Job-Person Dynamics and Career Development

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Kenneth R. Brousseau
University of Southern California
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Center for Effective Organizations - School of Business Administration
University of Southern California - Los Angeles, CA 90089-1421 (213)740-9814

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and
CAREER DEVELOPMENT

by

Kenneth R. Brousseau

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ABSTRACT

The objective of this paper is to explore the ways in which work can be utilized for developmental purposes. This will cause us to explore methods for identifying dimensions of fit between people and jobs, conceptual models linking individual characteristics to patterns of behavior required by different jobs, and the dynamics through which job experiences influence personal characteristics. Finally, we will examine the elements of a system designed expressly to utilize work as a primary vehicle for career development.

INTRODUCTION

Increasing interest in the topic of careers is beginning to reshape thinking about relationships between people and their work. During the past several decades, the job-person interface has been the focus of considerable research. Much of this research has examined the interactive effects of job characteristics and individual difference factors on employee attitudes and behavior. Although this research has produced useful findings, important questions about job-person relationships remain unanswered. The career perspective suggests that numerous questions will remain unanswered as long as the focus of research remains fixed on individuals' immediate jobs without reference to past experiences or expected, future experiences. People change as do jobs. A particular job may raise or lower the work satisfaction that an individual experiences at a particular point in time, but it represents only one part of a pattern of past, present, and expected future experiences that affects a person's attitudes, abilities, and behavior.

This is not to say that a person's current job is of trivial importance, or that jobs are unworthy of study as determinants of work attitudes and behavior. Quite the contrary, with increased interest in careers comes growing recognition that the jobs people encounter during their careers individually and collectively act as important vehicles for development. In terms of their socializing and skill-building influence, on-the-job

experiences have the potential for far more impact than many formally planned, career development activities, such as classroom training and workshops.

This brings us to the central theme of this chapter: job activities provide the primary experiential media through which the process of career development takes place. As this theme suggests, any career development program that does not explicitly address the timing and sequencing of job assignments ignores the factors that ultimately will exert the greatest influence on employee development. Training programs are needed to support the career development process. However, in terms of time and consequences, training programs simply cannot compete with job activities in their influence on individuals' patterns of thought, behavior, and motivation.

With this notion in mind, the objective of this chapter is to explore the ways in which work can be utilized for developmental purposes. This will cause us to explore methods for identifying dimensions of fit between people and jobs, conceptual models linking individual characteristics to patterns of behavior required by different jobs, and the dynamics through which job experiences influence personal characteristics. Finally, we will examine the elements of a system designed expressly to utilize work as a primary vehicle for career development.

PERSPECTIVES ON JOB-PERSON FIT

Use of work activites as media for career development requires that sound decisions be made about: (1) the matching of particular people to particular jobs, and (2) the movement of people across sequences of jobs over time. In terms of research, the problem of matching people and jobs has received much more attention than have questions pertaining to the movement of people across jobs.

Strategies for matching people and jobs have followed two different approaches. The first and more traditional approach is essentially a selection strategy. As practiced by most industrial psychologists, this approach aims at selecting from a pool of candidates those individuals who are most qualified to perform a particular job. This is accomplished by assessing candidates' qualifications in terms of characteristics that have been established through job analysis to contribute to effective performance.

The second approach follows a job design strategy. As developed by social psychologists, this approach aims at designing jobs to fit employees. Thus, instead of selecting individuals who fit the job, the job itself is changed.

These two approaches also differ in other respects. The selection approach has tended to focus on aptitudes and abilities as dimensions of job-person fit. In contrast, job design researchers have emphasized the role of employees' needs or motives as determinants of job-person fit.

Not surprisingly, there has been a tendency for these two approaches to matching people and jobs to be viewed as conflicting. In particular, job design theorists and researchers have criticized the traditional selection approach on several grounds. For example, Argyris (1976) and Hackman (1977) have argued that application of the tools of industrial psychology to the matching of people and jobs tends to preserve the status quo. According to Hackman, the process of first analyzing the job, followed by the testing and selection of candidates, encourages all parties concerned "to consider the a priori design of the job itself as given, and to focus only on the identification of people who can do the job as it has been designed." As a consequence, poorly designed jobs--for example, those that are excessively simple or excessively complex--are preserved, even when few individuals are likely to fit them well.

