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ABSTRACT

The study employs stepwise regression analysis to relate work and total job satisfaction with the following measures: job characteristics as reflected by job dimension scores and work quality dimensions, both being based on the Position Analysis Questionnaire; job-related interests expressed by job incumbents, as measured by the Job Activity Preference Questionnaire; the match between incumbents' job characteristics and their expressed job interests; and general affect, measured by a response disposition scale. Data were obtained from 407 workers in 29 jobs (nine management and 20 non-management) in two telephone companies. Results showed significant correlation between the above measures and both satisfaction criteria, with consistently better predictions of work satisfaction than total satisfaction. Also, correlations were higher and predictions better for management jobs than for non-management jobs. When response disposition was partialled out from work satisfaction, predictions did not change significantly. The results support the hypothesis that work content, personal interests, and the match between worker interests and job characteristics have a significant relationship to job satisfaction. Twenty statistical tables are included, as are four appendixes, which include biographical and questionnaire data, the Job Activity Preference Questionnaire, the Job Description Index, and the Response Disposition Questionnaire. (Author/JR)

Job Characteristics, Personal Interests, and Response Disposition of Incumbents as Related to Job Satisfaction

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JOB CHARACTERISTICS, PERSONAL INTERESTS, AND RESPONSE DISPOSITION OF INCUMBENTS AS RELATED TO JOB SATISFACTION

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This study deals with the relationships between job satisfaction and the following characteristics of the job and/or the incumbent:

1. Job characteristics as reflected by job dimension scores and work quality dimensions, both being based on the Position Analysis Questionnaire (PAQ).

2. Job-related interests expressed by job incumbents, as measured by the Job

Box 20 (cont.)

Activity Preference Questionnaire (JAPQ).

3. The "match" between an incumbent's job characteristics and his expressed job interests.

4. General affect, measured by a response disposition scale.

Data were obtained from 407 workers in 29 jobs in two telephone companies, with analyses also being done separately for the two companies and for the 9 management and 20 non-management jobs. The above-named predictors were used in stepwise regression analyses to predict "work" and total satisfaction as measured by the Job Description Index (JDI). In addition, the effect of the response disposition was partialled out from the work satisfaction scores of the combined sample.

Results showed significant correlations between the predictors and both satisfaction criteria, with consistently better predictions of "work" satisfaction than total satisfaction. This is in agreement with previous studies which predicted intrinsic satisfaction better than extrinsic. Also, correlations were higher and predictions better for management jobs than for non-management jobs. A curious result was the consistent better prediction of one company as compared to the other. The work quality dimensions had a maximum prediction of $r = .53$ for work satisfaction in the first company, with all other predictors being lower. When response disposition was partialled out from "work" satisfaction, predictions did not change significantly.

These results show support for the hypotheses that work content, personal interests, and the "match" between worker interests and job characteristics have a significant relationship with job satisfaction.

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INTRODUCTION

In recent years, there has been a continued demonstration of concern for workers' reactions to their jobs. This concern has been manifested in the study of job satisfaction/dissatisfaction and dates back to the early 1930's. Several thousand research studies have been conducted since that time to explore the determinants of and correlates to job satisfaction (Locke, 1969). The results of such studies have demonstrated not only meaningful relationships between job satisfaction and many other variables, but also the beginnings of theoretical frameworks for understanding job satisfaction and how it fits into a general model of worker behavior (see, for example, Porter and Lawler, 1967). This investigation was undertaken to explore the relationships among three such variables and job satisfaction and to integrate the findings into a theoretical framework of job satisfaction. The three variables of interest include characteristics of a job, job related interests, and worker personality.

One of the factors that has received considerable attention in recent years is that of job enlargement (what is sometimes referred to as job enrichment). The research relating to job enlargement, and the related discussions, are predicated on the hypothesis that certain characteristics of jobs generally contribute to higher levels of job satisfaction than do other characteristics. The research relating to this generally has supported this contention, to the extent of indicating that the level of job satisfaction of people is somewhat related to the characteristics of their jobs (see, for example, Ford, 1969). The psychological literature also includes considerable attention to the relationship between the patterns of the interests of job incumbents and their adjustment to their jobs, including their expressed job satisfaction. Thus, another possible source of variation in job satisfaction might depend upon the extent to which a person's own interests in job activities parallel the actual activities of the job itself.

Finally, there have been at least a few probing efforts to identify any personal characteristics that might be associated with job satisfaction, especially personality characteristics. In this regard, this investigation deals with a construct that one might call "response disposition." This refers to a relatively enduring personal characteristic that might predispose people toward responding favorably or unfavorably to various types of job situations.

In general terms, this study deals with the relationship between the following characteristics and reported job satisfaction:

1. Job characteristics as reflected by job dimension scores based on the Position Analysis Questionnaire (PAQ).

2. Job-related interests expressed by job incumbents (measured by the use of an interest inventory that parallels the PAQ).

3. The "match" between an incumbent's job characteristics and his expressed job interests.

4. A measure of response disposition.

The measure of these variables as they were dealt with in this study is discussed in the Procedures section. The integration of these variables will be discussed below.

Job Satisfaction: A Proposed Frame of Reference

Over the years a number of theoretical statements concerning job satisfaction have been proposed (for example, Katzell, 1964; Lawler, 1971; Locke, 1969; Lofquist and Dawis, 1969; Morse, 1953; Porter and Lawler, 1967; and Smith, Kendall and Hulin, 1969). It is beyond the scope of this report to discuss each of these theories of job satisfaction in detail. However, two major themes seem to run through all of these theories of job satisfaction. The first deals with a theorized major determinant of job satisfaction (rewards), and the second with the process by which a job satisfaction determination is made (a comparison process). Each of these themes will be discussed and placed into an integrated model of job satisfaction.

Rewards

All theoretical approaches to job satisfaction share the notion of rewards and postulate that a major determinant of satisfaction is the rewards a person receives on the job. Clearly, factors other than actual rewards are also implicated by these various theoretical models (the importance of needs, expected level of rewards, perceived equitable rewards, etc.). Although various theoretical positions differ with respect to their emphasis on these other factors, they all emphasize the centrality of the actual rewards a person receives on the job in understanding the concept of job satisfaction. (Pritchard and Peters, 1974).

Comparison Process

Further, these theoretical approaches all point to a "comparison process" as the process by which the determination of job satisfaction is made. The worker is seen as comparing what he receives from the job (environmental returns) to his needs, wants, desires, frame of reference, perceived equitable reward, preference for various rewards, etc. In short, the individual is said to compare his environmental returns to some internalized standard. The specific standard used by the employee varies with the various theoretical viewpoints.

Integrated Model of Job Satisfaction

This theoretical analysis might be diagrammed as the S-O-R model given in Figure 1. The environment is said to provide various outcomes to the worker, and these outcomes are said to evoke appropriate internalized standards of comparison. The comparison of the job out-

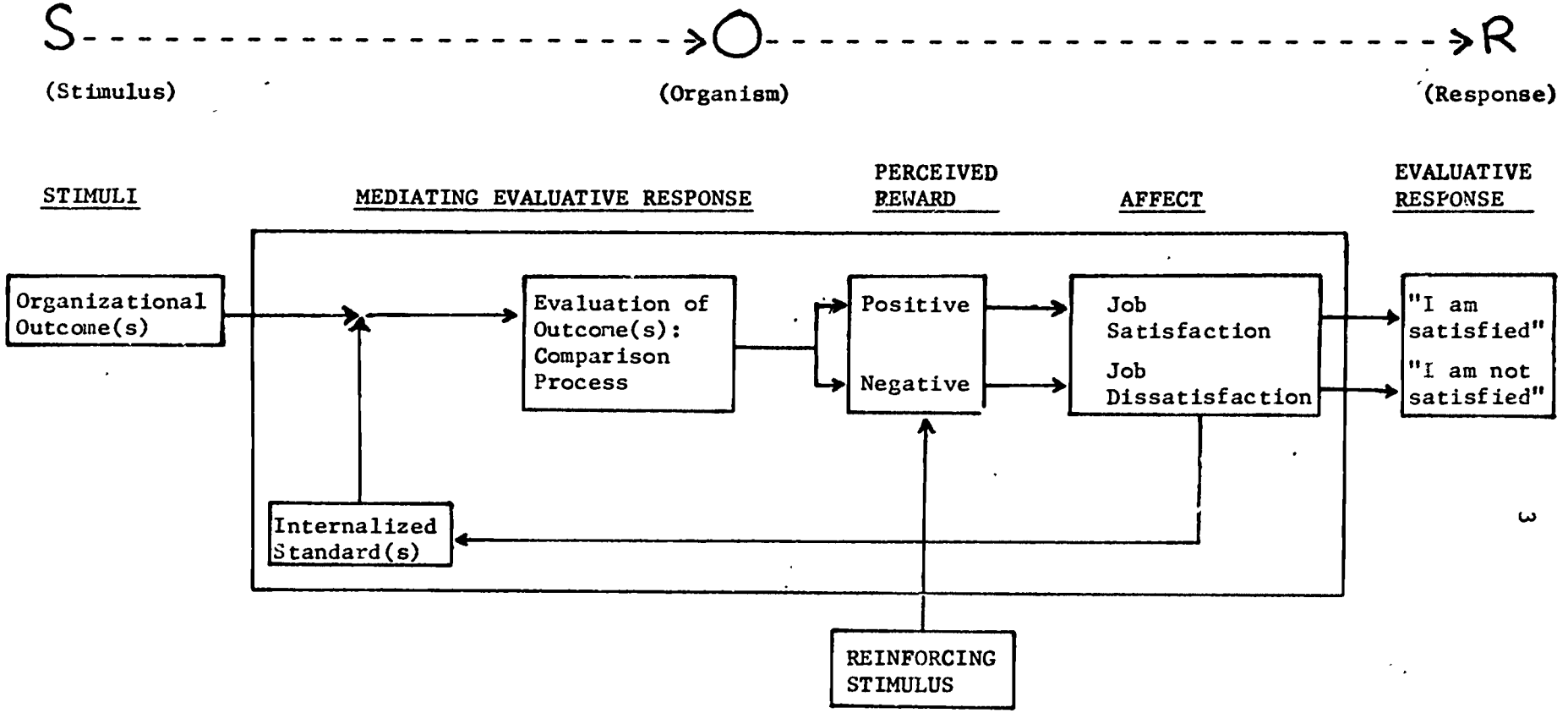


Figure 1

Integrated Model of Job Satisfaction

comes or environmental return to the standard of comparison results in either a positive or negative judgment. This judgment is termed the perceived reward value of the organizational outcome. Not all organizational outcomes given to workers will be perceived as rewards. This perception of reward value represents a reinforcing stimulus which, through previous experience and learning, is associated with an affective state. Here, the perception of reward (a positive reinforcing stimulus) is said to be associated with job satisfaction, and the perception of punishment (a negative reinforcing stimulus) with job dissatisfaction.

At least in part, job satisfaction may be conceptualized as the affect (positive or negative) that a worker has as a result of the perceived rewards in the work environment. The manifestation of satisfaction/dissatisfaction is the type of evaluative response we ask workers to make (e.g., responding to a job satisfaction questionnaire). This is essentially a verbal report of an internal state, not the affective state itself.

The internalized standards used in the comparison process vary from theory to theory. The most parsimonious, and defensible standard is based on learning theory and the concept of reinforcement. The reinforcement concept merely assumes an active individual with the ability to learn. The concept of vocational needs as defined in the Lofquist and Dawis (1969) model of work adjustment represents such a reinforcement approach to the establishment of an internalized standard. For these authors, vocational needs are defined as preferences for responding in certain stimulus conditions in the work environment which have been experienced by the individual to be reinforcing. Here, past experience with situations in which rewards were given form the basis of a standard of comparison. A vocational need, therefore, is nothing more than a preference to be in a situation which has been associated with reward in the past.

The research of Lofquist and Dawis (1969) has emphasized the importance of describing both the worker and the work environment in common terms. In this manner, discrepancies between environmental returns and an internalized standard can be assessed. For these researchers, the common denominator has been the concept of job-related reinforcers--the comparison of actual rewards to the employees' preference for various rewards. A different approach, however, might also be used to assess this comparison process. (The approach reported in this study involves the comparison between actual job duties and job interests.)

