

Development of the Job Diagnostic Survey

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The properties and uses of the Job Diagnostic Survey (JDS) are described. The JDS is intended (a) to diagnose existing jobs to determine if (and how) they might be redesigned to improve employee motivation and productivity, and (b) to evaluate the effects of job changes on employees. The instrument is based on a specific theory of how job design affects work motivation, and provides measures of (a) objective job dimensions, (b) individual psychological states resulting from these dimensions, (c) affective reactions of employees to the job and work setting, and (d) individual growth need strength (interpreted as the readiness of individuals to respond to "enriched" jobs). Reliability and validity data are summarized for 658 employees on 62 different jobs in 7 organizations who have responded to a revised version of the instrument.

As both organizational productivity and employee alienation from work become increasingly problematic in American society, more and more organizations are turning to the redesign of work as a strategy for organizational change directed toward solving these problems (cf. Davis & Taylor, 1972; Ford, 1969; Maher, 1971). Indeed, one particular application of work redesign, job enrichment, seems about to become something of a fad among managers and organizational consultants.

As yet, however, a solid body of knowledge about the consequences of job enrichment has not emerged from behavioral science research. Neither are there abundant data available about the relative effectiveness of various strategies for implementing work redesign projects (Hulin & Blood, 1968; Porter, Lawler, & Hackman, 1975, chap. 10).

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There are a number of reasons for this unfortunate state of affairs. Some of them have to do with the adequacy of existing theories about how jobs affect people; others derive from methodological difficulties in carrying out job redesign experiments in on-going organizations. Yet perhaps one of the most compelling explanations for the paucity of knowledge about work redesign is also one of the most basic: namely, that our capability to *measure* (and thereby understand) what happens when jobs are changed has been very limited.

The present article reports the development of a measurement tool, the Job Diagnostic Survey (JDS), which may be helpful in filling this void in research and action projects involving the redesign of work. Specifically, (a) the conceptual basis of the instrument is presented; (b) the instrument itself is briefly described; (c) the empirical properties of the instrument are presented and discussed; and (d) the uses and limitations of the instrument are explored.

It should be kept in mind throughout that the instrument is designed to be of use both in the *diagnosis* of jobs prior to their redesign, and in *research and evaluation* activities aimed at assessing the effects of redesigned jobs on the people who do them. We believe that use of such an instrument to diagnose the motivational properties of jobs prior to redesign should aid change agents in

wisely planning and implementing work re-design projects. Moreover, the availability of a standardized instrument for use in evaluating the effects of such projects should facilitate efforts by behavioral scientists to understand how and why job enrichment works when it does work—and what has gone wrong when it does not.

CONCEPTUAL BASIS OF THE INSTRUMENT

Any measuring device is based on some underlying theory of “what’s important” regarding the phenomena under consideration (even if such a theory is implicit), and this instrument is no exception. The theory which gave rise to the present instrument is based on earlier work by Turner and Lawrence (1965) and by Hackman and Lawler (1971). It is sketched briefly below to provide a context for understanding and interpreting the measures generated by the instrument. For a more detailed description and discussion of the theory itself, see Hackman and Oldham (Note 1).

The basic theory is presented in Figure 1. It proposes that positive personal and work

outcomes (high internal motivation, high work satisfaction, high quality performance, and low absenteeism and turnover) are obtained when three “critical psychological states” are present for a given employee (experienced meaningfulness of the work, experienced responsibility for the outcomes of the work, and knowledge of the results of the work activities). All three of the psychological states must be present for the positive outcomes to be realized.

The theory proposes that these critical psychological states are created by the presence of five “core” job dimensions. Experienced meaningfulness of the work is enhanced primarily by three of the core dimensions: skill variety, task identity, and task significance. Experienced responsibility for work outcomes is increased when a job has high autonomy. Knowledge of results is increased when a job is high on feedback. Following the theory diagrammed in Figure 1, it is possible to generate a summary score reflecting the overall “motivating potential” of a job in terms of the core job dimensions. The score is computed as follows:

Motivating Potential Score (MPS)

$$= \left[\frac{\text{Skill Variety} + \text{Task Identity} + \text{Task Significance}}{3} \right] \times (\text{Autonomy}) \times (\text{Feedback}).$$

As can be seen from the formula, an increase in any of the core dimensions will increase the MPS; but (because of the multiplicative relationship among its components) if any of the three major components of MPS is low, the resulting MPS also must be low. The rationale for the MPS measure is discussed in detail by Hackman and Oldham (Note 1).