This raises a second criticism. As Hackman points out, the potential for job-person mismatches is relatively greater in jobs that, for many people, would be under-motivating, as opposed to those that are too challenging. When emphasis is placed on ability to perform the job, rather than on motivation, it is relatively easy to find individuals who appear qualified for a job by virtue of their possessing the minimum skills and abilities that are needed to perform the job. Consequently, the tendency to few jobs as fixed, combined with a tendency to select individuals who score highest on tests of required skills and ability, often results in mismatches where individuals are over-qualified for, and under-motivated for, the jobs to which they are assigned.

These criticisms echo the original concerns that gave rise to the job design movement. Techniques such as job enlargement and, later, job enrichment originally were intended to counter the dysfunctional effects on employee motivation and satisfaction that had been observed to result from overly simplified jobs (Blauner, 1964; Herzberg, Mausner, & Snyderman, 1959; Walker & Guest, 1952). Consequently, good jobs came to be viewed as characterized by high amounts of task and skill variety, and decision latitude.

However, this view of the good job soon drew fire from industrial psychologists who argued that job design researchers were ignoring the importance of individual differences. By enriching jobs, it was claimed, job designers were running the risk of creating jobs that would fit the skills and abilities of some people but, because of their increased complexity, would exceed the capabilities of others.

More recently, job design theorists have designed and tested models of work motivation in which employee responses are portrayed as being jointly determined by job characteristics and individual difference factors (e.g., Hackman & Lawler, 1971; Hackman & Oldham, 1976). These interactionist models have decreased some of the distance between the selection approach of industrial psychologists and the techniques utilized by job designers. However, the tendency of job design theorists to focus on employee needs and motives as the individual difference factors that interact with job characteristics to determine employee attitudes and behavior, versus the tendency of industrial psychologists to focus on skills and abilities, continues to divide the two camps. Consequently, if the selection approach tends to produce mismatches where individuals are

over-qualified for jobs, the job design approach runs the risk of designing jobs that fit individuals' motives, but exceed their current capabilities.

Unfortunately, what has been overlooked in the debate over which approach is better is the fact that the two approaches are complimentary. If both approaches included examination of individuals' skills, abilities, and motives, there would be less liklihood of producing dysfunctional job-person matches. In addition, modification of the objectives of the selection approach to include the objective of finding the right job for a particular person, instead of focussing exclusively on finding the right person for a particular job, would reduce the tendency to perpetuate inappropriate job designs. The tendency then would be to look at jobs more critically as candidates for change.

Just this sort of fusion is needed if we are to avoid mistakes of the past. Moreover, the career development perspective demands that the objective of producing effective matchings of people and jobs include consideration of long-term, as well as short-term, factors. More specifically, rather than relentlessly pursuing the objective of creating enduringly good job-person matches, we must turn our attention to the challenges that are involved in creating jobs and selection procedures that enhance and maintain satisfaction and motivation, and promote the development of skills and abilities, through informed decision-making about the movement of individuals along sequences of job assignments. This will require methods for matching jobs and people not once and for all, but iteratively as time progresses.

DIMENSIONS OF JOB-PERSON FIT

The effective matching of people and jobs requires utilization of methods for measuring job properties and the personal attributes of individuals. That is, techniques are needed that allow jobs to be described in terms that have implications for the personal qualities of people that are needed to produce effective matchings. Similarly, methods are needed that allow the personal qualities of people to be described in terms that indicate the types of jobs for which they are best suited.