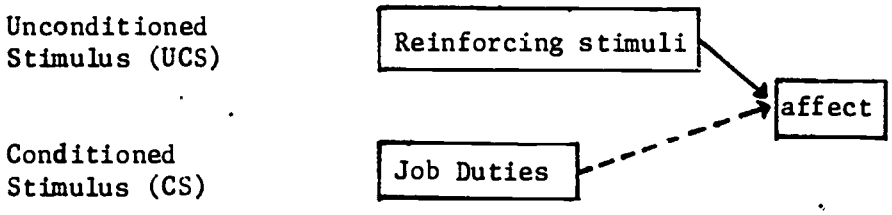
Integration: The Job Duty/Job Interest "Match"

When we ask a worker to specify his interests, we obtain a profile of his preferences for various job situations and job behaviors. These preferences are thought to be related to the workers' past history of reinforced job behaviors--situations and behaviors rewarded in the past are preferred to those which were either not rewarded or were punished.

Thus, job interests can be conceptualized as a measure of preferences for situations associated with reward in the past, and for which reward is anticipated in the future. Job interests represent the verbalization of desired future states.

Given that the above conceptualization of job interests as situation-reward expectancies is meaningful, we can now conjecture as to their role in influencing reported job satisfaction. As specified in the integrated model of job satisfaction given [illegible] job interests would represent one of the internalized standa[illegible]t which comparisons are made. Here, however, the comparison is [illegible] that of actual organizational outcomes to their appropriate standard, but the comparison of preferences for reinforcing situations (job interests) to the actual situation (actual job behaviors).

But, in order for this to be a meaningful comparison, the role of job duties as an affect elicitor must be specified. Unless it can be argued that the actual duties performed by the worker can elicit affect, it is illogical to consider a job duty versus job interest comparison for its relationship to job satisfaction. Clearly, such an argument can be made. Using the classical conditioning model, job duties might be conceptualized as conditioned stimuli which, having been continuously paired with reinforcing stimuli on the job, also are capable of eliciting affect.



From this point of view, what a person does, as well as the rewards he receives for doing it, can elicit positive or negative affect. Thus, job analysis in terms of worker behaviors (i.e., a measure of what a person does) should provide a basis for predicting job satisfaction.

However, reinforcement histories are different for different people. A priori, we have no basis for predicting greater job satisfaction when a different given set of job duties is performed.[1] In short, the same job duties may elicit positive affect for some work[illegible]s and negative affect for others. The important difference is the reinforcement histories of the workers.

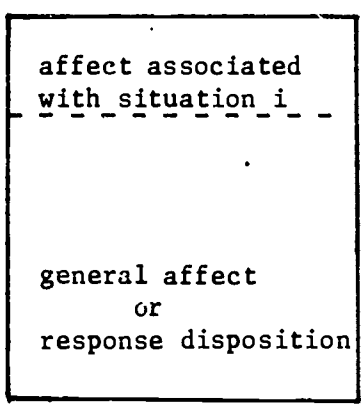
---

[1] However, recent interest in "job enrichment" suggests that there might be such a subset of job behaviors which tend to elicit positive affect for most persons in our culture--i.e., certain job behaviors common to job enrichment programs might generally tend to elicit positive affect.

One way to "get around" this methodological problem follows from the integrated model of job satisfaction itself. The model posits that the worker compares actual organizational outcomes to a standard of reward. It is the relative difference between the comparison variables that is important. If both variables could be measured in the same metric, then both major stimulus variables (environmental return and internalized standard) and their process of combining (an appropriate difference measure) could be assessed and related to job satisfaction. Formally stated, it is hypothesized that, given a common method of measuring both job duties and job interests, the closer the "fit" between job duties and job interests, the greater the job satisfaction.

Integration: Response Dispositions

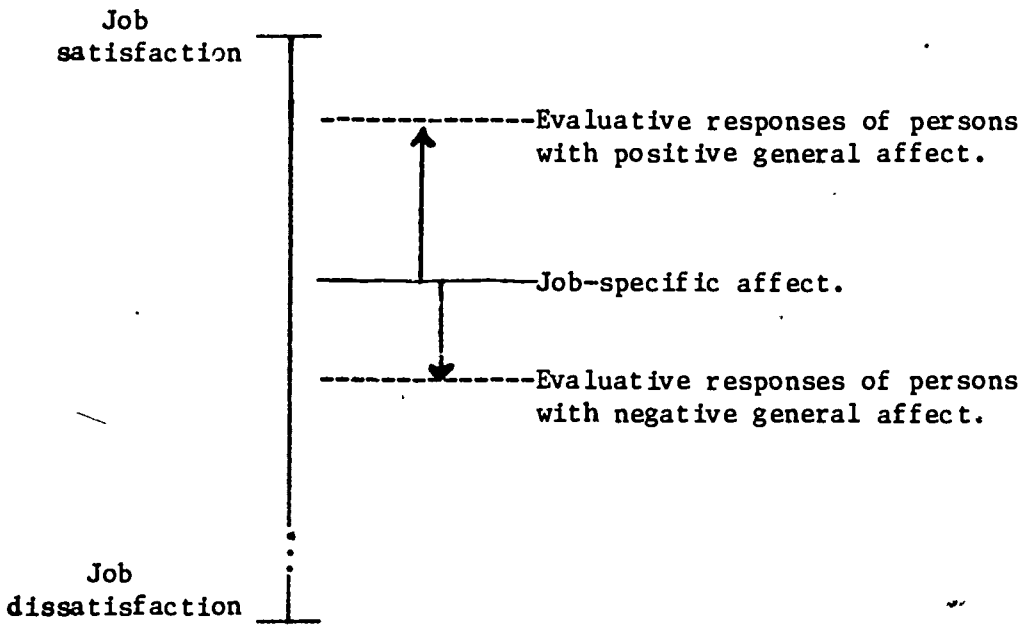
As previously stated, at least one component of reported job satisfaction may be defined theoretically as the affect a worker has elicited by the job--it is job-specific affect. However, the reported "affect" of individuals in any given circumstance may be viewed as the combination of two possible components, the one component relating to the situation (the situation-specific affect) and the other component being rooted in one's personality make-up (what might be called general affect or response disposition). This partitioning might be diagrammed as follows:



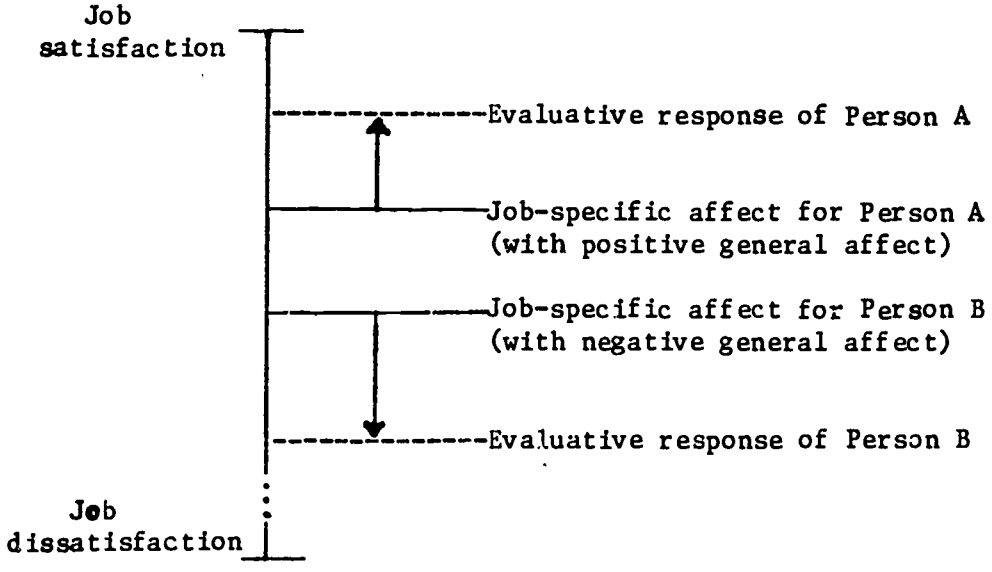
As previously stated, the assessment of situation-specific affect is not a direct measure of affect, but rather, is an evaluative response made by the worker about his affect. The person is asked to report on the state of his affect. This is commonly done by having the worker respond to questionnaire items designed to evaluate his affective state. Positive affect is said to be associated with positive evaluative responses.

Most research on job satisfaction is concerned with the situation-specific affect. That is, the researcher is interested in what aspects of the job affects workers' attitudes about the job. However, it is suggested that a worker's evaluative response about his job is the result of the combination of the two components mentioned above. As an illustration, assume that a given group of workers have the same level of "job-specific" (situation-specific) affect. Further, assume that half of these workers have a positive "general affect" and the

others a negative "general affect." Given that reported evaluations are the combined effects of these two sources, the following may occur: persons with positive general affect will evaluate their job satisfaction more positively, and persons with negative general affect will evaluate their job satisfaction more negatively. This is diagrammed below.



If the correlation between expressed job satisfaction and positive general affect is positive, there should be a tendency for the job-specific affect of persons with positive general affect to be lower than their expressed evaluative response. Conversely, the job-specific affect for persons with negative general affect should be higher than their expressed evaluative response. The influence of the general affect would therefore be to artifically overestimate or underestimate the actual job satisfaction. This is illustrated in the next figure.



For a group of workers, the range of expressed job satisfaction scores would then tend to be greater than the range of job-specific affects. Therefore, if the general affect were to be partialled out from the evaluative responses, the range would be decreased, and if these scores were to be used as the criterion values in a prediction equation, multiple R's would generally tend to be lower.

To the extent that the general affect of individual might influence their responses to job satisfaction questionnaires, then, one could not expect to determine accurately the degree to which any of various types of job and personal variables might be related to the job-specific affect. This suggests that a measure of such general affect in studies of job satisfaction might then be used to partial out the influence of this factor. Another hypothesis to be investigated in this study then, is the following: the correlation between positive general affect and job satisfaction will be positive, and prediction of job satisfaction will be lower when the influence of general affect is partialled out, compared to the situation where it has not been partialled out.

Work Quality Dimensions

As indicated above, this research project was planned to use the Position Analysis Questionnaire (PAQ) as the basis for "describing" the scores on the dimensions that resulted from several principal components analyses of PAQ data. Since the PAQ consists of 187 job elements dealing with various aspects of jobs, it was conjectured that certain of the job elements might be related to what have been postulated as "work quality" dimensions.

Work quality dimensions, as separate, yet similar dimensions from those associated with work content and worker aptitudes, have been the focus of a considerable amount of recent research. Hackman and Lawler, (1971), Ford, (1969 and 1973), Blood and Hulin (1967) have conducted studies that deal with specifying task requisites and environmental characteristics that presumably contribute to the psychological value of work, and concomitantly, to worker job satisfaction. This body of research is the rather direct progeny of earlier studies of social and industrial psychologists concerned with the expectations of individuals as a critical factor in their motivation to perform (Lewin, 1938; Vroom, 1964) and the "need hierarchy" theory associated with Langer (1937) and Maslow (1954). Herzberg (1957) applied these concepts directly to worker performance.

The research with work quality dimensions has varied slightly from that regarding work content, although it has been shown that both types of measurement, work quality and work content, may be present in job dimensions defining either. (Rogers Taylor, APA paper, 1974). Work quality dimensions have generally been broadly descriptive, but, as used to capture the vast array of attitudinal potentials they have proven exceedingly resistant to empirical quantification. On the other hand, work content research has had a long and quite successful history. Because of the empirical

strength of job content analysis research, and because of the relative "youth" and unquantifiable character of work quality research, it was an important part of the present study to tie the extension of work quality to the proven methodological prowess of work content analyses.

The quantification of work quality dimensions is viewed as the next developmental step in the research regarding work enrichment and worker job satisfaction being carried out in the Bell Telephone System. (This phase of the research project was carried out in cooperation with the American Telephone and Telegraph Company.) Since 1965, researchers at A.T.& T. have been conducting formal field experiments in job enrichment and work quality. As the employer of nearly 1% of the working population of the United States, the shift in societal values, rising levels of education, and concomitantly, rising levels of expectation among employee populations probably made their impact at A.T.& T. before they made their impress on any number of smaller organizations. The first evidence of a fundamental shift in traditional worker values and attitudes at A.T.& T. came in the form of startling rates of turnover in jobs that had been heretofore viewed as "good jobs". Workers in these positions were paid a competitive wage, working conditions had always been somewhat above industry standards, and the job security of working for "Ma Bell" was widely known and respected. Why then were employees leaving in such alarmingly large numbers? The search for the answer began with research in the Treasury Department and focused on a single job, that of the correspondence clerk.