A job high in motivating potential will not affect all individuals in the same way. In particular, people who strongly value and desire personal feelings of accomplishment and growth should respond very positively to a job which is high on the core dimensions; individuals who do not value personal growth and accomplishment may find such a job anxiety arousing and may be uncomfortably

“stretched” by it. Therefore, individual growth need strength is shown in Figure 1 as a moderator of the other theory-specified relationships.

DESCRIPTION OF THE JOB DIAGNOSTIC SURVEY

The Job Diagnostic Survey (JDS), taken by employees who work on any given job, provides for that job measures of each of the concepts specified in the theoretical framework. In addition, the instrument provides several supplementary measures of respondents’ reactions to their work.

The JDS has its origins in previous methodologies developed by Turner and Lawrence (1965) and by Hackman and Lawler (1971).

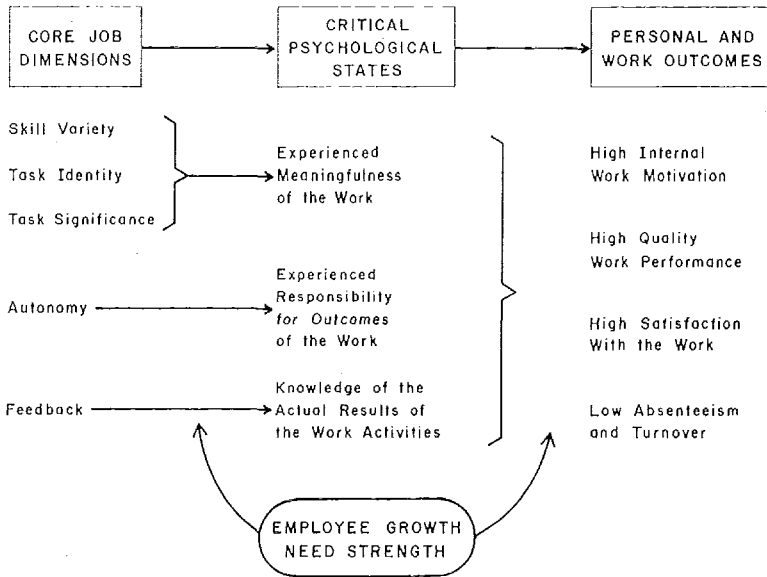


FIGURE 1. A theoretical model relating the core job dimensions, the critical psychological states, and on-the-job outcomes (as moderated by employee growth need strength).

Many of the scales and items used by these researchers are retained, in revised form, in the JDS. The JDS itself has undergone three major revisions over a 2-year developmental period. In its various forms, it has been taken by over 1,500 individuals working on more than 100 different jobs in about 15 different organizations.

Revisions of the instrument were based on both psychometric and substantive considerations. On the one hand, items were added, deleted, and altered to maximize scale reliabilities and the empirical discrimination among scales. At the same time, however, efforts were made to keep the content of the items tapping a given construct as heterogeneous as possible, to maximize the substantive "richness" of the measures. Throughout the development of the JDS, analyses were conducted to assess the validity of the theory on which the instrument is based—and the findings were used to revise and refine the theory simultaneously with the improvement of the instrument itself.

The specific measures obtained from the JDS are described below. Each class of variables (except the "specific satisfactions") is measured in two different sections of the JDS

and by items written in two different formats, thereby decreasing the degree to which substantive content and measurement technique are confounded within the instrument. Seven-point response scales are used throughout (1 = low, 7 = high). The full instrument—and a detailed discussion of item content and format—are provided in a separate report (Hackman & Oldham, Note 2).

Job Dimensions

The JDS provides measures of the five core dimensions shown in Figure 1, which are defined as follows:

Skill variety. The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.

Task identity. The degree to which the job requires completion of a "whole" and identifiable piece of work—that is, doing a job from beginning to end with a visible outcome.