Historically, measurement of human characteristics predates most of the research on job measurement. However, a large portion of the early work on measurement of human attributes was conducted by researchers interested mainly in the development of taxonomies for describing the structure of human intellect (Guilford, 1956) or the structure of personality (e.g., Allport, 1937; Cattell, 1946). Consequently, as Dunnette (1976) has observed, the resulting taxonomies often leave undefined "what they might mean in terms of human work performance in organizations." Nevertheless, consistent with industrial psychologists' interests in skills and abilities, a substantial amount of work since the 1950s has been devoted to the development of test batteries for assessing employee aptitudes, many of which have been utilized extensively in employee selection programs. Examples include the General Aptitude Test Battery (GATB) developed by the U.S. Employment and Training Service (Dvorak, 1956), and the Employee Aptitude Survey (EAS) developed by Ruch & Ruch (1963). Most of these batteries include tests for measuring certain cognitive aptitudes

such as verbal comprehension, numerical aptitude, and pattern recognition. Some also measure physical aptitudes. For example, in addition to measuring cognitive aptitudes, the GATB assesses motor coordination, finger dexterity, and manual dexterity. In most cases, the aptitudes that such tests measure have relatively straight-forward implications for performance of different kinds of jobs.

Methods for assessing job properties have been developed for several purposes. One common purpose of job assessment is to provide a basis for establishing equitable wage and salary levels within an organization. These techniques seldom directly address questions regarding the personal qualities that fit different types of jobs. However, in recent years, a number of new job assessment methods have emerged that are intended specifically to provide information about personal attributes that are needed to perform the job. Several of these methods are discussed in the following pages. As will be seen, these techniques vary considerably in the degree to which the job properties they measure require additional analysis to identify corresponding personal attributes of individuals.

Synthetic Job Analysis

The synthetic validity method is one of the few job analysis techniques that measures specific job properties which correspond directly to specific personal attributes. Basically, the synthetic validity method allows jobs to be described in terms of fundamental elements or operations (e.g., utilizing

various kinds of information, decision-making and problem-solving activities) that have been predetermined to require specific aptitudes or abilities (e.g., deductive reasoning, spatial perception, verbal aptitude).

The most extensive work on the development of the synthetic validity model has been carried out by McCormick and his colleagues (see review by McCormick, 1976) using the Position Analysis Questionnaire (McCormick, Jeanerret & Mecham, 1969). The Position Analysis Questionnaire (PAQ) measures approximately 200 job elements that fall into several descriptive categories (information input, required mental processes, work output, relationships with other persons, job context).

To identify the personal attributes associated with the PAQ elements, McCormick and his associates obtained experts' ratings of the relevance of sixty-eight human attributes to each job element. Briefly, these ratings were utitlized to produce attribute "profiles" for each job element. Then, using the resulting attribute profiles, McCormick and his colleagues made estimates of the aptitudes and other personal qualities that should contribute to effective performance in each of ninety jobs for which PAQ descriptions were available. Next, GATB test validation results were obtained for a similar sample of jobs that previously had been studied by the U.S. Training and Employment Service. Analyses of the two sets of data (i.e., the PAQ-based estimates, and the GATB validation results) showed that the estimates of required attributes that were based on PAQ data corresponded closely to the magnitudes of the actual validity coefficients linking GATB

scores to job performance ratings that were produced from the Training and Employment Service studies.

Essentially, these findings indicate that once PAQ data are obtained for a particular job, a corresponding "personal profile" immediately can be constructed indicating the personal attributes that are needed to produce an effective job-person fit (at least insofar as ability to perform the job is concerned). Accordingly, as part of a comprehensive job analysis strategy, an instrument such as the PAQ can play a useful role in determining relevant dimensions of job-person fit for a wide variety of positions.

Less commonly recognized as an application of the synthetic validity model is its potential as a means for determining the types of jobs for which particular individuals are best qualified. For example, using the results of McCormick's synthetic validation study, it should be possible to construct a PAQ-type job profile indicating the sort of job for which a particular person is best suited, once GATB scores have been obtained for that person. This type of information could be particularly valuable as input to decisions about job design. For example, this information could be utilized to tailor jobs to fit the characteristics of particular individuals. Accordingly, a two-way application of the synthetic validity model would facilitate both identification of the right person for a particular job, as well as identification or, alternatively, the design of the right job for a particular person at a particular point in that person's development.