The study group was made up of 104 young women, seventy percent of whom were college graduates, who answered customer inquiries regarding their securities holdings. In many instances the information sought was quite complex requiring considerable resourcefulness and investigative skill on the part of the correspondents. The rate of turnover among this group, prior to the study, was considered excessively high.

The results of this trial were quite good. Turnover (during the trial period) was virtually eliminated, incidental absence dropped sharply, productivity improved, and the total cost of the operation was improved considerably through the elimination of costly checking and verification steps in the work process. Perhaps the most important outcome of this early research was the establishment of the experimental legitimacy of the descriptive work quality dimensions, module, control, and feedback, as variables in the psychological value of work and worker job satisfaction.

Ford (1974) describes the work quality dimension module as, "a slice of work that gives an employee a "thing of my own." At A.T. & T. it came to be described variously as "a piece of turf" or "my piece of real estate." Ideally, the intent of work "modules" is to give a worker a natural area of responsibility. Ford goes on to say that, "In defining modules that give each employee a natural area of responsibility, we try to accumulate horizontal slices of work until we have created (or recreated) one of these three entities for him/her:

1. A customer (usually someone outside the business).

2. A client (usually someone inside the business, helping the

employee serve the customer).

3. A task (in the manufacturing end of the business, for example, where ... individual employees produce complete items).

Anyone of these can make a meaningful slice of work (in actuality, they are not separated; obviously, an employee can be working on a task for a customer)."

Control over the work module as a dimension of work quality evolved as a construct that tends to increase the decision making power and opportunities for the exercise of worker judgment over the work within the module. In a sense, such control can be viewed as being "pulled down," vertically, from supervisory control to the worker performing the tasks within the module of work. Ford lists some such tasks that have been successfully handed by the supervisor to a person when the employee has demonstrated that he or she can handle the work module completely, some of these examples being as follows:

1. Set credit ratings for customers.

2. Make his or her own budget, subject to negotiation.

3. Reject a run or supply of material because of poor quality.

4. Talk to anyone at any organizational level when the employees' work is concerned.

5. Call directly and negotiate for outside repairman or suppliers to remedy a condition handicapping the employee's performance.

Feedback, as an element of work quality, has been described by Ford as follows: "Definition of the module and control of it are futile unless the results of the employee's effort are discernable. Moreover, knowledge of the results should go directly to where it will nurture motivation -- that is, to the employee. People have a great capacity for mid-flight correction when they know where they stand." Feedback that emanates from the work itself, rather than from some secondary or tertiary source in the work situation, has been found to be the most effective in sustaining high levels of employee performance and motivation. Hilaael (1974) found, in a summary of the research related to feedback topographies in a variety of human performance systems, that immediacy of feedback, preferably non-punitive in character, was the intent in optimal job design regardless of the setting of the performance system.

Much of the theoretical foundation of this early Bell System research with work quality was based on the motivator-hygiene theory of Herzberg (1959), particularly the motivation element related to the work itself. These constructs served well (and continue to do so) during the next phase of work quality studies that attempted to redesign or restructure much larger units of work.

This phase involved a move away from studies concerned with one-job-at-a-time, to studies concerned with the quality of work for entire

job families. In this series of studies, individual work modules were meshed to include categorically separate tasks, within the job family, in "nested" work arrangement that improved the quality of work for all the individuals within the job family. In one such study, involving a job family of service order writers and service order typists in the St. Louis Ferguson District Commercial office, Ford states, "The nested job family approach moved the district from near the bottom to near the top in results among all districts for the St. Louis area."

As a result of these and other studies it became apparent that opportunities for skill and learning formed an important part of the quality of work present in a given job. The interaction of job skills among the various work hierarchies within the job families enabled workers lower in the hierarchy to learn the skills associated with jobs higher up. The workers welcomed the opportunity to learn. They became a source of talent supply for the higher level jobs and implicit kinds of career progressions became discernable within the job family.

Skill and learning, as a work quality dimension, came to be defined as the opportunity to grow in the job through the acquisition of new skills that contribute to effective performance in the job and that are transferable, in whole or part, to a job at a higher level in the organization. It is related to the Herzberg motivational constructs (growth, achievement, and advancement), and it is an important source of worker task identity and job satisfaction.

Some important issues were raised by this research in the Bell System regarding work quality, through its two important developmental stages. Among the most important of those raised was the matter of reliably measuring the quality of work from one job to the next.

In this study those job elements that were considered to be relevant to each of these four quality of work dimensions were used as the basis for deriving scores on these work quality dimensions for each job.

Objectives of the Study

Following the frame of reference described above, the objective of this study was that of determining the extent to which reported job satisfaction is a function of certain job and personal variables, specifically: job characteristics; the interest patterns of job incumbents; the degree of "match" between the interest patterns of job incumbents and the objective characteristics of the jobs they occupied, and the quality of work job dimensions of jobs. However, because of the possible influence on job satisfaction measures of the general affect of the incumbents, plans for the study also provided for the measurement of general affect (specifically called response disposition) in order that its influence might be investigated and possibly be partialled out in the study of the relationships with the other variables.

Procedures

The general plan of the study provided for obtaining relevant data from each of several job incumbents on each of a number of different jobs. The criterion information used in the study consisted of reported job satisfaction on the part of the incumbents. Additional data obtained from the incumbents included responses to an interest inventory, and a response disposition scale, along with certain types of biographical data. Separately, data on the jobs were obtained by the use of a structured job analysis questionnaire. The job data plus the personal data from the incumbents based on the questionnaires were used as predictors of the criterion of job satisfaction on the part of the incumbents.

Sample of Jobs and Job Incumbents

The jobs covered in this study included 29 jobs from two companies in the telephone industry. Data on 15 of the jobs were obtained from one company and data on the remaining 14 from another company. The jobs varied in terms of content and level, with 9 being management jobs and 20 being non-management jobs. Approximately 15 incumbents on each of the jobs were included in the study. The specific jobs and the number of incumbents on each are given in Appendix A. A total of 407 incumbents were included.

Quantification of Job Characteristics

Each of the jobs included was analyzed by the use of the Position Analysis Questionnaire (PAQ). This is a structured job analysis procedure that provides for the analysis of a job in terms of 187 different job elements (McCormick, Jeanneret, & Mechan, 1972). In the analysis of a job with the PAQ the analyst rates the relevance of each job element to the job, using in most instances a 6-point scale.

PAQ Job Dimensions

The initial ratings of job elements made by the analysts are used as the basis for the derivation of scores on 30 job dimensions. The job dimensions are those which resulted from a principal components analysis of data for a sample of 3700 jobs (Marquardt, & McCormick, June 1974). The job dimension scores for any job can be viewed as representing a job dimension "profile" for the job.

In this study two or three independent PAQ analyses were carried out for each of the jobs, the "profile" for the job being, in effect, the composite of those independent analyses.

Work Quality Dimensions

As indicated above, the scores on the work quality dimensions of the jobs were derived on the basis of sub-sets of PAQ job elements. Fifty-two job elements were selected on the basis of their judged relevance to the four constructs. The job elements selected to represent these dimensions as listed in Table 16 in the appendix. In the derivation of scores in these dimensions the individual job elements were given equal weighting.

Measurement of Interest

For the measurement of the interests of the job incumbents a modified form of the Job Activity Preference Questionnaire (JAPQ) was used. This questionnaire provides for individuals to indicate the strength of their interests in having certain types of activities as a part of their job. The format of this questionnaire parallels that of the PAQ in that the items in the JAPQ are the same as the job elements in the PAQ. Thus, the interests of individuals can be compared with job characteristics in terms of the same "units" of job characteristics. The basic form of the JAPQ includes 150 of the 187 items in the PAQ. (Some items were omitted from the JAPQ since it did not seem relevant to ask people to express their interests in terms of certain of the elements.) For the purposes of this particular study a special form of the JAPQ was prepared which consisted of 107 of the 150 items. This was done in order to minimize administrative time. The items which were eliminated were those which, on the basis of certain considerations, seemed to be potentially less relevant. For example, certain items were dropped because they did not contribute appreciably to the derivation of job dimension scores as reflected by the loadings on the various components. Further, certain items were rather highly correlated with others and presumable would not add appreciable to the prediction.

The use of the JAPQ would make it possible to compare the expressed interests of job incumbents with the characteristics of the jobs on which they were working, since the "units" of job information in both instances were the same. The comparison for any individual was based on the similarity of the profile of job dimensions scores (based on the PAQ) as compared with the corresponding profile of his interests on those dimensions. Since certain job elements in the PAQ were not included in the modified version of the JAPQ, some provision has to be made for accounting for those job elements in the derivation of the interest measures on the job dimensions. This was done by using a constant in the regression equations for the derivation of job dimension scores.

Difference Index (D^2)

To measure the "match" between job characteristics and personal interests, a simple index of difference (D^2) was used. As the PAQ and JAPQ are based on the same elements, the squared difference for each element common to both was formed, and summed over all elements. This is called the Difference score (D^2).

Response Disposition

To measure the general affect of the job incumbents, a Response Disposition scale was devised by combining 20 items of the Optimism-Pessimism Scale developed by Beck (1973) and 8 items of the Anomie Scale (Robinson & Shaver, 1969).

A preliminary study based on data from 40 students showed no significant correlations between the total scores on the Response Disposition scale and sex, total grade point average, or the Marlowe-Crowne

Social Desirability Scale (Crowne and Marlowe, 1964). This indicates that the respondents did not systematically show a desire for social approval (or disapproval) in their reactions. The range of scores on the Response Disposition scale was sufficiently wide to indicate wide variability even in this relatively homogenious sample of students.

Job incumbents were asked to rate each item on a 7-point Likert scale ranging from strongly agree to strongly disagree. To avoid response sets, positive and negative statements were mixed. In computing the final score, ratings on negative statements were converted to the equivalent on the positive statements, and ratings on all 28 items were added together. The minimum possible score of 28 indicates extreme optimism while the maximum of 196 indicates extreme pessimism.

Measure of Job Satisfaction

Job satisfaction was measured by the use of the Job Descriptive Index (JDI) developed by Patricia Smith (Smith, Kendall, and Hulin, 1969). This scale provides for individuals to "describe" five different aspects of their job situations, using in each instance a series of adjectives or phrases. These five aspects are: Work; Supervision; Coworkers; Pay; and Promotions.

The responses were scored in the manner provided by Smith, this resulting in five separate job satisfaction scores for each individual. In addition, a total score was derived, making a total of six possible criteria. However, in this phase of the analysis only the "total" and "work" criteria were used.

Statistical Analyses

Statistical analyses were carried out separately for the data for the 15 jobs from one company, the 14 jobs of the second company, for the combined sample of 29 jobs, and separately for the 9 management and 20 non-management jobs. The basic procedure consisted of stepwise regression analysis of the predictors as related to each of the two criteria of job satisfaction that were used, separate analyses being carried out with the following predictors and combinations of predictors:

1. PAQ job dimension scores for the jobs.
2. JAPQ job dimension scores for the job incumbents.
3. A D^2 index of the "match" between the PAQ and JAPQ job dimension scores for each individual.
4. Response disposition scores.
5. A combination of 1 and 2.
6. A combination of 1, 2, 3, and 4.
7. A combination of 1, 2, 3, 4 and personal variables such as sex, age, time on present job, time with this company, and education.

8. The work quality dimensions.

In addition, the effect of the response disposition was partialled out from the "work" satisfaction scores of the combined sample, by using the formula for semi-partial correlations discussed in Nunally (1967). Another regression analysis was carried out, using this new "work" satisfaction as the criterion. (The "work" satisfaction from which the general affect is partialled out was called "job-specific affect" in the preceding discussion of the frame of reference).

RESULTS

From the questionnaires completed by each incumbent, means and standard deviations for age, tenure on the particular job, and tenure with the company, were computed and are given in Table 17 (Appendix A). These data indicate substantial variation in age and tenure within most of the jobs. Satisfaction scores for each job are shown in Table 18 (Appendix A).