Task significance. The degree to which the job has a substantial impact on the lives or work of other people—whether in the immediate organization or in the external environment.

Autonomy. The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out.

Feedback from the job itself. The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance.

In addition, measures are obtained for two supplementary dimensions which have been found to be helpful in understanding jobs and employee reactions to them. These are:

Feedback from agents. The degree to which the employee receives clear information about his or her performance from supervisors or from co-workers. (This dimension is not, strictly speaking, a characteristic of the job itself. It is included to provide information to supplement that provided by the "feedback from the job itself" dimension.)

Dealing with others. The degree to which the job requires the employee to work closely with other people in carrying out the work activities (including dealings with other organizational members and with external organizational "clients.")

As noted earlier, scores on the job dimensions are obtained from items in two sections of the instrument. In the first section, respondents indicate directly on the seven-point response scale the amount of each job characteristic they perceive to be present in their job; in the second section, respondents indicate the accuracy of a number of statements about the characteristics of their job.

Critical Psychological States

The JDS provides measures of each of the three psychological states shown in Figure 1 as mediating between the core job dimensions and the outcomes of the work. These are:

Experienced meaningfulness of the work. The degree to which the employee experiences the job as one which is generally meaningful, valuable, and worthwhile.

Experienced responsibility for work outcomes. The degree to which the employee feels personally accountable and responsible for the results of the work he or she does.

Knowledge of results. The degree to which the employee knows and understands, on a

continuous basis, how effectively he or she is performing the job.

Scores for the critical psychological states are obtained from both self-descriptive and projective type items. In the self-descriptive section, respondents indicate their level of agreement with a number of statements about their work experiences. In the projective section, respondents are asked to "think of other people in your organization who hold the same job as you do" and report how accurate they believe a number of statements are in describing the feelings of those people.

Affective Reactions to the Job

The JDS provides measures of a number of personal, affective reactions or feelings a person obtains from performing the job. These are viewed, in the context of the theory in Figure 1, as the "personal outcomes" obtained from doing the work. (The instrument does not measure actual work outcomes: productivity, employee perceptions of their productivity, turnover, or absenteeism.) The personal outcomes are:

General satisfaction. An overall measure of the degree to which the employee is satisfied and happy with the job.

Internal work motivation. The degree to which the employee is *self*-motivated to perform effectively on the job—that is, the employee experiences positive internal feelings when working effectively on the job, and negative internal feelings when doing poorly.

Specific satisfactions. A number of short scales provide separate measures of satisfaction with: (a) job security, (b) pay and other compensation, (c) peers and co-workers ("social" satisfaction), (d) supervision, and (e) opportunity for personal growth and development on the job ("growth" satisfaction).

Items measuring general satisfaction and internal work motivation are intermixed with items tapping the three critical psychological states, in both the self-descriptive and projective sections of the instrument. For the five specific satisfactions, respondents report directly how satisfied (or dissatisfied) they are with various aspects of their jobs.

Individual Growth Need Strength

Finally, the JDS taps the strength of the respondent's desire to obtain "growth" satis-

factions from his or her work. This measure is viewed as a malleable individual difference characteristic which (as shown in Figure 1) is predicted to influence how positively an employee will respond to a job with objectively high motivating potential.

Two separate measures of growth need strength are obtained, one from items in a "would like" format, and one from items in a "job choice" format. In the former section of the instrument, respondents are asked to indicate directly how much they would like to have a number of specified conditions present in their jobs, some of which (e.g., "Chances to exercise independent thought and action in my job") focus on growth-relevant aspects of the work. In the "job choice" section of the instrument, respondents indicate their relative preference for pairs of hypothetical jobs (e.g., "A job where you are often required to make important decisions" vs. "A job with many pleasant people to work with"). In each item a job with characteristics relevant to growth need satisfaction is paired with a job which has the potential for satisfying one of a variety of other needs.

EMPIRICAL PROPERTIES OF THE JOB DIAGNOSTIC SURVEY¹

Methodology

Results reported here are based on data obtained from 658 employees working on 62 different jobs in 7 organizations. The jobs were highly heterogeneous, including blue-collar, white-collar, and professional work. Both industrial and service organizations were included in the sample, but all were businesses. The organizations were located in the east, southeast, and midwest, in both urban and rural settings. Fifty-nine percent of the respondents were male; their median age was 29, and their education ranged from grade school only to a graduate degree.

