MEASURING JOB SATISFACTION: THE RELIABILITY OF THE JOB DESCRIPTIVE INDEX IN DIVERSE IRISH SAMPLE POPULATIONS

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Job satisfaction and its various correlates has been a subject of long-standing and considerable interest among many research psychologists, sociologists and management theorists; and in the realm of practice the subject continues to be of interest to personnel managers in the contexts of selection and job enrichment and to the vocational guidance profession. Much of the earlier literature on job satisfaction was concerned with problems of definition and measurement, all of which culminated in the gradual acceptance of its essentially multi-faceted nature [see, for example, Blum and Naylor (1964); Vroom (1964); Hinrichs (1968); Beer (1964); Ivancevich and Donnelly (1968); Behling, Labovitz and Kosmo (1968); Herzberg, Mauser and Smyderman (1959); Ewen (1964); Lahiri and Srivasta (1967); Hulin and Smith (1967); Dunnette, Campbell and Hakel (1967); Wall (1972)]. The 'Job Descriptive Index', one of the most widely accepted job satisfaction measuring instruments in which five distinct dimensions are measured (Smith, Kendall and Hulin 1969), reflects this many-sided character of the subject. During the past decade the authors have utilised this instrument in various research settings, and recently decided to evaluate its general reliability among Irish respondents [Kelly (1978), McCarthy (1981a, 1981b)]. The results are now reported.

The Job Descriptive Index

The Cornell studies of job satisfaction were initiated in 1959 and one of the outputs was the highly regarded Job Descriptive Index (JDI). The JDI measures five areas of job satisfaction — satisfaction with work, supervision, pay, opportunities for promotion, and satisfaction with co-workers. These categories were arrived at after extensive review of the factor-analytic literature on job satisfaction and analyses of the authors' own categories. The development, validation and reliability of the index is recorded in detail in *Measurement of Satisfaction in Work and Retirement* and the authors claim the following scale characteristics to be par-

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ticularly advantageous: the scale is directed towards specific areas of job satisfaction rather than a general satisfaction notion; the verbal level required to complete the instrument is not demanding, and finally, the respondents are not directly asked how satisfied they are with their work, but rather are requested to describe their work. The JDI is a 72-item instrument (see tables) which utilises an adjective checklist designed to tap the five dimensions indicated above. Vroom (1964) wrote of the JDI ..... "it is without doubt the most carefully constructed measure of job satisfaction in existence today." And Robinson, Athanasiou and Head (1969) after an assessment of thirteen job satisfaction instruments rated the JDI as the best available.

Reliability of the JDI

In seeking to establish the relaibility of a scale such as the JDI we are concerned with establishing the degree to which tests yield the same result on repeated trials [Moser and Kalton (1971); Carmines and Zeller (1979)]. Specifically, reliability means the existence of evidence showing a tendency towards consistency in repeated measurements of the same phenomena [Carmines and Zeller, *ibid.* p. 12]. Of the various methods for estimating the reliability of empirical data we selected the internal consistency procedure developed by Cronbach (1951), which is reported to be the most widely used of this type [Carmines and Zeller, *ibid.* p. 44]. Cronbach's alpha is expressed as follows:

$$\alpha = \frac{N}{(N - 1)\left[1 - \frac{\sum \sigma^2(Y_i)}{\sigma_x^2}\right]}$$

where N = number of items;
$\sum \sigma^2(Y_i)$ = sum of item variances;
and σx^2 = variance of total composite.
In assessing the coefficient alpha Carmines and Zeller (1979 p. 51) conclude that "reliabilities should not be below .80 for widely used scales".

Applications of the JDI in Ireland

Tables 1 to 5 contain the coefficients for the various facets of the JDI when used in four unrelated research studies. In two studies, A and D, all five facets of the JDI were utilised, while in studies B and C the supervision dimension was excluded.

Study A concerned the investigation of the structure and determinants of attitudes towards womens' role in society and in management [McCarthy, 1979]. This study involved research in three large scale service organisations. In all 228 clerical/administrative employees were interviewed; and

Table 1: *Reliability Coefficients (Cronbach's Alpha, Standardised Item Alpha[1] and Cronbach's Alpha if Item Deleted[2]) for JDI Work Facet Utilised in Four Studies.*