Reliability of Response Disposition Scale

For each company a split-half reliability coefficient for the Response Disposition Scale was computed. For company A the reliability was r = .89, and for company B it was r = .94. As this instrument is basically a seven-point attitude scale, the reliability can be regarded as sufficiently high.

PAQ Dimension Scores

As discussed previously, PAQ dimension scores were computed using the job dimensions and factor loadings determined by Marquardt and McCormick (1974).

A stepwise regression was carried out to determine which dimensions contributed toward the correlation with job satisfaction. These dimensions are presented in Table 15 in Appendix A. Because different combinations of dimensions were found to correlate best in each combination of the three samples and the two satisfaction criteria, somewhat different correlations resulted in the last rows of Tables 1, 2 and 3. In each of these tables the last three variables refer to the specific dimension scores which best predict total satisfaction.

Essentially the same process was used to determine the JAPQ dimension scores for incumbents and the correlations with the other variables.

Correlations Between Variables And Satisfaction Criteria

Tables 1, 2 and 3 show the intercorrelations between each of the variables and each of the two satisfaction criteria, "work" and "total".

There are significant and relatively high correlations between "work" satisfaction and both the PAQ and JAPQ dimension scores in each of the companies, as well as in the combined sample. This is also the case with the total satisfaction criterion.

A systematic significant difference between the corresponding correlations found for company A and company B is shown. ($P < .01$), indicating for company A a seemingly stronger relationship between job characteristics, job interests and both satisfaction criteria.

It was previously argued that the match between job characteristics and job interests would be a more appropriate predictor of job satisfaction. This match was measured by the difference (D^2) score, and the correlations are also shown in Tables 1, 2 and 3. Five of the six correlations are in the predicted, negative direction, that is, the lower the difference score, the higher is the satisfaction scores. The correlation in company A for both the criteria is significant ($P < .01$). In company B (Table 2) neither of the correlations between D^2 and satisfaction is significant, although one (with "work"), approaches significance at the 5% level. For the combined sample, the correlation with "work" satisfaction is significant. ($P < .01$).

With regard to the third main hypotheses, the same pattern emerges. In company A both the correlations between response disposition and the satisfaction criteria is significant at the 1% level, while in company B both correlations are weaker than that of A, but both significant at the 5% level. In the combined sample both correlations are significant at the 1% level. Based on the discussion in the Introduction, these correlations are in the expected direction, indicating that some part of the variance in job satisfaction can be explained by variance in general affect (measured by the response disposition scales). Partially out this variance from expressed job satisfaction, may therefore indicate a more "true" relationship between predictors and job-specific affect.

The relationship between work quality dimensions and both satisfaction criteria is presented in Table 4. Although the dimensions are significantly interrelated in all but one instance, correlations with the satisfaction criteria are generally low.

Correlations for Management And Non-Management Jobs

It was suspected that there may be significant differences between higher and lower level jobs. Table 5 shows that this suspision was realistic, as there are significant differences between the means of all the satisfaction sub-scales, response disposition scales and also a surprisingly large difference in the index of "match", the D^2 score. It was therefore decided to analyze the date separately for management and non-management jobs.

Tables 6 and 7 shows the intercorrelations which resulted. In addition, correlations with other criteria (besides "work" and total satisfaction) are also included. Of major interest is the significant correlations between "work" satisfaction and PAQ and JAPQ dimension scores ($r = .38$ and $.55$ respectively) for management jobs. Also, the correlation between "work" satisfaction and the D^2 score is significant ($r = .25$). Of the corresponding r's for non-management jobs, only the correlation between the JAPQ dimension score and work satisfaction is significant ($r = .33$).

Table 1. Correlation Matrix for "Work" and Total Satisfaction Criteria: Company A

	Sex	Age	T. Job	T. Co.	Ed.	D^2	Resp. Dispo.	Work Sat.	PAQ	JAPQ	Total Sat.	PAQ	JAPQ
Sex													
Age	-.06												
Tenure: Job	.05	.28**											
Tenure: Company	00	.74**	.53**										
Education	-.18**	-.09	-.18**	-.15*									
Difference D^2	.42**	-.05	.12	-.07	-.11								
Response Disposition	.15*	.03	.08	.05	-.09	-.02							
Work Satisfaction	-.28**	.30**	.12	.35**	.02	-.20**	-.37**						
PAQ Dimension Score	-.47**	.32**	.02	.39**	.27**	-.33**	-.21**	.63**					
JAPQ Dimension Score	-.29**	.17*	00	.17*	.14*	-.10	-.22**	.48**	.44**				
Total Satisfaction	-.19**	.18**	-.04	.25**	.02	-.18**	-.31**	-	-	-			
PAQ Dimension Score	-.47**	.32**	.02	.39**	.27**	-.33**	-.21**	-	-	-	.48**		
JAPQ Dimension Score	-.29**	.17*	00	.17*	.14	-.10	-.22**	-	-	-	.50**	.44**	

* $p < .05$

** $p < .01$

Table 2. Correlation Matrix for "Work" and Total Satisfaction Criteria: Company B

	Sex	Age	T. Job	T. Co.	Ed.	D^2	Resp. Dispo.	Work Sat.	PAQ	JAPQ	Total Sat.	PAQ	JAPQ
Sex													
Age	-.01												
Tenure: Job	-.13	.53**											
Tenure: Company	-.16*	.77**	.66**										
Education	-.18**	-.14*	-.08	-.19**									
Difference D^2	.31**	-.02	-.02	-.14*	-.23**								
Response Disposition	-.15*	.04	.15*	.15*	-.03	-.05							
Work Satisfaction	-.03	.32**	.24**	.35**	.01	-.10	-.18*						
PAQ Dimension Score	-.28**	.41**	.20*	.49**	.10	-.27**	-.01	.50**					
JAPQ Dimension Score	-.01	.27**	.09	.16*	.02	-.01	-.21*	.32**	.32**				
Total Satisfaction	.09	.16*	.06	.14	-.01	.02	-.16*	-	-	-			
PAQ Dimension Score	.11	.25**	.12	.22**	-.01	-.19**	-.08	-	-	-	.35**		
JAPQ Dimension Score	-.05	.11	.08	.09	.01	.15*	-.06	-	-	-	.32**	.24*	

* $p < .05$

** $p < .01$

Table 3. Correlation Matrix for "Work" and Total Satisfaction Criteria: Combined Sample.

	Sex	Age	T. Job	T. Co.	Ed.	D^2	Resp. Dispo.	Work Sat.	PAQ	JAPQ	Total Sat.	PAQ	JAPQ
Sex													
Age	-.03												
Tenure: Job	-.05	.43**											
Tenure: Company	-.07	.76**	.61**										
Education	-.18**	-.12*	-.12*	-.17**									
Difference D^2	.36**	-.05	.04	-.11	-.15**								
Response Disposition	00	.03	.12*	.10	-.06	-.04							
Work Satisfaction	-.16**	.30**	.18**	.34**	.02	-.15**	-.27**						
PAQ Dimension Score	-.38**	.33**	.14*	.39**	.14*	-.27**	-.10	.61**					
JAPQ Dimension Score	-.23**	.18**	.03	.13*	.16**	-.08	-.23**	.35**	.38**				
Total Satisfaction	-.05	.17**	.02	.20**	.01	-.08	-.23**	-	-	-			
PAQ Dimension Score	-.23**	.28**	.07	.31**	.17**	-.27**	-.15**	-	-	-	.42**		
JAPQ Dimension Score	-.21**	.13*	.03	.09	.09	00	-.15**	-	-	-	.33**	.36**	

* $p < .05$

** $p < .01$

Table

Correlation Matrix of Work Quality Dimensions and Satisfaction Criteria

Company A

	Module	Feedback	Control	Skill & Learning
Module				
Feedback	.60**			
Control	.75**	.66**		
Skill & Learning	.60**	.70**	.47**	
Work Satisfaction	.02	.18	-.05	.42**
Total Satisfaction	.04	.19	.04	.30**

Company B

	Module	Feedback	Control	Skill & Learning
Module				
Feedback	.66**			
Control	.50**	.43**		
Skill & Learning	.27**	.57**	-.05	
Work Satisfaction	.03	.25*	.10	.29**
Total Satisfaction	.10	.18	.09	.08

Combined Sample

	Module	Feedback	Control	Skill & Learning
Module				
Feedback	.60**			
Control	.68**	.61**		
Skill & Learning	.50**	.64**	.30**	
Work Satisfaction	.02	.20*	.02	.36**
Total Satisfaction	.06	.17	.05	.20*

* $p < .05$

** $p < .01$

Table 5. Means and Standard Deviations of Satisfaction: Response Disposition, and Difference (D^2): Management and Non-Management Jobs

	Management Jobs (N=116) $\bar{X}_m$	s_m	Non-Management Jobs (N=291) $\bar{X}_{nm}$	s_{nm}	Difference $\bar{X}_m - \bar{X}_{nm}$
Satisfaction					
Work	37.8	8.7	30.9	11.3	6.9**
Supervision	42.8	11.1	39.8	11.8	3.0*
Co-Workers	41.9	11.4	37.3	12.9	4.6**
Pay	15.7	6.5	12.0	7.2	3.7**
Promotion	14.5	9.8	10.6	8.4	3.8**
Total	155.8	50.4	131.9	49.7	23.9**
Response Disposition	62.5	20.6	68.0	22.5	-5.5**
Difference (D^2)	386.9	100.1	510.0	160.3	-123.1**

* $P < .05$

** $P < .01$

Table 6. Correlation Matrix for Different Satisfaction Criteria: Non-Management Jobs

	Sex	Age	T. Job	T. Co.	Ed.	D^2	Resp. Disp.	Satis-faction	PAQ
Age	.08								
Tenure:Job	-.05	.48**							
Tenure:Company	.04	.75**	.66**						
Education	-.14	-.17**	-.10	-.23**					
Difference (D^2)	.35**	.12	.06	.07	-.20**				
Response Disposition	.02	.01	.08	.09	.01	-.04			
Work Satisfaction	-.16*	.31**	.24**	.35**	-.11	-.11	-.26**		
PAQ Dimension Score	.06	-.07	.05	.03	-.30**	.22**	.05	.07	
JAPQ Dimension Score	-.28**	.12	.08	.07	.01	-.01	-.13	.33**	.06
Supervision Satisfaction	-.02	.05	.04	.09	-.02	-.04	-.26**		
PAQ Dimension Score	-.15*	.13	.10	.17**	-.01	-.17**	-.03	.41**	
JAPQ Dimension Score	-.01	.04	-.10	-.02	-.01	.04	-.10	.32**	.10
Co-Worker Satisfaction	-.01	-.03	-.07	00	-.01	-.13	-.26**		
PAQ Dimension Score	-.38**	.12	-.04	.11	.21**	-.33**	-.18**	.27**	
JAPQ Dimension Score	-.34**	.08	-.06	.03	.23**	-.09	-.13	.18**	.37**
Pay Satisfaction	.15*	-.03	-.03	-.05	-.06	-.06	-.20**		
PAQ Dimension Score	.27**	-.09	-.06	-.17**	.01	.03	-.09	.38**	
JAPQ Dimension Score	.25**	.05	-.01	00	.06	-.15*	-.02	.24**	.25**
Promotion Satisfaction	.02	-.08	-.11	-.11	-.10	.02	-.28**		
PAQ Dimension Score	-.08	-.12	-.06	-.16*	-.09	.07	-.07	.31**	
JAPQ Dimension Score	.05	.03	.07	.01	-.07	.02	-.02	.28**	.09
Total Satisfaction	-.04	.17**	.08	.16*	-.06	-.04	-.24**		
PAQ Dimension Score	-.22*	.23**	.11	.20**	-.02	-.22**	-.06	.39**	
JAPQ Dimension Score	-.22**	.15*	.10	.09	-.05	.09	-.06	.30**	.27**