Data were collected on site at each organi-

zation. The JDS was administered to employees in groups ranging in size from 3 to 25. Participation was optional for all respondents. Assurances of confidentiality were provided, and few employees declined to participate or to provide their names on the instrument.

Additional assessments of the characteristics of each job were obtained from supervisors of the focal job and from the researchers—providing three independent sources of data about each job. The data from supervisors and researchers were obtained using the Job Rating Form. This instrument, designed for use by people who are not job incumbents, consists of job descriptive items nearly identical in form and content to those on the JDS itself.²

Absence data were obtained from company records. Ratings of the work effectiveness of each employee were obtained from supervisors on forms provided by the researchers, using 7-point rating scales for effort, work quantity, and work quality. Members of the research team spent 1-4 days at each organization collecting data. Since it was not possible to obtain complete data for all jobs in the sample, some of the results reported below are based on a subset of the total sample. Full details of the data collection methodology, including a summary of the demographic characteristics of the respondents, are provided by Hackman and Oldham (Note 2).

JDS Scale Reliabilities

Table 1 presents the internal consistency reliabilities of each of the scales measured by the Job Diagnostic Survey.^{3,4} Also included in the table for each scale is the median of the

² The properties of the Job Rating Form are described and discussed in a separate report (Hackman & Oldham, Note 2).

³ The term "scale" is used loosely throughout the remainder of this report to refer to the summary score obtained for each variable measured by the JDS. These scores were obtained by averaging the items written to measure each of the JDS variables, and they are not formal "scales" in the technical sense of the term.

⁴ Reliabilities were computed by obtaining the median interitem correlation for all items which are scored on each scale, and then adjusting the median by Spearman-Brown procedures to obtain an estimate of the reliability of the summary scale score.

¹ A final, "fine-tuning" revision of the JDS was made after the data reported here were collected. Therefore, some of the results reported may be slightly discrepant from those which would be obtained using the instrument in its final form. When there is any reason to believe that empirical results might be substantially affected by a change which has been made, notation of that possibility is made in the data table.

TABLE 1
RELIABILITIES OF THE JOB DIAGNOSTIC SURVEY
(JDS) SCALES

JDS scale	<i>n</i> ^a	Internal consistency reliability	Median off-diagonal correlation ^b
Job dimensions			
Skill variety	3	.71	.19
Task identity	3	.59	.12
Task significance	3	.66	.14
Autonomy	3	.66	.19
Feedback from the job itself	3	.71	.19
Feedback from agents	3	.78	.15
Dealing with others	3	.59	.15
Psychological states			
Experienced meaningfulness of the work	4	.74	.26
Experienced responsibility for the work	6	.72	.23
Knowledge of results	4	.76	.17
Affective responses to the job			
General satisfaction	5	.76	.25
Internal work motivation	6	.76	.25
Specific satisfactions			
Job security ^c	2	—	—
Pay ^e	2	—	—
Social	3	.56	.23
Supervisory	3	.79	.25
Growth	4	.84	.28
Growth need strength			
"Would like" format ^d	6	.88	—
Job choice format ^d	12	.71	—

^a Number of items composing each scale.

^b The median off-diagonal correlation is the median correlation of the items scored on a given scale with all of the items scored on different scales of the same type of variable. Thus, the median off-diagonal correlation for skill variety (.19) is the median correlation of all items measuring skill variety with all the items measuring the other six job dimensions.

^c These scales were added to the JDS after the present data were collected, and no reliability data are yet available.

^d Off-diagonal correlations are not reported for these two scales, since all items were designed to tap the same construct. The scale scores obtained using the "would like" format correlate .50 with the scale scores obtained using the job choice format.

correlations between (a) the items composing a given scale (e.g., skill variety) and (b) all of the other items which are scored on different scales of the same general type (i.e.,

the other job dimension scales). These median correlations (referred to in the table as "off-diagonal" correlations) provide one indication of the discriminant validity of the items.