A potential disadvantage of the synthetic validity approach is that

the user is limited to the particular set of job dimensions and personal attributes that have been subjected to the synthetic validation process. In the case of McCormick's PAQ, this does not appear to be a severe short-coming in view of the large number of job elements the instrument measures. However, a glance at the world of work shows that jobs vary greatly in content as do individuals' skills, abilities, work habits, and motives. That jobs exist requiring personal characteristics which either have not been validated against PAQ elements, or which do not correspond to PAQ elements, is not unlikely.

Rational Specification

Rational specification (Dunnette, 1976), compared to the synthetic validation approach, provides a less systematic, but more flexible technique for identifying dimensions of job-person fit. The premise underlying rational specification is that persons familiar with a particular job can give accurate estimates of the specific skills and abilities that contribute to effective job performance. Thus, the technique involves obtaining ratings from incumbents and supervisors of the degree to which specific personal characteristics fit a particular job. These ratings are utilized to construct a job profile describing the characteristics of the "ideal" person for the job. The technique is open-ended and flexible in that the job analyst may select any set of dimensions for describing personal characteristics that preliminary analyses indicate are pertinent to the job or jobs in question.

At first glance, rational specification might seem particularly

vulnerable to problems resulting from low inter-rater reliability in estimates of the extent that particular attributes are required by a job. However, the results of several studies indicate that the technique can yield reliable results. For example, in one application, Desmond and Weiss (1970, 1973), developed an instrument, the Minnesota Job Requirements Questionnaire (MJRQ) to assess the relevance of each of the nine GATB aptitude categories to the performance of each of eleven different jobs. To give raters a common framework for carrying out their ratings, the instrument included five carefully written descriptive statements for each aptitude category. Subsequent ratings obtained from supervisors of the eleven jobs were found to be reliable and to correlate highly ($\underline{r}$ = .86) with MJRQ ratings of the same jobs obtained from over 700 incumbents.

These results indicate that rational specification can provide a useful and relatively efficient means for determining dimensions of job-person fit if raters are given a conceptual framework or set of explicit guidelines for determining their ratings. For example, in several large companies, job incumbents and their superiors attend workshops in which they are introduced to concepts for describing cognitive abilities and styles, interpersonal characteristics, and work motives. Following the workshops, the participants take part in job profiling interviews along with their supervisors during which they describe their jobs and, with the guidance of trained job analysts, rate the degree to which their jobs require the personal characteristics that were described in the workshops.

Behavior Observation Scaling

As a technique for identifying dimensions of job-person fit, Behavior Observation Scaling (BOS), like rational specification, is unconstrained by any fixed or predetermined descriptive taxonomy. However, the job descriptions that it yields are far richer, and can be utilized for purposes that neither rational specification nor synthetic validation serve.

The BOS method draws heavily on Flanagan's (1954) "critical incident" technique to generate descriptions of behaviors that have been observed by persons familiar with a particular job to lead either to effective or ineffective performance. After grouping these behavioral descriptions into different categories, analysts study the contents of each category to identify the underlying personal qualities that should contribute to the specified behavior. Based on these analyses, job profiles are developed indicating the personal attributes of the type of individual who is best suited for the job.

The BOS method has been applied successfully to the analysis of a wide variety of jobs. That is, it has been found to yield valid estimates of the personal attributes that produce effective job performance (see Dunnette, 1976). The method lends itself particularly well to the description and analysis of relatively complex jobs—especially jobs where relatively concrete and measurable indicators of individuals' performance outcomes (e.g., quantity and quality of output) are difficult, if not impossible, to obtain. Many professional and managerial jobs fall into this category, either

because lengthy periods of time elapse before the consequences of an individual's efforts can be observed, or because one's unique contributions to a performance outcome cannot be differentiated from the contributions of others (as often is the case where groups or teams are involved). In such situations, BOS descriptions indicate observable behaviors that contribute to performance, thereby providing a relatively objective foundation on which to base performance criteria. Moreover, because BOS descriptions usually contain multiple behavior categories, performance criteria can be developed for each of several key areas of performance. This enables individuals to receive more detailed performance reviews, and reduces reliance on the highly subjective, global performance ratings that often are used in situations where "hard" measures of performance outcomes are not available.