* $p < .05$

** $p < .01$

Table 7. Correlation Matrix for Different Satisfaction Criteria: Management Jobs

	Sex	Age	T. Job	T. Co.	Ed.	D^2	Resp. Disp.	Satis.	PAQ
Age	-.12								
Tenure:Job	00	.30**							
Tenure:Company	-.11	.70**	.59**						
Education	-.21*	-.16	-.22*	-.30**					
Difference (D^2)	.25**	-.16	.10	-.07	.21*				
Response Disposition	-.13	.23*	.29**	.31**	-.17	-.27**			
Work Satisfaction	.02	.01	-.06	.04	.19*	.25**	-.25**		
PAQ Dimension Score	-.12	.02	00	.08	.39**	.36**	-.14	.38**	
JAPQ Dimension Score	-.10	-.10	-.10	-.09	.21*	.22*	-.30**	.55**	.20*
Supervision Satisfaction	-.05	-.06	-.16	-.01	.03	-.13	-.12		
PAQ Dimension Score	-.36**	-.05	.10	.07	00	-.04	.02	.24**	
JAPQ Dimension Score	-.23*	-.02	-.01	.02	.04	-.04	-.01	.56**	.35**
Co-Worker Supervision	.11	-.01	-.14	.02	.13	.19*	-.36**		
PAQ Dimension Score	.26**	-.13	-.21*	-.12	.41**	.43**	-.27**	.30**	
JAPQ Dimension Score	.02	.02	-.16	-.04	.28**	.20*	-.20*	.41**	.26**
Pay Satisfaction	.39**	-.03	.06	.02	.02	.22*	-.27**		
PAQ Dimension Score	.71**	-.12	00	-.13	.11	.62**	-.30**	.47**	
JAPQ Dimension Score	.38**	-.05	.10	.08	-.08	.17*	-.15	.53**	.38**
Promotion Satisfaction	.08	-.26**	-.31**	-.22*	-.01	.14	-.29**		
PAQ Dimension Score	.10	-.23*	-.29**	-.27**	.21*	.26**	-.26**	.43**	
JAPQ Dimension Score	-.01	-.31**	-.25**	-.26**	.12	.16	-.15	.53**	.45**
Total Satisfaction	.03	-.01	-.18	.06	.05	.11	-.14		
PAQ Dimension Score	-.04	-.02	-.19*	00	.45**	.40**	-.28**	.31**	
JAPQ Dimension Score	-.16	-.16	-.14	-.10	.12	.06	-.10	.48**	.15

* $p < .05$

** $p < .01$

Multiple Correlations Between Variables And Satisfaction Criteria

Tables 8 and 9 list the results of prediction of "work" and total satisfaction using different combinations of variables. In addition, multiple correlations corrected for shrinkage are also predicted in the same tables.

In almost all cases the PAQ dimension scores accounted for the greatest percentage of variance in both satisfaction criteria, with JAPQ dimension scores and Response Disposition scores having the next highest unique contributions to the multiple correlations.

It is also clear that prediction for company A was much better than for company B, and also better for "work" satisfaction than for total satisfaction.

Correcting for shrinkage did not have an appreciable effect on the magnitude of multiple correlations.

Tables 10 and 11 shows the predictions for management and non-management jobs. For all possible criteria predictions were better for the management jobs.

It was decided to also investigate the relationships between the work quality dimensions and satisfaction for the two job levels. Tables 12 and 13 show that the simple correlations with individual dimensions are very low in most cases, resulting in low multiple correlations.

After Partialling Out the Effect of Response Disposition

Table 14 shows the correlations and predictions of "work" satisfaction for the combined sample before and after the effect of response disposition was partialled out from the matrix of inter-correlations.

Correlations for some predictors were increased, but for others were decreased, with the magnitude of change being very small.

Predictions were slightly weaker, but as the total change was only .05, this showed very little (if any) support for the third hypothesis.

Table 8. Prediction of "Work" Satisfaction from Different Combinations of Variables

Company A			Company B			Combined Sample		
Predictors	R	Shrunken R	Predictors	R	Shrunken R	Predictors	R	Shrunken R
PAQ dimensions	.63		PAQ dimension scores	.50		PAQ dimension scores	.61	
JAPQ dimensions	.67	.67	JAPQ dimension scores	.52	.52	JAPQ dimension scores	.62	.62
PAQ dimensions	.63		PAQ dimension scores	.50		PAQ dimension scores	.61	
Response disposition	.67		Response disposition	.53		Response disposition	.65	
JAPQ dimensions	.70		JAPQ dimension scores	.54		JAPQ dimension scores	.65	
Difference D^2	.70	.70	Difference D^2	.54	.54	Difference D^2	.65	.65
PAQ dimensions	.63		PAQ dimension scores	.50		PAQ dimension scores	.61	
Response disposition	.67		Response disposition	.53		Response disposition	.65	
JAPQ dimensions	.70		Tenure: job	.55		Tenure: company	.66	
Education	.72		JAPQ dimension scores	.57		JAPQ dimension scores	.67	
Tenure: job	.73		Sex	.57		Sex	.67	
Difference D^2	.73		Tenure: company	.58		Tenure: job	.67	
Sex	.73		Difference D^2	.58		Education	.67	
Age	.73	.72	Education	.58	.57	Difference D^2	.68	
						Age	.68	.67
Skill and learning	.42		Skill and learning	.29		Skill and learning	.36	
Module	.52		Control	.31		Module	.41	
Control	.53		Module	.34		Feedback	.41	
Feedback	.53	.52	Feedback	.37	.36	Control	.41	.40

Table 9. Prediction of Total Satisfaction from Different Combinations of Variables

Company A			Company B			Combined Sample		
Predictors	R	Shrunken R	Predictors	R	Shrunken R	Predictors	R	Shrunken R
JAPQ dimension scores	.50		PAQ dimension scores	.35		PAQ dimension scores	.42	
PAQ dimension scores	.58	.58	JAPQ dimension scores	.42	.42	JAPQ dimension scores	.46	.46
JAPQ dimension scores	.50		PAQ dimension scores	.35		PAQ dimension scores	.42	
PAQ dimension scores	.58		JAPQ dimension scores	.42		JAPQ dimension scores	.46	
Response disposition	.60		Response disposition	.44		Response disposition	.49	
Difference D^2	.60	.60	Difference D^2	.44	.43	Difference D^2	.49	.48
JAPQ dimension scores	.50		PAQ dimension scores	.35		PAQ dimension scores	.42	
PAQ dimension scores	.58		JAPQ dimension scores	.42		JAPQ dimension scores	.46	
Response disposition	.60		Response disposition	.44		Response disposition	.49	
Education	.61		Tenure: company	.45		Tenure: company	.50	
Difference D^2	.62		Sex	.45		Sex	.50	
Sex	.63		Tenure: job	.45		Tenure: job	.50	
Tenure: job	.63		Age	.45		Education	.51	
Tenure: company	.63		Difference D^2	.45		Difference D^2	.51	
Age	.64	.63	Education	.46	.44	Age	.51	.50
Skill and learning	.30		Feedback	.18		Skill and learning	.20	
Module	.35		Skill and learning	.18		Feedback	.21	
Feedback	.35		Module	.18		Module	.23	
Control	.35	.34	Control	.18	.16	Control	.23	.21

Table 10. Maximum Multiple R for Different Combinations of Predictors: Management Jobs

	Satisfaction Criteria					
Predictors	Work	Super-vision	Co-workers	Pay	Promo-tion	Total
PAQ and JAPQ Dimension Scores	.62	.56	.45	.60	.57	.54
PAQ and JAPQ Dimension Scores, D^2 and Response Disposition	.62	.59	.52	.62	.59	.54
All Predictors	.65	.64	.55	.62	.64	.60

Table 11. Maximum Multiple R for Different Combinations of Predictors: Non-Management Jobs

	Satisfaction Criteria					
Predictors	Work	Super-vision	Co-workers	Pay	Promo-tion	Total
PAQ and JAPQ Dimension Scores	.34	.50	.30	.41	.40	.44
PAQ and JAPQ Dimension Scores, D^2 and Response Disposition	.36	.54	.39	.44	.48	.49
All Predictors	.56	.56	.44	.46	.50	.50

Table 12. Work Quality Dimensions Predicting "Work" and Total Satisfaction: Management Jobs

	Work Satisfaction			Total Satisfaction	
Dimension	Simple r	Step-wise R	Dimension	Simple r	Step-wise R
Module	-.17	.17	Module	-.16	.16
Skill & Learning	.05	.20	Feedback	.07	.20
Feedback	.03	.20	Skill and Learning	-.07	.21
Control	00	.20	Control	-.06	.23

Table 13. Work Quality Dimensions Predicting "Work" and Total Satisfaction: Non-Management Jobs

	Work Satisfaction			Total Satisfaction	
Dimension	Simple r	Step-wise R	Dimension	Simple r	Step-wise R
Skill and Learning	.30	.30	Skill and Learning	.16	.16
Module	-.04	.36	Control	-.04	.16
Control	-.14	.37	Module	.04	.16
Feedback	.04	.37	Feedback	.04	.16

Table 14. Correlations of Predictors with "Work" Satisfaction, Before and After Partialling out Response Disposition: Combined Sample

Predictor	Before Partialling Out	After Partialling Out
	Correlations of Individual Predictors	
	r	r
PAQ Dimension Score	.611	.582
JAPQ Dimension Score	.351	.299
Sex	-.160	-.166
Age	.301	.323
Tenure: Job	.181	.222
Tenure: Company	.341	.382
Education	.016	-.001
Difference: D^2	-.146	-.162
	(Stepwise) Multiple Correlation of Combinations of Predictors	
	R	R
PAQ Dimension Score	.61	.58
JAPQ Dimension Score	.62	.59
PAQ Dimension Score	.61	.58
Tenure: Company	.66	.62
JAPQ Dimension Score	.67	.63
Sex	.67	.63
Tenure: Company	.67	.63
Education	.67	.63
Difference: D^2	.68	.63
Age	.68	.63

DISCUSSION

In this study a relatively large number of jobs and incumbents were included in the samples. It was implicitly assumed that effects of different variables would be homogeneous across jobs, and general tendencies would appear which would make it possible to come to conclusions which are generally true for these large samples and could be generalized to a general population of jobs. However, results were not the same for the two companies; correlations being generally lower for company B than for company A. The reason for this difference is not clear, but may possibly be related to the tendency of females in company A to be more dissatisfied than the males, as indicated by the significant correlation between sex and both "work" and total satisfaction in the sample from company A. Also, incumbents from company B completed the questionnaires just after extended contract negotiations, which may have influenced their responses, although this was not reflected in significant differences between means of either work satisfaction or total satisfaction.

The differences between results for the companies could also be due to differences between jobs per se, as the companies have only two or three jobs in common. In this study, differences between jobs were not investigated, as the emphasis was on determining tendencies which hold across jobs, but had this been done, stronger relationships and predictions may well have resulted.

It was found however, that relationships with satisfaction was stronger for management jobs, indicating that some differential effect for different jobs.

The results show that in all cases correlations were higher and predictions better for "work" satisfaction than for total satisfaction. This confirms conclusions in a report by Pritchard and Peters (1973) in which they compared intrinsic and extrinsic satisfaction in a sample of enlisted Naval personnel. "Work" satisfaction can be regarded as essentially intrinsic satisfaction, whereas total satisfaction is a composite of intrinsic and extrinsic satisfaction.

Additionally, the significant correlations between Age and Work Satisfaction and Company Tenure and Work Satisfaction for both company A and company B and for the combined sample (Table 1, 2, & 3) tend to indicate that older workers, more specifically those with longer terms of service, are more satisfied with their work than are younger workers and those with shorter terms of service with their respective companies.

The first hypothesis stated that the closer the "match" between job characteristics and job interests, the greater the job satisfaction would be. The small, but relatively consistent correlations between D^2 and both satisfaction criteria (in Tables 1, 2 and 3) lends at least partial support to this hypothesis, although it is clear that there must be other factors which also strongly influence satisfaction.

The D^2 measure which was used in this study, did not differentiate between situations where the job had more or less of a certain characteristics than the incumbent would like to have. Had a different measure

of the "match" been used, correlations with job satisfaction may have been more substantial.

It was argued that job satisfaction could be partitioned into general affect and job specific affect, and it was hypothesized that partialling out the general affect from "work" satisfaction, will lower the prediction of satisfaction. Table 7 does not support this hypothesis, as predictions decreased by only .03 when using the PAQ and JAPQ dimension scores, and decreased only by .05 when using all the variables to predict "work" satisfaction.