Internal consistency reliabilities range from a high of .88 (growth need strength, in the "would like" format) to a low of .56 (social satisfaction). The median off-diagonal correlations range from .12 (task identity) to .28 (growth satisfaction). In general, the results suggest that both the internal consistency reliability of the scales and the discriminant validity of the items are satisfactory.

Objectivity of the Job Dimensions

As indicated earlier, assessments of the focal jobs on the job dimensions were made not only by employees who worked on those jobs, but by supervisors and by the researchers as well. This was done to provide an indirect test of the "objectivity" of employee ratings of the characteristics of their own jobs.

The relationships among the judgments made by employees, supervisors, and observ-

TABLE 2
RELATIONSHIPS AMONG EMPLOYEES', SUPERVISORS',
AND OBSERVERS' JOB RATINGS

Job dimension	Correlations between ratings		
	Employees and supervisors	Employees and observers	Supervisors and observers
Skill variety	.64	.66	.89
Task identity	.31	.32	.44
Task significance	.48	.65	-.14
Autonomy	.58	.76	.72
Feedback from the job itself	.33	.58	.47
Feedback from agents	.07	-.13	.14
Dealing with others	.55	.61	.37
Motivating potential score	.56	.70	.71
<i>Mdn</i>	.51	.63	.46

Note. Data are included only for those jobs for which more than one set of supervisory ratings were available. *N* ranged from 12 to 21 jobs.

ers are shown in Table 2. The ratings of each group (i.e., employees, supervisors, observers) were averaged for each job, and then correlations were computed using jobs as observations. The median of the correlations between employees and supervisors is .51; between employees and observers is .63; and between supervisors and observers is .46.

Although in general the ratings of the three groups converge moderately well, there are

some job dimensions (e.g., feedback from agents) for which the correlations between two of the groups are quite low. Moreover, the general level of the correlations is lower than those reported for similar job dimensions by Hackman and Lawler (1971).

Means and Variances of the JDS Scales

Means and standard deviations of the JDS scale scores across all 658 respondents are

TABLE 3
MEANS, VARIANCES, AND ANALYSIS OF VARIANCE FOR JOB DIAGNOSTIC SURVEY (JDS) SCORES

JDS scales	Total sample ($N = 658$)		Analysis of variance across jobs			
	\bar{X}	SD	\bar{X} ($n = 62$)	Variance within jobs	Variance between jobs	$F(49, 563)^c$
Job dimensions						
Skill variety	4.49	1.67	4.47	1.54	17.70	11.49*
Task identity	4.87	1.43	4.87	1.71	5.90	3.45*
Task significance	5.49	1.29	5.54	1.55	3.22	2.08*
Autonomy	4.80	1.43	4.75	1.55	7.92	5.11*
Feedback from the job itself	4.98	1.41	4.96	1.76	4.41	2.51*
Feedback from agents	3.98	1.65	3.87	2.28	6.82	2.99*
Dealing with others	5.29	1.34	5.27	1.35	6.70	4.96*
Motivating potential score (MPS)	128.31	72.73	120.68	4,112.	19,959.	4.85*
Psychological states						
Experienced meaningfulness of the work	5.12	1.10	5.06	1.05	3.19	3.04*
Experienced responsibility for the work	5.48	0.91	5.44	0.70	2.37	2.24*
Knowledge of results	5.18	1.09	5.19	1.06	2.57	2.42*
Affective responses to the job						
General satisfaction	4.62	1.18	4.57	1.13	4.19	3.71*
Internal work motivation	5.39	0.96	5.34	0.82	2.19	2.67*
Specific satisfactions						
Job security ^a	—	—	—	—	—	—
Pay ^a	—	—	—	—	—	—
Social	5.42	0.92	5.42	0.77	1.72	2.23*
Supervisory	5.28	1.27	5.32	1.42	3.81	2.68*
Growth	4.82	1.32	4.77	1.48	4.64	3.14*
Growth need strength						
"Would like" format	5.62	1.28	5.51	1.30	5.11	3.93*
Job choice format ^b	—	—	—	—	—	—

^a These scales were added to the JDS after the present data were collected, and normative data are not yet available.

