activities offering a variety of activities (AA2) and a higher degree of mental effort (AA6) satisfy the individual's need for 'growth' and self-actualization. This factor is also the major component of overall job-satisfaction. Factor 4, however, shows that the activities which are involved in a job are not perceived as being related to the security of that job, nor to the amount of material rewards it offers. Similarly, the quality of interpersonal relationships in a specific job content is seen to vary independently of the activities which are required by that job.

From the loadings on the two activity factors, it can be seen only the first, Factor 2, is related to job satisfaction. Appreciation of work done, satisfaction of status and prestige needs and to a lesser extent, the presence of pleasant co-workers are all perceived as being more likely to occur in those jobs where the incumbent has discretionary control.

The results appear to offer confirmation for the point made earlier that New Zealand workers, even at professional levels, do not build their lives around their jobs to the same extent, for example, as those in North America, (Shouksmith, 1987). Among needs satisfied by

one's job, only growth needs can be directly related, and this only in part, both to job activities on the one hand and overall life-style satisfaction on the other. Existence needs are also related to life-style satisfaction, but as Herzberg has pointed out for many years (Herzberg, 1966), such needs are satisfied "off the job", the material job-rewards merely providing the opportunity for one to do so. The findings do not uniquely support either the spillover or the compensation models of the relationship between job and life satisfaction. In some areas, for example those related to Growth (Factors I and 1) and Existence need satisfaction, (Factors III and 4) there is spillover from the job into life satisfaction. Where inter-personal relationships are concerned, however, (Factors II and 5), it appears possible to have high or low job satisfaction without these necessarily being related to level of life satisfaction. Presumably, therefore, in this area at least, one is able to compensate for lack of satisfaction of these needs on the job, by satisfying them in general life-style activities. What Table 3 does suggest is that satisfaction of "Growth" and "Existence" needs on the job, contribute to overall satisfaction with one's life-style. Job satisfaction of "Relationship" needs, however, does not share common variance with the life satisfaction measure.

In conclusion, the present study suggests that the Work Motivation Scale offers a simple and effective means of measuring the extent to which specific jobs satisfy those sets of motivational needs identified by Alderfer (1972 op cit). Some limited evidence is also provided linking satisfaction of some of these needs to specific characteristics of jobs and to overall life-style satisfaction. Thus, the two measures, the Work Motivation Scale and the Activity Analysis, may be used together to enhance the "job characteristics" approach to studying job satisfaction and promoting more effective job design.

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