Even though this attempt at reaching a "true" satisfaction score was not successful, it may again be due to the method which was used to remove the effect of the response disposition. Rather than partialling out the effect from the final correlation, a better way might have been to subtract from each satisfaction score some proportion of the response disposition score for that specific individual. This may take the following form:

$$Z_{TS} = Z_{RS} - rZ_{RD}$$

(where

Z_{TS} is the standardized true satisfaction score,

Z_{RS} is the standardized report satisfaction score,

Z_{RD} is the standardized response disposition score

and r is the correlation between Z_{RS} and Z_{RD}).

This may result in better predictions of job satisfaction, but in any case, a more "true" indication of job satisfaction should result.

The correlations of the four work quality dimensions with both satisfaction criteria were low, with only Skill and Learning showing significant correlations. However, important differences between the correlations with the separate satisfaction criteria are evident. For company A and for company B significant correlations with Work Satisfaction were recorded for Skill and Learning. This was true as well for the combined sample. Significant correlations with Work Satisfaction were also recorded for the work quality dimension, Feedback, for company B and for the combined sample. Interpretively, this differences in correlation between the work quality dimensions and the separate satisfaction criteria may be attributable to the relatively more "task oriented" character of the PAQ items selected as representative of work quality as opposed to "context oriented" which latter is more descriptively related to Total Satisfaction.

Additionally, the high intercorrelations among the work quality dimensions tends to be indicative a unitary work quality factor in the sample of jobs studies. Discriminatively, neither Module or Control showed significant correlations with the satisfaction criteria, which may be sytomatic of a need to consider job restructuring. The results

show clearly that Feedback and Skill and Learning, as work quality dimensions, are present across the sample of jobs studied and that they are important contributors to job satisfaction.

When these dimensions were used to predict job satisfaction (Tables 5 and 6) the best prediction was in the case of company A, with 28% of the variance accounted for (R = .53). It should be recalled, however, that the PAQ elements measuring work quality were chosen on the basis of the researchers' judgments as to their applicability to work quality criteria. Factor analysis may yield more work quality items in the PAQ which, if used to predict satisfaction with work, may result in better prediction.

Instead of considering expressed job satisfaction as a simple construct, a begining has been made to consider it as the result of a complex interaction of needs, rewards, comparison processes, reinforcing stimuli and different kinds of affect. This may make future research on job satisfaction, the factors determining it, and in turn, processes being determined by it, a little more meaningful.

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APPENDICES

Appendix A: Biographical and Questionnaire Data

The Job Dimensions of the Position Analysis Questionnaire (PAQ)

Alphanumeric Label	Verbal Titles
J1-1	Perceptual Interpretation
J1-2	Evaluation of Sensory Input
J1-3	Visual Input from Devices/Materials
J1-4	Input from Representational Sources
J1-5	Environmental Awareness
J2-6	Decision Making
J2-7	Information Processing
J3-8	Manual/Control Activities
J3-9	Physical Coordination in Control/Related Activities
J3-10	General Body Activity versus Sedentary Activities
J3-11	Manipulating/Handling Activities
J3-12	Adjusting/Operating Machines/Equipment
J3-13	Skilled/Technical Activities
J3-14	Use of Miscellaneous Euqipment/Devices
J4-15	Interchange of Ideas/Judgments/Related Information
J4-16	Supervisory/Staff Activities
J4-17	Public/Related Personal Contact
J4-18	Communicating Instructions/Directions/Related Job Information
J4-19	General Personal Contact
J4-20	Job-Related Communications
J5-21	Potentially Stressful/Unpleasant Environment
J5-22	Potentially Hazardous Job Situations
J5-23	Personally Demanding Situations
J6-24	Attentive Job Demands
J6-25	Vigilant/Discriminating Work Activities
J6-26	Structured versus Unstructured Work Activities
J6-27	Regular versus Irregular Work Schedule
J6-28	Work/Protective versus Business Clothing
J6-29	Specific versus Non-Specific Clothing
J6-30	Continuity of Work Load

Table
Job Elements in the Position Analysis Questionnaire Selected for the Measurement of Work Quality Dimensions

Section of the Position Analysis Questionnaire	Work Quality Dimension & Element Number			
	Module	Feedback	Control	Skill & Learning
Information Input	1 7 16 5 13 35 6 15	30	31 32 33	
Mental Processes	39 41	40	36 37 38	45 48 46 49 47
Work Output	65 82 78 83 81	64	62 80 63 79	
Relationship with Other Persons	99 125 107 132 122	103 104 112	102	
Job Context	142 171 169 172 170 186	176 177 178	185	

Table 17

Biographical Data of Job Incumbents

Job	N	Sex		Age		Time Employed (Yrs) Present Job		Company	
		Male	Fem	M	S	M	S	M	S
COMPANY A:									
Station Installer	15	15	0	26.9	7.7	3.9	4.9	4.9	6.6
Station Repairman	15	15	0	33.4	13.0	4.7	7.3	10.9	10.8
Engineering Layout Clerk	15	0	15	39.5	9.0	6.5	4.8	17.4	8.7
Station Repair Foreman	14	13	1	38.8	7.5	3.4	2.8	15.9	9.2
District Plant Manager	15	15	0	44.3	8.3	2.9	3.0	22.1	10.1
Switchman - ESS	16	15	1	29.4	6.0	4.1	1.8	4.7	2.0
Toll Testman	15	14	1	31.1	6.1	5.5	5.9	6.9	7.8
Dial Switching Foreman	8	8	0	30.3	3.9	2.4	2.4	7.3	4.9
Service Representative	14	0	14	29.4	9.4	4.5	2.7	6.4	4.8
Service Order Typist	14	0	14	23.8	4.1	3.7	3.6	4.0	3.4
Commercial Manager	14	7	7	33.7	13.5	5.3	6.0	15.1	12.1
Operator TSPS	15	1	14	23.2	6.9	2.9	2.2	3.7	4.0
Assist. Manager Operator Serv.	13	0	13	35.3	15.1	5.4	2.3	16.5	7.9
Analyst Directory Compilation	14	1	13	33.3	10.1	3.6	3.3	8.9	4.9
Group B Clerk	15	0	15	33.8	10.9	3.7	3.1	8.2	8.5
TOTAL A	212	104	108						
COMPANY B:									
Service Foreman PBX	12	12	0	40.6	9.5	6.0	2.9	19.4	8.8
Field Engineer	14	13	1	49.9	6.8	9.6	8.7	28.4	8.1
Group Chief Operator	11	0	11	41.4	11.1	5.8	4.3	17.5	10.6
Business Office Supervisor	15	0	15	37.2	10.7	4.3	4.8	11.7	9.2
C.O. Repairman	14	14	0	32.6	10.0	5.9	9.5	10.4	9.7
Communications Representative	14	7	7	29.9	7.0	1.9	1.5	3.5	2.0
Engineering Assistant	15	15	0	41.9	7.8	5.9	6.1	19.5	9.3
Frameman	13	6	7	24.9	5.3	1.5	0.8	4.4	2.0
Installer-Repairman	15	14	1	24.6	2.8	3.1	1.7	5.3	2.3
Operator D.A.	14	2	12	26.6	8.3	4.6	4.3	5.4	5.6
Plant Assigner	11	0	11	44.2	8.5	5.9	6.7	22.3	8.8
Review & Reports Clerk	17	1	16	35.5	12.4	3.8	6.0	9.1	9.4
Service Assistant	16	0	16	41.3	14.6	7.1	8.1	14.9	9.0
Service Order Clerk-Typist	14	0	14	30.5	14.9	1.7	1.0	3.1	2.5
TOTAL B	195	84	111						
TOTAL A & B	407	188	219						

Table

Means and Standard Deviations of Job Satisfaction, Response Disposition and Difference (D^2)

	Job Description Index (Job Satisfaction)												Response Disposition		Difference D^2	
	Work		Supervision		Co-workers		Pay		Promotion		Total					
	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S
COMPANY A:																
Station Installer	39.1	7.2	41.9	12.3	43.7	9.1	11.5	7.3	13.6	9.0	149.7	29.7	64.3	15.3	392.3	84.0
Station Repairman	38.8	8.1	38.7	13.5	44.7	10.3	13.2	5.9	14.9	11.2	150.3	35.1	59.2	26.2	595.2	123.8
Engin. Layout Clerk	36.5	7.2	38.2	12.4	31.5	15.4	9.2	5.9	10.3	9.3	125.5	30.9	76.2	21.7	662.9	166.0
Station Repair Foreman	34.9	7.2	43.9	10.5	38.4	12.4	10.5	5.8	12.8	9.6	140.4	28.5	66.4	22.0	291.0	109.5
District Plant Manager	41.3	4.9	40.8	10.0	47.5	7.0	15.9	6.5	18.7	14.3	160.2	17.5	56.1	18.1	431.0	70.2
Switchman - ESS	30.7	11.0	33.6	14.2	39.1	11.3	9.8	6.5	10.1	7.3	123.3	37.5	66.3	22.9	348.4	77.8
Toll Testman	34.6	9.9	41.9	14.4	38.9	14.7	10.5	5.3	14.9	8.8	135.8	46.4	68.4	21.4	450.6	102.8
Dial Switching Foreman	36.0	3	43.3	10.7	41.1	11.3	12.6	6.6	21.0	8.6	154.0	39.2	69.3	15.5	391.9	84.7
Service Representative	37.4	.2	45.8	8.6	39.5	12.1	14.1	7.1	11.1	9.2	147.8	27.9	64.9	28.6	577.7	119.9
Service Order Typist	35.1	8.1	40.1	11.0	30.1	11.7	16.6	11.7	12.9	8.2	113.9	46.0	70.6	24.0	553.8	124.1
Commercial Manager	43.8	6.2	47.5	9.1	44.6	11.4	18.6	5.3	16.2	8.1	170.6	26.6	51.7	13.2	462.1	76.9
Operator - TSPS	13.2	8.3	28.9	10.2	30.3	14.7	9.5	8.5	9.1	8.9	90.9	37.7	68.5	22.5	657.0	111.6
Asst. Manager-operator	35.5	3.9	41.1	13.9	43.8	8.5	17.1	5.5	13.2	7.7	149.9	24.6	68.5	18.4	416.3	82.7
Analyst, Direc. Serv. Comp.	26.9	8.1	33.9	12.8	31.4	12.0	9.1	5.6	11.1	7.1	112.3	29.1	67.9	17.1	597.3	179.7
Group B Clerk	26.3	8.8	39.3	11.8	34.5	16.4	13.9	7.3	12.1	9.5	126.3	43.8	78.6	23.6	560.4	140.9

Table (cont.)

