25. THE DEVELOPMENT OF A METHOD OF MEASURING JOB SATISFACTION: THE CORNELL STUDIES *

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THE CORNELL STUDIES OF JOB SATISFACTION were initiated in 1959 with the purpose of studying job satisfaction among a representative cross section of workers in the United States. One specific goal of these studies was to relate job satisfaction to measurable company and community characteristics and to characteristics of the individual worker. Since the success of the entire study hinged on the nature and quality of the instrument to be used to measure job satisfaction, a considerable amount of time and effort went into constructing this device. This paper summarizes the rationale behind the approach to measurement and the particular characteristics of the measure finally adopted. Before turning to this, however, a brief description of what job satisfaction is and why it should be measured at all would seem to be in order.

WHAT IS JOB SATISFACTION?

We define job satisfaction as an affective response of the worker to his job. It is viewed as a result or consequence of the worker's experience on the job in relation to his own values, that is, to what he wants or expects from it. Satisfaction can be viewed as similar in meaning to pleasure.

WHY MEASURE JOB SATISFACTION?

Job satisfaction was originally thought to be a cause or at least a concomitant of high productivity: "The satisfied worker is the productive worker" was the implicit assumption of many early studies of job satisfaction. Unfortunately, subsequent research has not borne out this assumption; a large number of studies have testified to the fact that there is no *necessary* connection between productivity and satisfaction. Satisfied workers may be high producers or low producers and high producers may

or may not like their jobs. Satisfaction and dissatisfaction may or may not result in overt behavior (changes in productivity, grievances, absences, turnover, and so forth), depending upon the individual's personality (whether he acts on or controls or represses his emotions), the opportunities for self-expression on the job (closeness of supervision, company rules and regulations, and so forth), and the other job alternatives open to him (labor market for his particular skill, his financial condition, and so forth). To repeat, job satisfaction is viewed primarily as a consequence of job experience (and, in fact, high productivity may produce satisfaction as much as the other way around). The causal efficacy of job satisfaction is, then, problematic, rather than something to be assumed.

However, there are still valid reasons for wanting to study job satisfaction. Most obviously it can be viewed as an end in itself. In fact, it is not really meaningful to ask why pleasure or satisfaction are good or desirable. They are desirable by nature.

Secondly, *under certain circumstances* job satisfaction and particularly job dissatisfaction may lead to overt behavior which is of interest to organizations. For instance, there is evidence that dissatisfied workers have a higher turnover and absence rate than satisfied workers. Since training new employees and lost time can cost a company large sums of money, both directly and in terms of poor quality of production and lost business, it is to its self-interest to have satisfied workers.

WHAT CAN MEASURES OF JOB SATISFACTION BE USED FOR?

If job satisfaction is taken to be a desirable goal of management practices, then measures of employee satisfaction can be taken as one of the criteria or standards by which to judge the success of management policies and practices, for example, job enlargement, supervisory training, participative management, group decision-making, employee welfare programs, bonus or incentive-payment systems, and so forth.

Such measures might also be used to predict future absences or turnover among personnel (providing factors such as the job market are taken into consideration).

Thirdly, such measures are a precondition for the testing of various general theories of attitudes and motivation and theories specifically concerned with the factors which produce satisfaction and the factors correlated with it—community, company, and individual characteristics. Such investigations may not have immediate practical utility, but such findings may be of current theoretical interest and of long-term practical value.

Finally, one might simply be interested in knowing what percent of the population are satisfied and what percent dissatisfied with their jobs, either as something of interest in itself, or for purposes of group or cross-cultural comparisons, or to plot trends over time.

REQUIREMENTS OF A USEFUL MEASURE OF JOB SATISFACTION

A useful measure of job satisfaction should be capable of being used over a wide range of job classifications and with people of varying job levels. In other words, its content should be such that the meanings of the words used are common to workers on many different kinds of jobs, and the verbal level should be low enough so that poorly educated as well as well-educated workers can understand the questions.

Practical considerations would demand that the measure be short, easily administered (in groups), and easily scorable. Long, involved measures with complicated scoring systems would be precluded in a large-scale study due to time and financial considerations.