^b The response scale for the job choice format was revised from 7 to 5 points after these data were collected. Preliminary indications are that the mean of the five-point scale will be close to the midpoint (3.0).

^c The analysis of variance was conducted on 50 jobs which had five or more respondents.

* $p < .01$.

presented in Table 3. The table also shows the mean JDS scores across the 62 jobs in the sample (i.e., the scores of respondents who worked on each job were averaged, and the mean of these averages was computed across the 62 jobs for each scale). The scale means obtained across all respondents are very similar to those obtained when averages were computed across jobs, suggesting that the different numbers of respondents who held the various jobs did not substantially affect the mean scale scores.

Also reported in Table 3 are the results of one-way analyses of variance which were computed for each scale across 50 jobs which had five or more respondents. As expected, between-job differences were statistically significant for all of the JDS scale scores. The data in the table show that the JDS scales vary considerably both in the amount of between-job variance present and in the amount of variance present among respondents within jobs. The F ratios can be taken as rough indicators of the sensitivity of the scales to between-job differences (at least for the set of jobs in the present sample). It should be kept in mind, however, that the within-job variance (the denominator of the F ratio) is multiply determined—and in part determined by real differences in actual jobs *within* organizational job categories. That is, some (unknown) amount of the within-job variance must be attributed to scale unreliability and to individual differences among respondents. At the same time, some (also unknown) amount of the same variance is explained by the fact that jobs often are individually designed to take account of particular characteristics of the people who do them, or because of the need for certain specialized activities to be performed by some people within a given job category. Therefore, the ratio of the between- to the within-job variance should be interpreted with caution.

Means for a subset of the JDS scales for an entirely different sample of respondents are provided by VanMaanen and Katz (Note 3). Scores are presented for a group of over 3,000 public employees, broken into eight Equal Employment Opportunity Commission (EEOC) job categories. In general, the mean

scores for the EEOC sample are higher than the means for the sample of jobs in business organizations shown in Table 3.

Relationships Among the JDS Scales

Correlations among the JDS scales are presented in Table 4. The job dimensions themselves are moderately positively intercorrelated, as has been found previously (Hackman & Lawler, 1971). This is to be expected, if it is assumed that "good" jobs often are good in a number of ways, and "bad" jobs often are generally bad. There is no a priori reason to expect that the job dimensions would or should be completely independent, and the moderate level of intercorrelation among them does not detract from their usefulness as separate job dimensions—so long as the fact of their nonindependence is recognized and accounted for in interpreting the scores of jobs on a given job dimension.

As expected, the job dimensions are positively related to measures of work satisfaction and motivation, and are generally independent of the two measures of growth need strength. The measures of the critical psychological states are strongly related to those core job dimensions predicted by the theory to affect them. They also are not substantially related to the need strength measures.

The correlations in Table 4 were computed across all 658 respondents; in addition, intercorrelations were computed across the 62 jobs (using the average of respondent scores for each job as observations). These correlations (which are presented by Hackman & Oldham, Note 2) show a pattern quite similar to that obtained in the across-respondent analysis reported in Table 4. The *level* of interrelationship among the scales, however, is substantially higher in the across-job analysis, which may be attributed at least in part to the fact that group averages are certain to be more reliable than the scores of individual respondents.

Substantive Validity of the JDS

The substantive validity of the instrument is addressed in detail in a separate report (Hackman & Oldham, Note 1). In general, that report shows that the variables measured