Means and Standard Deviations of Job Satisfaction, Response Disposition and Difference (D^2)

	Job Description Index (Job Satisfaction)												Response Disposition		Difference D^2	
	Work		Supervision		Co-workers		Pay		Promotion		Total					
	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S	$\bar{X}$	S
COMPANY B:																
Service Foreman PBX	34.5	10.3	45.3	9.8	37.4	14.8	14.0	8.0	12.3	9.5	143.5	35.7	65.3	21.3	292.4	60.4
Field Engineer	39.4	9.2	43.4	10.2	37.9	10.9	12.9	5.1	6.8	4.9	140.3	19.3	78.2	23.7	378.8	85.0
Group Chief Operator	33.5	13.7	43.1	14.9	40.5	13.5	19.6	4.3	20.4	7.4	157.1	44.5	54.7	14.3	424.9	66.9
Business Office Supervisor	38.6	6.7	38.3	11.3	43.7	11.0	18.9	6.0	12.9	8.8	152.5	26.7	55.1	22.8	389.3	109.3
C.O. Repairman	33.9	10.5	45.6	6.9	39.4	10.4	13.8	6.3	9.0	7.2	141.6	22.3	62.7	22.8	482.0	159.4
Communications Rep.	34.1	12.3	41.4	11.2	46.6	4.9	15.8	6.9	10.8	8.3	148.6	32.0	55.4	10.6	386.8	96.9
Engineering Assistant	36.0	12.0	39.1	8.2	37.7	10.3	5.9	4.0	5.6	4.2	125.6	23.4	74.8	28.5	391.5	115.9
Frameman	27.5	10.2	43.4	7.2	39.2	11.7	15.7	7.2	14.3	9.4	140.0	35.7	65.9	24.2	457.7	164.6
Installer-Repairman	32.9	10.3	44.8	10.2	40.3	9.8	9.4	7.0	7.5	7.8	134.9	30.0	74.9	24.3	392.5	104.5
Operator D.A.	20.1	8.8	36.3	14.2	27.7	14.2	10.9	5.8	6.5	5.1	100.1	34.7	64.4	15.3	534.6	139.7
Plant Assigner	38.4	8.7	44.5	10.7	35.9	12.4	12.5	7.2	10.9	9.4	142.2	30.0	65.7	25.9	618.9	211.2
Review & Reports Clerk	32.6	9.1	43.9	9.8	40.9	11.8	12.7	6.8	8.5	6.4	138.5	28.3	67.9	22.4	555.7	174.6
Service Assistant	32.2	11.2	44.3	7.7	37.3	14.5	15.4	6.6	9.2	7.5	138.4	32.5	70.8	23.3	455.8	109.1
Service Order Clerk (Typist)	21.3	7.6	30.9	11.0	37.4	10.9	11.9	6.6	11.1	8.8	112.6	32.3	70.6	22.4	568.7	99.5

Table

PAQ Dimensions Used to Predict "Work" and Total Satisfaction

Prediction of Work Satisfaction: Company A

Dimension	R
Physical Coordination in Control/Related Activities	.521
Vigilant/Discriminating Work Activities	.594
Visual Input from Devices/Materials	.615
Perceptual Interpretation	.627
Regular Versus Irregular Work Schedule	.636
Potentially Hazardous Job Situations	.646
Input from Representational Sources	.648
Communicating Instructions/Directions/Related Job Information	.651
Interchange of Ideas/Judgments/Related Information	.653

Prediction of Work Satisfaction: Company B

Dimension	R
Vigilant/Discriminating Work Activities	.430
Manipulating/Handling Activities	.454
Use of Miscellaneous Equipment/Devices	.470
Potentially Hazardous Job Situations	.483
General Personal Contact	.490
Work/Protective versus Business Clothing	.494
Structured versus Unstructured Work Activities	.496

Prediction of Work Satisfaction: Combined Sample

Dimension	R
Vigilant/Discriminating Work Activities	.467
Manipulating/Handling Activities	.511
Decision Making	.545
Visual Input from Devices/Materials	.554
Manaul/Control Activities	.561
Structured versus Unstructured Work Activities	.566
Adjusting/Operating Machines/Equipment	.569
Perceptual Interpretation	.573
Specific versus Non-Specific Clothing	.577
Environmental Awareness	.581
Input from Representational Sources	.583

Table (cont.)

Prediction of Total Satisfaction: Company A

Dimension	R
Decision Making	.384
Manipulating/Handling Activities	.445
Visual Input from Devices/Materials	.462
Personally Demanding Situations	.469
Use of Miscallaneous Equipment/Devices	.476
General Personal Contact	.478
Evaluation of Sensory Input	.480
Job-Related Communications	.481

Prediction of Total Satisfaction: Company B

Dimension	R
Job-Related Communications	.201
Information Processing	.253
Skilled/Technical Activities	.301
Vigilant/Discriminating Work Activities	.314
Visual Input from Devices/Materials	.335
Structured versus Unstructured Work Activities	.344
Continuity of Work Load	.345

Prediction of Total Satisfaction: Combined Sample

Dimension	R
Vigilant/Discriminating Work Activities	.276
Interchange of Ideas/Judgments/Related Information	.368
Skilled/Technical Activities	.386
Manipulating/Handling Activities	.391
Work/Protective versus Business Clothing	.394
Manual/Control Activities	.399
Environmental Awareness	.402
Adjusting/Operating Machines/Equipment	.404
Regular versus Irregular Work Schedule	.407
General Personal Contact	.409

Table

JAPQ Dimensions Used to Predict "Work" and Total Satisfaction

Prediction of Work Satisfaction: Company A

Dimension	R
Vigilant/Discriminating Work Activities	.259
Use of Miscellaneous Equipment/Devices	.314
Supervisory/Staff Activities	.356
General Body Activity versus Sedentary Activities	.389
Information Processing	.410
Manipulating/Handling Activities	.426
Decision Making	.439
Public/Related Personal Contact	.448
Manual/Control Activities	.452
Physical Coordination in Control/Related Activities	.457
Communicating Instructions/Directions/Related Job Information	.461
Potentially Stressful/Unpleasant Environment	.464
Personally Demanding Situations	.468

Prediction of Work Satisfaction: Company B

Dimension	R
Vigilant/Discriminating Work Activities	.129
Information Processing	.170
Interchange of Ideas/Judgments/Related Information	.202
Potentially Stressful/Unpleasant Environment	.223
Evaluation of Sensory Input	.245
Public/Related Personal Contact	.256
Manual/Control Activities	.270
Attentive Job Demands	.280
Skilled/Technical Activities	.284

Prediction of Work Satisfaction: Combined Sample

Dimension	R
Attentive Job Demands	.214
Supervisory/Staff Activities	.257
Interchange of Ideas/Judgments/Related Information	.273
General Body Activity versus Sedentary Activities	.286
Communicating Instructions/Directions/Related Job Information	.296
Potentially Stressful/Unpleasant Environment	.306
Use of Miscellaneous Equipment/Devices	.315
Public/Related Personal Contact	.321
Environmental Awareness	.327

Table (cont.)

Prediction of Total Satisfaction: Company A

Dimension	R
Communicating Instructions/Directions/Related Job Information	.272
Information Processing	.322
General Body Activity versus Sedentary Activities	.386
Attentive Job Demands	.406
Environmental Awareness	.419
Potentially Stressful/Unpleasant Environment	.431
Manual/Control Activities	.441
Use of Miscellaneous Equipment/Devices	.449
Adjusting/Operating Machines/Equipment	.460
Structured versus Unstructured Work Activities	.467
Public/Related Personal Contact	.471
Supervisory/Staff Activities	.476
Visual Input from Devices/Materials	.479

Prediction of Total Satisfaction: Company B

Dimension	R
Interchange of Ideas/Judgments/Related Information	.155
Public/Related Personal Contact	.198
Vigilant/Discriminating Work Activities	.225
General Body Activity versus Sedentary Activities	.255
Potentially Stressful/Unpleasant Environment	.274
Manual/Control Activities	.280
Attentive Job Demands	.285
Job-Related Communications	.290
Evaluation of Sensory Input	.296
Communicating Instructions/Directions/Related Job Information	.299
Environmental Awareness	.302
Personally Demanding Situations	.305
Use of Miscellaneous Equipment/Devices	.306

Prediction of Total Satisfaction: Combined Sample

Dimension	R
Attentive Job Demands	.178
Communicating Instructions/Directions/Related Job Information	.213
Interchange of Ideas/Judgments/Related Information	.242
Potentially Stressful/Unpleasant Environment	.276
Information Processing	.292
Environmental Awareness	.302
Use of Miscellaneous Equipment/Devices	.309
Adjusting/Operating Machines/Equipment	.317
Skilled/Technical Activities	.322
Structured versus Unstructured Work Activities	.325

Appendix B

Job Activity Preference Questionnaire (JAPQ)

The purpose of this part of the questionnaire is to obtain a measure of your job interests or preferences. Each individual has different interests, so there are no right or wrong answers. Simply mark what applies to you.

This part is divided into 8 sections, each of the sections containing a listing of work activities or situations. For each section there is a rating scale that you are to use in rating how much you would want each of the work activities or situations to be a part of a job that you might sometime have.

In rating the work activities and situations, do not attempt to relate your responses to your present job. Rather think of your ideal job and consider each item separately, indicating the level of your interest in the activity or situation as part of any job that you might consider. As you rate each work activity or situation, assume that an opportunity would be available for you to get any required education or training for it.

SECTION 1

Information is needed to perform any type of work, and that information can come from many different sources. Use the numbers from 0 to 5 on the rating scale to mark <u>how much you would like to use</u> or engage in each of the following activities to get the "information" needed in your work.

Rating Scale
0 None
1 Very limited
2 Limited
3 Moderate
4 Considerable
5 Very extensive

____1. Reading (books, reports, office notes, job instructions, etc.)

____2. Using numerical materials (graphs, accounts, specifications, etc.)

____3. Using graphic materials (pictures, drawings, blueprints, diagrams, maps, tracings, X-ray films, TV pictures, etc.)

____4. Using patterns and related devices (stencils, patterns, templates, etc.)

____5. Using visual displays (dials, guages, signal lights, radar scopes, speedometers, clocks, etc.)

____6. Using measuring devices (rulers, calipers, tire pressure gauges, scales, thermometers, etc.)

____7. Observing and listening to mechanical devices in use (tools, equipment, machinery, etc.)

____8. Observing things you are working with (materials, parts or objects, such as bread dough being mixed, wood being cut, metal being welded, boxes being inventoried, items being inspected, etc.)

____9. Observing features of nature (landscapes, fields, geological samples, plants, cloud formations, or other features of nature)

____10. Observing or inspecting man-made features of the environment (buildings, dams, highways, bridges, docks, railroads, etc.)

____11. Observing the behavior of people or animals

____12. Listening to spoken information (instructions, conversations, interviews, meetings, discussions, etc.)

____13. Listening to sounds (non-verbal)

____14. Touching

____15. Smelling

SECTION 3

Different jobs require you to associate with different types of individuals. How important would you want personal contact with the following types of individuals to be? Continue using the same rating scale.

Rating Scale	
0	No importance
1	Very minor
2	Low
3	Average
4	High
5	Extreme importance

____51. Executives or officials (government administrators)
____52. Middle management (division or district managers)
____53. Supervisors (foremen, office managers, etc.)
____54. Professional personnel (doctors, lawyers, scientists, engineers, professors, teachers, etc.)
____55. Personnel engaged in office work (clerks, bookkeepers, receptionists, etc.)
____56. Customers (as in stores or restaurants)
____57. Students, trainees, or apprentices
____58. Clients, patients, or individuals being counseled
____59. Skilled and unskilled workers

SECTION 4

Following are three job situations or circumstances. Use the numbers from 0 to 5 to indicate how much of each you would be willing to accept in your work.

Rating Scale	
0	None
1	Very little
2	Little
3	Moderate amount
4	Considerable
5	Large amount

____60. Frustrating situations (situations in which you would become frustrated because your attempts to do something might be hindered or obstructed)
____61. Disagreements or conflict situations (as might be involved in labor negotiations, enforcement of an unpopular policy, etc.)
____62. Distractions (telephone calls, interruptions, and disturbances from others, etc.)

SECTION 5

Use the numbers from 0 to 5 to indicate how much you would like to use each of the following devices or pieces of equipment in your work.

Rating Scale	
0	None
1	Very limited
2	Limited
3	Moderate
4	Considerable
5	Very extensive

___63. Precision hand tools (engraver's tools, watchmaker's tools, surgical instruments, etc.)

___64. Other hand tools (hammers, wrenches, knives, scissors, etc.)

___65. Long-handled tools (hoes, rakes, shovels, picks, axes, brooms, etc.)

___66. Handling devices or tools (tongs, ladles, dippers, forceps, etc., used for moving or handling objects and materials)

___67. Hand-held precision tools (dentist drills, welding equipment, etc.)

___68. Other hand-held power tools (ordinary power saws, drills, sanders, clippers, etc.)

___69. Lettering and drawing instruments (pens, pencils, artist's brushes, drafting equipment, etc.)

___70. Applicators (brushes, rags, paint rollers, used in applying solutions, materials, etc.)

___71. Processing machines and equipment (used to process or modify parts, obj materials, etc.)

___72. Controls: used continuously (controls requiring continuous adjustment or manipulation, for example, accelerator, steering wheel, etc.)

___73. Controls: not used continuously (controls used to start or stop, to set positions on a machine, etc.)

___74. Keyboard devices (pianos, typewriters, adding machines, etc.)

___75. Highway or rail vehicles (automobiles, trucks, buses, trains, etc.)

___76. Powered mobile equipment (fork lifts, self-propelled lawn mowers, road graders, tractors, etc.)

___77. Man-moved mobile equipment (hand-pushed lawn mowers, wheel barrows, floor polishers, etc.)

___78. Operating equipment (cranes, hoists, elevators, etc.)

___79. Remote-control equipment (conveyor systems, etc.)

SECTION 6

Use the numbers from 0 to 5 to indicate how much of your working time you would be willing to spend in the following activities or under the following circumstances.