The measure should generate scores indicative of satisfaction with a number of discriminably different aspects of the work situation (pay, work, supervision, co-workers, and so forth). A measure of overall (global) job satisfaction may be sufficient for some purposes but would be inadequate for an intensive study aimed at identifying the relationships between different aspects of the job situation and individual and company characteristics. The same variables may be related quite differently to satisfaction with different aspects of the job, but these relationships would be diluted if only a global measure of satisfaction were used.

The scale should be free from obvious biases, such as acquiescence— the tendency to "agree" with an item independent of item content—so that people who agree with everything will not get artificially high scores.

The worker's frame of reference, his standard of judgment, when responding to the items either should be taken into consideration when constructing and scoring the measure or should be demonstrated not to affect the answers markedly. To cite an obvious example, if the word "simple" meant "good" to one worker but was interpreted as meaning "bad" by another worker, the item would not yield useful results.

The measure should demonstrate reliability: both internal consistency (agreement among items intended to measure the same thing) and stability over time in the same individual.

Finally, the measure should be valid—it should measure what it is intended to measure.

THE CORNELL JOB DESCRIPTIVE INDEX (JDI)

Areas Measured

To fulfill the criteria set out above, a number of different types of measures were tried. The one finally settled upon measured five areas of job satisfaction: satisfaction with work, satisfaction with pay, satisfac-

tion with opportunities for promotion, satisfaction with supervision. and satisfaction with co-workers. These categories were arrived at after considerable review of the factor-analysis literature on job satisfaction, and after an extensive analysis of our own preliminary categories.

For each area there is a list of adjectives or short phrases, each with a blank space beside it. The respondent is instructed to show how well each word or phrase describes the aspect of his job in question (for instance, his pay). If a word describes the pay on his present job (or his supervision, and so forth), he is instructed to write the letter "Y" for "Yes" beside that word or phrase. If the word does not describe his present pay (or supervision, and so forth), he is asked to write "N" for "No" beside that word or phrase. If he cannot decide, he is asked to place a "?" in the blank for "Cannot decide." The scales for each of the five job areas are shown in Table 25–1.

Developing the Scoring Procedure

To investigate the best scoring procedures to use, in our early studies these scales were administered to each person a second and a third time. The second time each person was asked to describe the "best" job he could think of or the "best" job he had ever had. The third time the individual was asked to describe the "worst" previous job he had had or could think of. This made it possible to score the questionnaires in four different ways:

1. Satisfaction could be inferred from the similarity of his responses when describing his present job to his responses when describing his "best" job; that is, if he described his best and present jobs in the same way, one could infer that he was satisfied with the job.

2. Satisfaction could be inferred from the dissimilarity of his responses when describing his present job to his responses when describing his "worst" job; that is, if he described his present and worst jobs completely differently, it could be inferred that the individual was satisfied with his job.

3. Satisfaction could be inferred simultaneously from the similarity of his present job responses to his "best" job responses and their dissimilarity to his "worst" job responses. For instance, if a person described his best and present jobs as "challenging," whereas he described his worst job as not challenging, it could be inferred that he was satisfied with his job in that respect. On the other hand, if he described his present, best, and worst jobs as "challenging," satisfaction would not be inferred from that item; in fact, the item would not be used in scoring at all, because it would indicate that for him that characteristic was not important.

4. Satisfaction could be inferred from direct, a priori scoring of the items under the assumption that most individuals would interpret the items in the same way and would see the same things as desirable and un-

desirable on a job; that is, it would be assumed that all people would see a "challenging" job as desirable.

The rationale behind the first three scoring methods was to eliminate the possible effects of different frames of reference of different individuals in answering the items; that is, to control for the fact that some people might not see "challenging" work as a good thing. The question then became how to decide which of these scoring methods was the best. Since there are no behavioral or performance criteria of job satisfaction (recall that our definition of satisfaction indicated that it was a *response* to the work situation, not a determinant or cause of performance), other methods of comparing the validity of the various scales had to be used.