The detailed behavioral descriptions that the BOS method produces enable persons unfamiliar with a job (e.g., job candidates) to gain real insights into the activities that a job entails, as well as the personal qualities that it requires. Thus, individuals are provided with a basis for making informed choices about the development of their own careers. In addition, because of their specificity, BOS descriptions can be utilized to design efficient training programs for enhancing job performance.

The major drawback of the BOS method is that it is complex and time-consuming. Consequently, cost considerations often require that it be reserved for analysis of jobs performed by large numbers of incumbents, or jobs that are critical to organizational effectiveness.

Building Person Profiles

Ironically, the open-endedness that gives greater flexibility to job analysis techniques such as rational specification and BOS, in contrast to relatively closed methods such as synthetic validation, also increases their complexity. Particularly in the case of the BOS method, the complexity lies in the identificatiion of the personal qualities of people that increase the chances that required behaviors will occur.

To guide the identification of relevant personal qualities, theoretical models are needed describing the linkages between particular aptitudes, personal styles, motives, and observable behaviors. Currently, and in the past, many researchers and practicioners have proceeded in this area on the basis of either conceptual models that they seldom made explicit, or on the basis of intuition. In either case, others have not benefited from knowledge of the considerations that might enable them to produce similar profiles of required personal attributes from similar information about a job. Consequently, a different analyst studying a new position must start at ground zero.

Fortunately, conceptual models are available that can provide a common basis for making judgments about the characteristics of individuals that contribute to particular behaviors. To illustrate, consider the following example. Table 1 presents BOS descriptions of problem-solving behaviors required by two Tax Specialist positions in a public accounting firm. (The descriptions shown in the table are incomplete, inasmuch as several other categories also were contained in the full BOS descriptions.)

Table 1 about here

Position A is an entry level Tax Specialist position whereas Position B is located several steps higher on the professional ladder. And, as the descriptions indicate, Position B requires a higher level of technical knowledge than Position A. Beyond this, however, the descriptions reveal striking differences in requirements for processing information and problem-solving. In contrast to Position B, Position A stresses problem-recognition more than problem-solving per se. Essentially, Position A requires the job incumbent to utilize information to determine whether situations fit specific, predetermined guidelines and, where they do not, to identify possible causes for deviations. Position B, on the other hand, requires the job incumbent to utilize available information fully to formulate alternative strategies for handling problems. The behavior of incumbents in both positions is constrained by rules, but this is less so for the person in Position B who, within limits, is expected to produce creative solutions.

Behavioral descriptions such as these provide a useful basis for forming hypotheses about the personal attributes that can be expected to promote the behavior required by the jobs. In the above examples, we are dealing with information processing and problem-solving behavior. Aside from the usual aptitudes which are likely to be identified as needed for problem-solving (e.g., pattern recognition, accuracy), we need guidance about the personal attributes that differentiate between people whose

TABLE 1

Problem-Solving Behavior Required for Two Tax Specialist Positions

Position A	Position B
Follows instructions for recognizing exceptions to, or deviations from, normal standards or practices based on the client's records and transactions. Notices situations in which data or information are inconsistent, and attempts to determine reasons for inconsistencies. Recognizes circumstances which may call for deviations from the normal preparation routines; avoids overly "mechanical" performance of tasks.	Considers fully both the short-term and long-term exposure risks and tax liability implications of alternative reporting methods, and financial management and tax planning strategies. Makes full use of data and information provided by the client in determining tax reporting methods or tax planning strategies. Formulates creative solutions to tax problems that minimize clients' tax liabilities. Assures that all recommendations conform to tax laws and firm's standards.

methods and habits of problem-solving fit the behavior patterns required by Position A versus Position B, and vice versa. The following conceptual models provide clues about the personal attributes that are likely to be involved.