____80. Sitting
____81. Standing
____82. Walking or running
____83. Climbing (for example, house painter, telephone lineman, etc.)
____84. Kneeling or stooping (or other body positions which may be uncomfortable, or awkward)
____85. Working indoors in low temperatures (conditions in which you may be definitely cold even though you wore heavy clothing, such as in refrigerated rooms, etc.)
____86. Working outdoors (under different weather conditions)
____87. Working in awkward or small work spaces (conditions in which the body is cramped or uncomfortable)

Rating Scale	
0	None
1	Under 1/10 of the time
2	Between 1/10 and 1/3 of the time
3	Between 1/3 and 2/3 of the time
4	Over 2/3 of the time
5	Almost continually

SECTION 7

Following is a list of job requirements. Use the numbers from 0 to 5 to rate how much you would want each to be a part of your work.

____88. Precision (need to be more than normally precise and accurate)
____89. Attention to detail
____90. Vigilance (need to be constantly alert and aware of any changes in a situation)
____91. Need to keep job knowledge current (continually learning new developments related to the job)

Rating Scale	
0	None (No part)
1	Very limited
2	Limited
3	Moderate
4	Considerable
5	Very extensive

SECTION 8

Select one of the responses for each of the following questions.

___92. Decision making level: What level of decisions would you want to make in your work?

1. Very limited level (such as must be make in pasting labels on cartons, putting items on shelves in a warehouse, etc.)
2. Limited level (such as those made in running a wood planer, greasing a car, or dispatching a taxi)
3. Intermediate level (such as in ordering office supplies several months in advance, determining what is wrong with an automobile engine, setting up machine tools for operations, etc.)
4. Substantial level (such as deciding who will be promoted, who will be hired or fired, if property will be purchased, etc.)
5. Very substantial level (such as recommending major surgery, selecting the location for a new plant, or approving a corporation's annual budget)

___93. Reasoning in problem solving: Which of the following reasoning levels would you want in your work to acquire?

1. Very limited reasoning (use of common sense to carry out uninvolved instructions, as might be done by a janitor or a deliveryman)
2. Limited reasoning (use of some experience or training, such as a sales clerk, a postman, a keypunch operator or an electrician's apprentice might use)
3. Intermediate reasoning (use of principles to solve practical problems, such as might be required in farming, drafting, or carpentry)
4. Substantial reasoning (use of logic or scientific thinking, as might be used by a mechanical engineer, a personnel director, etc.)
5. Very substantial reasoning (use of principles of logic or scientific thinking to solve a wide range of problems, as might be done by a research chemist, a nuclear engineer, a corporate president, or the manager of a large plant)

____94. Amount of planning: How much planning or scheduling would you like to do in your work?

0. None
1. Very little (little planning of your own activities, as in selling tickets at a theater, working on an assembly line, etc.)
2. Little (some planning required, but not a great deal, as in delivering milk, working as a janitor, etc.)
3. Average amount (for example, a carpenter who must plan the best way to build a house, the planning that must be done by a taxi dispatcher, etc.)
4. Considerable (for example, a foreman who must plan what his workers must do, a teacher who must prepare lectures or lesson plans, etc.)
5. Large amount (for example, a department store manager, an executive who must plan the activities of different work groups, an architect, etc.)

____95. Education: How much education would you want your work to require?

0. Little or none
1. Less than high school
2. High school diploma
3. Some college education
4. College degree
5. Advance degree (M.S., Ph.D., M.D., L.L.D., etc.)

____96. Training: How much training, other than the education in number 95, would you want your work to require? Consider such things as on-the-job training, apprentice training, technical and vocational schools, and orientation training.

0. 1 day or less
1. Over 1 day up to 1 month
2. Between 1 and 6 months
3. Between 6 months and 1 year
4. Between 1 and 3 years
5. Over 3 years

____97. Experience: How much experience in related or lower-level jobs would you like your work to require?

1. Less than 1 month
2. Less than 1 year
3. Between 1 and 3 years
4. Between 3 and 5 years
5. Over 5 years

____98. Level of mathematics; What is the highest level of mathematics you would want your job to require?

0. None
1. Simple counting, addition and subtraction of numbers smaller than 100
2. Addition and subtraction of numbers up to 1,000, and some multiplication and division
3. Use of fractions, decimals, percentages
4. Use of algebra, geometry, trigonometry, or statisitics
5. Advanced use of calculus, topology, vector analysis, factor analysis, probability theory, etc.

____99. Physical exertion: How much physical effort would you want your work to require?

1. Very light (occasional walking or standing, occasionally moving light objects, as might be required of a secretary, watchmaker, telephone operator, etc.)
2. Light (frequently walking or standing and often exerting effort equal to that which would be required to lift between 10 and 20 pounds, as might be done by a sales clerk, bank teller, etc.)
3. Moderate (frequently exerting effort equal to that which would be required to lift between 25 and 50 pounds, for example, auto mechanic, coin vending machine serviceman, bus driver, etc.)
4. Heavy (lifting between 50 and 100 pounds, for example, general laborer, bulldozer operator, baggage porter, etc.)
5. Very heavy (frequently using enough effort to lift 50 pounds, and occasionally using enough effort to lift over 100 pounds, for example, quarry mining, setting up concrete forms, etc.)

____100. Supervision given: How many workers would you want to directly supervise?

0. None
1. 1 or 2 workers
2. 3 to 5 workers
3. 6 to 8 workers
4. 9 to 12 workers
5. 13 or more workers

____101. Personnel responsibility: How many personnel would you want to be responsible for in your work? As an example, a president of a corporation would be responsible for everyone who worked for the corporation.

0. None
1. 10 or fewer workers
2. 11 to 50 workers
3. 51 to 250 workers
4. 251 to 750 workers
5. 751 or more workers

____102. Safety responsibility: How much responsibility for the safety of others would you be willing to assume in your work?

0. None
1. Little (working only with small hand tools, machines that are not dangerous, etc.)
2. Limited (responsible to exercise only reasonable care)
3. Intermediate (must be careful to avoid hurting others, as in operating overhead cranes, driving vehicles, etc.)
4. Substantial (you must constantly be careful not to injure others, as in handling dangerous chemicals or explosives, etc.)
5. Very substantial (the safety of others would depend entirely upon you, as in piloting the aircraft, performing major surgery, etc.)

____103. Property responsibility: How much property would you be willing to assume responsibility for?

1. Very little (a few dollars worth)
2. Little ($50.00 to $500.00 worth)
3. Moderate amount ($501.00 to $5,000,00 worth)
4. Substantial amount ($5,001.00 to $25,000.00 worth)
5. Very substantial amount (more than $25,000.00 worth)

____104. General responsibility: How much general responsibility would you want in your work?

1. Very little
2. Little
3. Average amount
4. Substantial
5. Very substantial

____105. Supervision received: How much supervision would you want to receive in your work?

1. Close supervision, including job assignments and close observation of work
2. General supervision
3. General guidance, but quite independent of others
4. Very little direction or guidance
5. No supervision

____106. Job structure: To what extent would you want to follow a routine, or have your work outlined for you?

1. Almost no change from a predetermined job routine (working on an assembly line, etc.)
2. Little change from the work routine possible (bookkeeping, stocking items in a warehouse, etc.)
3. Certain work must be done, but you can determine your own schedule or routine (carpenter, automobile mechanic, machinist, etc.)
4. Little routine work (most of the decisions made by you, for example, store manager, industrial engineer, etc.)
5. No routine (a wide variety of problems must be dealt with, and you would determine your own solutions, for example, corporation vice-president, research chemist, etc.)

___107. Criticality of position: Some positions in a company are especially critical. If not filled properly, such things as the company's earnings or reputation might seriously suffer. With this in mind, what degree of criticality would you want your job or position to have?

1. Very low
2. Low
3. Moderate
4. High
5. Very high

Appendix C

Job Descriptive Index (JDI)

This part measures what you think of different aspects of your present job.

Mark each of the items in the following way, as they relate to your present job:

Y - if the item describes a particular aspect of your job (work, pay, etc.)
N - if the item does not describe that aspect of your job (supervision, etc.)
? - if you cannot decide

WORK

_____ Fascinating
_____ Routine
_____ Satisfying
_____ Boring
_____ Good
_____ Creative
_____ Respected
_____ Hot
_____ Pleasant
_____ Useful
_____ Tiresome
_____ Healthful
_____ Challenging
_____ On your feet
_____ Frustrating
_____ Simple
_____ Endless
_____ Gives sense of accomplishment

SUPERVISION

_____ Asks my advice
_____ Hard to please
_____ Impolite
_____ Praises good work
_____ Tactful
_____ Influential
_____ Up-to-date
_____ Doesn't supervise enough
_____ Quick-tempered
_____ Tells me where I stand
_____ Annoying
_____ Stubborn
_____ Know job well
_____ Bad
_____ Intelligent
_____ Leaves me on my own
_____ Lazy
_____ Around when needed

CO-WORKERS

_____ Stimulating
_____ Boring
_____ Slow
_____ Ambitious
_____ Stupid
_____ Responsible
_____ Fast
_____ Intelligent
_____ Easy to make enemies
_____ Talk too much
_____ Smart
_____ Lazy
_____ Unpleasant
_____ No privacy
_____ Active
_____ Narrow interests
_____ Loyal
_____ Hard to meet

PAY

_____ Income adequate for normal expenses
_____ Satisfactory profit sharing
_____ Barely live on income
_____ Bad
_____ Income provides luxuries
_____ Insecure
_____ Less than I deserve
_____ Highly paid
_____ Underpaid

PROMOTIONS

_____ Good opportunity for advancement
_____ Opportunity somewhat limited
_____ Promotion on ability
_____ Dead-end job
_____ Good chance for promotion
_____ Unfair promotion policy
_____ Infrequent promotions
_____ Regular promotions
_____ Fairly good chance for promotion

Appendix D

Response Disposition Questionnaire

The following items are designed to learn something of the way you think about your world. Using the numbers from 1 to 7 on the rating scale given below, mark your reaction to each statement according to the degree to which you agree or disagree with it. There are no "right" or "wrong" answers; we are simply interested in your honest reactions.

RATING SCALE

1 = Strongly agree
2 = Moderately agree
3 = Slightly agree
4 = Neither agree or disagree
5 = Slightly disagree
6 = Moderately disagree
7 = Strongly disagree

_____ 1. I look forward to the future with hope and enthusiasm.
_____ 2. I might as well give up because there's nothing I can do about making things better for myself.
_____ 3. When things are going badly, I am helped by knowing that they can't stay that way forever.
_____ 4. I can't imagine what my life would be like in ten years.
_____ 5. I have enough time to accomplish the things I most want to do.
_____ 6. In the future I expect to succeed in what concerns me most.
_____ 7. My future seems dark to me.
_____ 8. I happen to be particularly lucky and I expect to get more of the good things in life than the average person.
_____ 9. I just don't get the breaks, and there's no reason to believe I will in the future.
_____10. My past experiences have prepared me well for my future.
_____11. All I can see ahead of me is unpleasantness rather than pleasantness.
_____12. I don't expect to get what I really want.
_____13. When I look ahead to the future I expect I will be happier than I am now.
_____14. Things just won't work out the way I want them to.
_____15. I have great faith in the future.
_____16. I never get what I want so it's foolish to want anything.
_____17. It is very unlikely that I will get any real satisfaction in the future.

RATING SCALE

1 = Strongly agree
2 = Moderately agree
3 = Slightly agree
4 = Neither agree or disagree
5 = Slightly disagree
6 = Moderately disagree
7 = Strongly disagree

_____18. The future seems vague and uncertain to me.
_____19. I can look forward to more good times than bad times.
_____20. There's no use in really trying to get something I want because I probably won't get it.
_____21. No one cares what happens, when you get right down to it.
_____22. The life of the average man is getting worse, not better.
_____23. People don't really care what happens to the next fellow.
_____24. I get the feeling that life is not very useful.
_____25. These days I get the feeling that I'm just not a part of things.
_____26. These days I don't know who I can depend on.
_____27. It is hardly fair to bring a child into the world the way things look now.
_____28. I feel no one really cares much about what happens to me.

We thank your for your cooperation. If you have any remarks you wish to make about the questionnaire, please use this space:

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