Work	Alpha if Item Deleted			
	Study A	Study B	Study C	Study D
(i) Fascinating	0.9434	0.9149	0.8328	0.8251
(ii) Routine	0.9460	0.9136	0.8411	0.8247
(iii) Satisfying	0.9418	0.9117	0.8213	0.8086
(iv) Boring	0.9416	0.9140	0.8218	0.8118
(v) Good	0.9396	0.9139	0.8195	0.8135
(vi) Creative	0.9395	0.9147	0.8280	0.8233
(vii) Respected	0.9414	0.9137	0.8266	0.8198
(viii) Hot	0.9448	0.9157	0.8379	0.8363
(ix) Pleasant	0.9414	0.9135	0.8308	0.8152
(x) Useful	0.9431	0.9144	0.8299	0.8207
(xi) Tiresome	0.9418	0.9116	0.8313	0.8216
(xii) Healthful	0.9398	0.9110	0.8460	0.8314
(xiii) Challenging	0.9408	0.9185	0.8290	0.8146
(xiv) On your feet	0.9451	0.9140	0.8462	0.8443
(xv) Frustrating	0.9416	0.9140	0.8303	0.8210
(xvi) Simple	0.9294	0.9190	0.8400	0.8206
(xvii) Endless	0.9434	0.9171	0.8351	0.8319
(xviii) Gives a sense of accomplishment	0.9412	0.9119	0.8218	0.8071
Alpha	0.9452	0.9185	0.8400	0.8303
Standardized Alpha	0.9464	0.9206	0.8350	0.8304

Table 2: *Reliability Coefficients (Cronbach's Alpha, Standardised Item Alpha and Cronbach's Alpha if Item Deleted) for JDI Pay Facet Utilised in Four Studies*

Pay	Alpha if Item Deleted			
	Study A	Study B	Study C	Study D
(i) Income adequate for normal expenses	0.9666	0.8746	0.7482	0.7635
(ii) Barely live on income	0.9536	0.8554	0.7501	0.7623
(iii) Bad	0.9532	0.8505	0.7283	0.7590
(iv) Satisfactory profit sharing	0.9556	0.8538	0.7877	0.7929
(v) Income provides luxuries	0.9532	0.8543	0.7704	0.7800
(vi) Insecure	0.9540	0.8478	0.7530	0.7781
(vii) Less than I deserve	0.9537	0.8587	0.7921	0.7777
(viii) Highly paid	0.9543	0.8443	0.7817	0.7798
(ix) Underpaid	0.9532	0.8406	0.7590	0.7412
Alpha	0.9602	0.8678	0.7853	0.7914
Standardised Alpha	0.9602	0.8686	0.7784	0.7892

in this sample 36% were male, 29% were married, 45% were aged 25 or under and only 6% had achieved group or primary certificate level of education. Study B concerned the investigation of shift innovations in two textile companies located in the west of Ireland [McCarthy, 1981b]. The project involved the use of case studies and 50 male shift workers were

Table 3: *Reliability Coefficients (Cronbach's Alpha, Standardised Item Alpha, and Cronbach's Alpha if Item Deleted) for JDI Promotion Facet Utilised in Four Studies*

Promotion	Alpha if Item Deleted			
	Study A	Study B	Study C	Study D
(i) Good opportunities for promotion	0.9504	0.8749	0.7788	0.8132
(ii) Opportunity somewhat limited	0.9617	0.8823	0.8179	0.8376
(iii) Promotion on ability	0.9547	0.8811	0.8213	0.8277
(iv) Dead-end job	0.9513	0.8780	0.7954	0.8326
(v) Good chance for promotion	0.9483	0.8618	0.7781	0.8141
(vi) Unfair promotion policy	0.9515	0.8847	0.8218	0.8501
(vii) Infrequent promotions	0.9508	0.9044	0.7993	0.8410
(viii) Regular promotions	0.9496	0.8709	0.7874	0.8366
(ix) Fairly good chance for promotion	0.9507	0.8644	0.7832	0.8225
Alpha	0.9573	0.8907	0.8171	0.8469
Standardised Alpha	0.9568	0.8891	0.8248	0.8510

Table 4: *Reliability Coefficients (Cronbach's Alpha, Standardised Item Alpha and Cronbach's Alpha if Item Deleted) for JDI Co-Workers Facet Utilised in Four Studies*