An alternative method of validation in a situation like this is to choose the method that (a) is most representative of all the methods used, that most consistently agrees with the other methods, and (b) shows the best discrimination among the different job areas. For instance, if a method yielded scores on the five areas of job satisfaction (work, pay, promotions, supervision, and co-workers) and all these scores correlated very highly with each other, but did not correlate at all with scores on the same areas as measured by other methods, we would conclude that this particular measure of satisfaction contained some special bias and was not very useful.

Using these criteria, it was found that the a priori scoring of the JDI scales gave the best results; that is, it yielded scores that agreed most highly with scores derived from other scoring methods and yielded the clearest discrimination or independence among the five job-area scales. The direct JDI measures also correlated highly with several entirely different sets of measures which asked the individual to rate his job satisfaction directly, which gave added credence to its validity.

Thus, the JDI yields five scores, one for each scale. These scores are obtained by adding up the number of responses within each scale, according to the keys provided in Table 25–1.

Selection of Items

The items for the JDI were selected by a three-stage process. First, items were selected from other inventories and by common sense which seemed to be relevant to each of the five area scales. This original search yielded from 30 to 40 items per scale. Next we looked at how frequently each item was used to describe "best" and "worst" jobs. Items which were used equally frequently to describe "best" and "worst" jobs were discarded on the grounds that they probably were not important in determining job satisfaction. Finally, the scales were administered to several samples of employees and the subjects were divided (on each scale) into a "satisfied" half and a "dissatisfied" half on the basis of their total scores on each scale. Proportional differences in item responses between high

TABLE 25–1

Items in Final Version of JDI *

Each of the five scales was presented on a separate page.

The instructions for each scale asked the subject to put "Y" beside an item if the item described the particular aspect of his job (work, pay, and so forth), "N" if the item did not describe that aspect, or "?" if he could not decide.

The response shown beside each item is the one scored in the "satisfied" direction for each scale.

Work		Supervision		People	
Y	Fascinating	Y	Asks my advice	Y	Stimulating
N	Routine	N	Hard to please	N	Boring
Y	Satisfying	N	Impolite	N	Slow
N	Boring	Y	Praises good work	Y	Ambitious
Y	Good	Y	Tactful	N	Stupid
Y	Creative	Y	Influential	Y	Responsible
Y	Respected	Y	Up-to-date	Y	Fast
N	Hot		Doesn't supervise	Y	Intelligent
Y	Pleasant	N	enough		Easy to make
Y	Useful	N	Quick-tempered	N	enemies
N	Tiresome		Tells me where I	N	Talk too much
Y	Healthful	Y	stand	Y	Smart
Y	Challenging	N	Annoying	N	Lazy
N	On your feet	N	Stubborn	N	Unpleasant
N	Frustrating	Y	Knows job well	N	No privacy
N	Simple	N	Bad	Y	Active
N	Endless	Y	Intelligent	N	Narrow interests
	Gives sense of		Leaves me on my	Y	Loyal
Y	accomplishment	Y	own	N	Hard to meet
			Around when		
		Y	needed		
		N	Lazy		

Pay		Promotions	
Y	Income adequate for normal expenses	Y	Good opportunity for advancement
Y	Satisfactory profit sharing	N	Opportunity somewhat limited
N	Barely live on income	Y	Promotion on ability
N	Bad	N	Dead-end job
Y	Income provides luxuries	Y	Good chance for promotion
N	Insecure	N	Unfair promotion policy
N	Less than I deserve	N	Infrequent promotions
Y	Highly paid	Y	Regular promotions
N	Underpaid	Y	Fairly good chance for promotion

* Permission to use these scales should be obtained from Dr. Patricia C. Smith, Dept. of Psychology, Bowling Green State University, Bowling Green, Ohio, 43403.

and low halves in each sample were computed for each item. Only items were retained which showed a clear differentiation between satisfied and dissatisfied workers. This process was repeated over five different samples of workers and only those items which showed consistent discrimination were retained.

The final pay and promotion scales included nine items each and the work, supervision, and co-workers scales included eighteen items each. About half the items chosen for each scale are positive, so that a "Y" response would indicate satisfaction, and about half are negative, so that "N" response would indicate satisfaction. Thus a person who put an "N" response would indicate satisfaction. Thus a person who put a "Y" before every item would not get a high (satisfied) score simply because of a tendency to say yes.