TABLE 4
INTERCORRELATIONS AMONG JOB DIAGNOSTIC SURVEY (JDS) SCALE SCORES

JDS scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Skill variety	—																	
2. Task identity	.16	—																
3. Task significance	.21	.20	—															
4. Autonomy	.51	.38	.22	—														
5. Feedback from the job itself	.32	.26	.26	.34	—													
6. Feedback from agents	.25	.16	.22	.23	.37	—												
7. Dealing with others	.46	.02	.24	.29	.24	.26	—											
8. Motivating potential score (MPS)	.62	.51	.41	.80	.72	.36	.34	—										
9. Experienced meaningfulness of the work	.51	.26	.43	.46	.41	.31	.33	.57	—									
10. Experienced responsibility for the work	.40	.34	.34	.41	.37	.23	.24	.53	.64	—								
11. Knowledge of results	.12	.21	.21	.26	.54	.39	.06	.43	.33	.32	—							
12. General satisfaction	.42	.22	.24	.43	.37	.33	.24	.49	.66	.48	.34	—						
13. Internal work motivation	.42	.22	.32	.33	.36	.25	.30	.46	.63	.66	.25	.51	—					
14. Social satisfaction	.31	.17	.24	.38	.27	.31	.36	.40	.41	.38	.32	.40	.40	—				
15. Supervisory satisfaction	.15	.16	.16	.32	.31	.41	.13	.35	.39	.32	.37	.46	.31	.37	—			
16. Growth satisfaction	.52	.31	.33	.58	.44	.39	.28	.63	.68	.54	.36	.67	.56	.52	.47	—		
17. Growth need strength (would like format)	.22	.08	.03	.10	.11	.13	.16	.19	.10	.21	.07	.04	.19	.08	.07	.02	—	
18. Growth need strength (job choice format)	.31	.06	-.01	.19	.13	.15	.20	.25	.15	.21	.05	.13	.17	.10	.10	.08	.50	—

Note. $N = 658$. Correlations $> .10$ are significant at the .01 level (two-tailed).

by the JDS relate to one another (and to external criterion variables) generally as predicted by the theory on which the instrument is based. In particular, the job dimensions (and the motivating potential score) relate positively and often substantially to:

1. The other variables measured by the JDS which are predicted to be affected by the job characteristics, including the three critical psychological states, general satisfaction, growth satisfaction, and internal work motivation (cf. Table 4).

2. Behavioral measures of absenteeism and supervisory ratings of work performance effectiveness. (For example, the motivating potential score has a median correlation of $-.25$ with absenteeism, and of $.24$ with a summary measure of performance effectiveness. Both relationships are statistically reliable at $p < .05$.)

In addition, and also as predicted by the theory, the relationships between the job dimensions and the dependent measures are stronger for individuals high in growth need strength than they are for individuals who do not strongly desire growth satisfactions. All of these relationships are explored in more detail in Hackman and Oldham (Note 1).

DISCUSSION

Empirical Characteristics of the JDS

Data discussed in the previous section show that the Job Diagnostic Survey has satisfactory psychometric characteristics, and that the variables it taps relate generally as predicted to appropriate external criteria. Internal consistency reliabilities are generally satisfactory, and the items which compose the scales show adequate discriminant validity. Ratings of job characteristics by employees, supervisors, and outside observers show a moderate level of convergence for most of the job dimensions. Variances of the scales are generally satisfactory, although some JDS scales show greater sensitivity to between-job differences than do others. Relationships among the JDS scales are generally positive, indicating that either the concepts tapped by the instrument or the methodologies used to gauge these concepts (or both) are not completely independent. In general, theory-speci-

fied relationships among JDS scales (and between these scales and behaviorally based dependent measures) are in the predicted direction.

Diagnostic Use of the JDS

One of the major intended uses of the Job Diagnostic Survey is in diagnosing existing jobs as an input to planned job redesign. The instrument provides data on the following issues, each of which is likely to be relevant to the diagnosis of a job prior to change — as well as to evaluative assessment of the effects of job redesign after the change has been implemented:

1. The overall level of motivation and satisfaction of employees on the focal job. The internal work motivation scale and the several measures of job satisfaction provide indication of whether or not observed organizational or behavioral "problems" are in fact rooted in the relationships of employees to their work. In addition, examination of the level of satisfaction with aspects of organizational life *not* directly related to the work itself can signal special opportunities (or potential difficulties) in the process of implementing work redesign. (If, for example, pay and supervisory satisfaction are very low, difficulties in initiating and carrying out a successful job redesign project might be very significant.)

2. The overall motivating potential of existing jobs, and how specific aspects of the job contribute to the obtained motivating potential score. Comparison of the MPS of a focal job with that obtained for other jobs (and with normative data such as that presented in Table 3) can indicate the degree to which the job is realistically open to improvement through work redesign. Examination of each of the core dimensions shows which specific aspects of the job are most in need of improvement. These data can guide those who are planning the job redesign toward those aspects of the work that most effectively can be changed and improved (cf. Hackman, Oldham, Janson, & Purdy, in press).