Co-Workers	Alpha it Item Deleted			
	Study A	Study B	Study C	Study D
(i) Stimulating	0.9608	0.8609	0.8225	0.8414
(ii) Boring	0.9595	0.8378	0.8169	0.8356
(iii) Slow	0.9596	0.8402	0.8099	0.8329
(iv) Ambitious	0.9612	0.8362	0.8212	0.8464
(v) Stupid	0.9595	0.8521	0.8199	0.8418
(vi) Responsible	0.9605	0.8380	0.8149	0.8332
(vii) Fast	0.9604	0.8577	0.8141	0.8361
(viii) Intelligent	0.9619	0.8450	0.8150	0.8350
(ix) Easy to make enemies	0.9600	0.8622	0.8231	0.8411
(x) Talk too much	0.9616	0.8562	0.8264	0.8436
(xi) Smart	0.9607	0.8437	0.8220	0.8399
(xii) Lazy	0.9597	0.8431	0.8082	0.8365
(xiii) Unpleasant	0.9598	0.8533	0.8207	0.8421
(xiv) No privacy	0.9612	0.8616	0.8285	0.8477
(xv) Active	0.9610	0.8479	0.8106	0.8378
(xvi) Narrow interests	0.9607	0.8506	0.8328	0.8382
(xvii) Loyal	0.9606	0.8554	0.8060	0.8361
(xviii) Hard to meet	0.9596	0.8542	0.8211	0.8411
Alpha	0.9626	0.8572	0.8271	0.8469
Standardised Alpha	0.9641	0.8606	0.8312	0.8543

Table 5: *Reliability Coefficients (Cronbach's Alpha, Standardised Item Alpha and Cronbach's Alpha if Item Deleted) for JDI Supervision Facet Utilised in Two Studies*

Supervision		Alpha if Item Deleted	
		Study A	Study D
(i)	Asks my advice	0.9710	0.8724
(ii)	Hard to please	0.9694	0.8687
(iii)	Impolite	0.9693	0.8678
(iv)	Praises good work	0.9696	0.8626
(v)	Tactful	0.9694	0.8640
(vi)	Influential	0.9698	0.8728
(vii)	Up-to-date	0.9692	0.8647
(viii)	Doesn't supervise enough	0.9713	0.8748
(ix)	Quick tempered	0.9704	0.8770
(x)	Tells me where I stand	0.9701	0.8753
(xi)	Annoying	0.9700	0.8644
(xii)	Stubborn	0.9697	0.8689
(xiii)	Knows job well	0.9698	0.8665
(xiv)	Bad	0.9695	0.8669
(xv)	Intelligent	0.9696	0.8682
(xvi)	Leaves me on my own	0.9713	0.8790
(xvii)	Around when needed	0.9698	0.8657
(xviii)	Lazy	0.9698	0.8715
Alpha		0.9767	0.8760
Standardised Alpha		0.9721	0.8775

interviewed. In this sample 46% were aged 25 or under, 66% were married and 34% had achieved group or primary level of education. The objective of study C was to measure salient attitudes of workers and management towards shiftwork and to identify the factors which influence such attitudes [McCarthy, 1981a] 140 shift workers from 8 manufacturing companies located in the south-west of Ireland were interviewed, and in this sample 84% were male, 51% were aged 25 or under, 56% were married, 34% had achieved group or primary level of education and 78% were union members. Study D was concerned with the process of unionisation among white-collar (non-management) workers [Kelly, 1978]. A sample of 325 workers, drawn from 36 companies in the private sector, were interviewed; in this sample 80% were aged 35 or under, 55% were male, 57% were married, 69% had completed secondary level education and 58% were union members.

Conclusions

A revaluation of the data from four studies where the JDI was administered provided an opportunity to assess the reliability of this job satisfaction measuring instrument in various Irish sample populations. As may be seen from the study descriptions the samples when aggregated provide

a heterogenous group in terms of the nature of the jobs and the demographic profiles of the subjects. In all four studies on the work, promotion and co-workers facets the coefficient alpha reliabilities ranged, respectively, from .83 to .94, .81 to .95 and .82 to .96 (tables 1, 3, 4), all clearly above the recommend cut-off point of .8. This was also true for the two studies which included the supervision facet (table 5). On the pay facet the reliabilities were also stable in studies A and B, while in studies C and D they failed to reach this point, although the latter are fairly strong (table 2). From the analysis of this data, drawn from a diverse group of studies, it is reasonable to offer strong support for the use of this instrument in an Irish setting. This scale shows a high degree of stability in all four studies investigated.

Thus, in the work organisation context, apart from its use in assessing absolute or comparative levels of job satisfaction or job dissatisfaction, personnel and industrial relations practitioners may also find the JDI instrument to be of use in other ways: it may be of use in quantifying the degree of acceptance or rejection by employees of various job improvements schemes and also help to detect sources of employee grievances. In this respect it may be a useful method of evaluating various employee policies and programmes.

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NOTES

1. The standardised item alpha is closely related to Cronbach's alpha. Where observations on each item are standardised by dividing them by the standard deviation of the item, alpha would have the same value as the standardised item alpha.

2. Alpha if item deleted is Cronbach's alpha reliability coefficient calculated from the remaining items in the scale.