Reliability and Validity of the JDI

The internal consistency reliabilities of the five JDI scales range from .80 to .88, as determined by corrected split-half correlations based on the responses of eighty male employees from two different electronic plants.

There is no single general criterion measure which can be used to validate a measure of job satisfaction. What is needed is evidence that the scales relate to other independent meaningful indices of satisfaction in the situation. The approach used was to study (a) relations of the various JDI scales to other measures of job satisfaction, (b) the influence of situational characteristics on these scales, and (c) the relations between the scales and individual differences thought to be related to job satisfaction. These studies have been reported elsewhere.[1] Briefly these studies indicate that the JDI yields measures of satisfaction with five different aspects of jobs which are discriminably different from each other; the average correlation between the different scales is approximately .37 which is low enough to indicate a great deal of discrimination among the five areas. The scales correlate highly with other measures of satisfaction (average r = .70) and are affected in the expected directions by worker, job, and situational differences. In this sense the JDI has validity as a measure of job satisfaction.

In sum, the JDI, using the direct a priori scoring method, appears to meet the criteria set out initially. The JDI appears to be valid in the sense that it is representative of other types of measures of satisfaction and discriminates well among the various job areas. It demonstrates adequate internal reliability (although no test-retest studies have been

[1] C. L. Hulin and Patricia C. Smith, "Sex Differences in Job Satisfaction," *Journal of Applied Psychology* 48 (1964): 88–92; idem, "A Linear Model of Job Satisfaction," ibid. 49 (1965): 209–16; L. M. Kendall, "Canonical Analysis of Job Satisfaction and Behavioral, Personal Background, and Situational Data," (Ph.D. diss., Cornell University, 1963); E. A. Locke et al., "Convergent and Discriminant Validity for Areas and Methods of Rating Job Satisfaction," *Journal of Applied Psychology* 48 (1964): 313–19.

done as yet) and is relatively free from obvious response biases such as acquiescence. It yields scores on five different areas of job satisfaction and it is short, easily administered, and easily scored.

There is another interesting characteristic of the JDI that should be noted. It does not ask the employee to indicate directly how satisfied he is, but rather asks him to describe his job (that is, his pay, his work) by putting the appropriate symbol (Y, N, or ?) in the blank beside each item (for example, "boring"). It was felt that such a task would be easier, particularly for more poorly educated workers, than describing internal feeling states. Satisfaction is thus inferred from these job descriptions; for instance, if an individual describes his work as "boring," "frustrating," and not "pleasant," dissatisfaction with the work is inferred on those items. Actually, as indicated above, scores on the JDI scales agree well with more direct measures of job satisfaction.

All told, over nine hundred people in seven different organizations were used in the development of the JDI. Thus far, the JDI has been administered to over two thousand employees in more than twenty different companies in a number of different types of communities and geographical locations in the United States. The JDI scales have shown substantial relationships to individual, company, and community characteristics.[2] Although the data analyses are not complete as yet, it appears that the JDI has adequately fulfilled the purposes for which it was designed.

26. THE EFFECT OF PERFORMANCE ON JOB SATISFACTION *

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THE HUMAN RELATIONS MOVEMENT with its emphasis on good interpersonal relations, job satisfaction, and the importance of informal groups provided an important initial stimulant for the study of job attitudes and their relationship to human behavior in organizations. Through the 30s and 40s, many studies were carried out to determine the correlates of high and low job satisfaction. Such studies related job satisfaction to seniority, age, sex, education, occupation, and income, to mention a few. Why this great interest in job satisfaction? Undoubtedly some of it stemmed from a simple desire on the part of scientists to learn more about job satisfaction, but much of the interest in job satisfaction seems

[2] C. L. Hulin, "The Effects of Community Characteristics on Measures of Job Satisfaction," *Journal of Applied Psychology* 50 (1966): 185–92; idem, "Job Satisfaction and Turnover in a Female Clerical Population," ibid., pp. 280–85.
* From *Industrial Relations* 7 (1967): 20–28.