Employees, supervisors, and outside observers who participated in the present research showed only moderate agreement about the characteristics of the objective jobs

under study (see Table 2). For this reason, it is recommended that job descriptions obtained using the JDS be supplemented by independent assessments made by individuals who are not incumbants of the focal job. (As mentioned earlier, the Job Rating Form, Hackman & Oldham, Note 2, is designed explicitly for this purpose.)

It can be argued, of course, that when the intent is to predict or understand employee attitudes or behavior at work, employee ratings of the job dimensions should be used, since it is the employee's own *perception* of the objective job that is causal of his reactions to it. Yet if work redesign activities are to be planned on the basis of the job dimension scores obtained, it is important to know that those scores are reasonably congruent with objective reality. It might be, for example, that for any of a number of reasons employees are systematically misunderstanding or distorting the actual characteristics of their jobs. In such cases, an educational program might be much more appropriate as an intervention than redesign of the work. By using job descriptions from more than one source and "triangulating" on the objective characteristics of the job, the diagnostician can gain reasonable assurance that problem areas identified in the job actually are rooted in the job itself — rather than in faulty *perceptions* of the job.

3. The "readiness" of employees for change. The measures of individual growth need strength provided by the JDS can be an important factor in planning job changes, since people high in growth needs tend to respond more readily to "enriched" jobs than do people with little need for growth. The process by which job changes are introduced and implemented should probably be a more careful and deliberate one when employees are relatively low in growth need strength.

Cautions in the Use of the JDS

Listed below are a number of issues which, if not recognized, could impair the validity and the usefulness of the Job Diagnostic Survey in some applications.

1. Respondents to the JDS must be moderately literate. Use of the JDS is not recommended for individuals with an eighth

grade education or less, or for individuals who do not read English well.

2. The instrument is readily fakable, and probably should not be used for selection or placement purposes unless an extraordinarily high level of trust exists between the respondents and the individuals who will be using the results. Indeed, even when the JDS is used to diagnose a work system prior to change (or to assess the effects of changes which have been made) care should be taken to ensure that employees believe that their own interests will be best served if the data they provide *accurately* reflect the objective characteristics of the jobs and their personal reactions to them.

3. Related to the above, it probably is preferable for employees to take the JDS under conditions of anonymity. While the research reported in this paper required the listing of names (and names were voluntarily supplied by nearly all of the respondents), the instrument was administered by a university-affiliated person and it was explicitly explained to the respondents that the primary use of their answers was for research purposes. When the instrument is administered by members of organizational management for use by management, anonymity surely will be important for at least some of the respondents.

4. The instrument is not recommended for use in diagnosing the jobs of single individuals. Anonymity, of course, is impossible if the individual knows that it is his or her own individual job that is being diagnosed. But the issue extends beyond that. In developing the JDS, the intent was to develop scales composed of items with rather heterogeneous content — to maximize the substantive "richness" of each measure. This was accomplished at some cost to internal consistency reliability. The reliabilities are more than satisfactory when the instrument is used to obtain average scores of a group of five or more individuals who work on a given job. In such circumstances, the estimated internal consistency of each JDS scale would exceed .85 for the average of the group of individuals who hold the job. For data collected from a single individual, the reliabilities would be as shown in Table 1, which may not be high enough to warrant job changes (or other ac-

tion steps) on the basis of individual scale scores. (An exception to this state of affairs is the measure of individual growth need strength. This scale is designed to be a measure of an *individual* characteristic, and was constructed so as to be a highly reliable indicator of individual needs.)

5. Normative data are still being accumulated on the JDS scales. At this writing, several thousand respondents have taken one or another of the preliminary versions of the JDS. Yet because the instrument itself has been modified on the basis of those responses, a stable normative base has not yet been established. The mean scale scores reported in Table 3 can be used legitimately to make comparisons with scores obtained in other uses of the instrument. But the populations from which these data were obtained were not selected systematically enough for the data to be used to generate formal norms (i.e., in computing standard scores and a scale of percentiles for the JDS measures). As additional data are accumulated from uses of the final version of the JDS, more complete normative information will be made available.

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