Decision styles. Within recent years, theorists have developed a number of models of human information processing and decision-making that describe differences in individiuals' decision-making and problem-solving styles (see reviews by Driver, 1979a; Robey & Taggart, 1981; Taggart & Robey, 1981). These "decision styles" differ from aptitudes and abilities. Aptitudes and abilities reflect what an individual is capable of doing. Styles, on the other hand, refer to learned habits that predispose individuals toward one or more patterns of behavior over others. Therefore, to say that a particular pattern of behavior fits an individual's style does not mean that the person is incapable of using other styles. Rather, the implication is that, because of force of habit, a particular pattern of behavior feels more comfortable, more "natural," and perhaps more appropriate to the individual than do other patterns. As such, style models provide useful frames of reference for analyzing the fit between a pattern of behavior required by a job and an individual's behavioral predispositions.

Most decision style models deal with two basic aspects of decision-making: (1) perception--i.e., use of information to "size up" or to understand a problem, and (2) choice--i.e., generating and selecting courses of action for dealing with a problem. For example, Driver and his colleagues (Driver & Lintott, 1972; Driver & Mock, 1975a, 1975b; Driver

& Rowe, 1979) describe a model based upon the earlier research of Schroder, Driver and Streufert (1967) on cognitive complexity. According to the model, individuals differ with respect to amount of information used in decision-making, and "solution focus"—i.e., the extent to which few or many problem solutions are generated. Combining these two dimensions results in a four-fold decision style classification briefly described as follows:

Decisive Low to moderate use of information to generate a single "feasible" solution;

Flexible: Low to moderate use of information to generate multiple solutions;

Hierarchic: High use of information to produce a single, "best" solution;

Integrative: High use of data to generate multiple solutions.

Inasmuch as the Driver model, like other style models, is descriptive, rather than normative, no one of the styles is identified as "better" in any absolute sense than the others. According to the model, whether one style is better than another depends on the fit between the style and the demands of the environment in which it is used. Table 2 suggests criteria for determining the potential goodness of fit between the four styles and environmental demands. (See Driver, 1979a, for a review of empirical support for relationships shown in the table.)

TABLE 2

Driver Decision Style Chart

	Decisive	Flexible	Hierarchic	Integrative
Values	Efficiency Speed Consistency	Adaptibility Speed Variety	Quality Rigorous Method System	Information Creativity
Planning	Low Data Short Range Tight	Low Data Intuitive	High Data Long Range Tight	High Data Long Range Adaptive
Goals	One	Many	One	Many
Organization	Short Span of Control Rules Classic Organization	Control by Confusion Loose	Wide Span of Control Elaborate Procedure Automation	Team Process Matrix Organization
Communication	Short Results One Solution	Short Variety Several Solutions	Long Methods Data "Best Conclusion"	Long Analysis from many views Multiple Solutions

Adapted from Driver, 1979a.

Table 2 about here

Returning to the descriptions of the two Tax Specialist positions presented in Table 1, we see that the positions differ on several factors that are mentioned in Table 2. Position B places greater emphasis on high data use and creativity. Position A places greater emphasis on rules. These differences suggest that the Decisive style is a better fit with Position A than with Position B, whereas the Integrative style appears to fit the description of Position B better than Position A. However, we see also that the description for Position A warns against "overly mechanical" performance of tasks, and indicates that the incumbent must be alert to situations requiring departures from established routines. This suggests that the incumbent might need the Integrative style as a "backup" style (Driver & Rowe, 1979) to facilitate problem analysis from more than one point of view.

Looking again at the description for Position B, we note that the incumbent must ultimately determine that alternate solutions satisfy predetermined criteria of acceptability, which in the tax area can be quite complex. This implies that the Hierarchic style would serve well as a backup style. This would be even more so to the extent that the incumbent must boil down alternative solutions to a single, "best conclusion."

We could take our analysis further. However, at this point, we could hypothesize that a dominant/backup style pattern of Decisive/Integrative

would represent the best decision style fit with the problem solving requirements of Position A. For Position B, we could hypothesize that an Integrative/Hierarchic pattern would represent an optimal fit. To determine how strong the styles should be (e.g., whether a moderate or high Integrative style is required), we would need to examine more closely the levels of complexity and uncertainty that the positions entail (see Driver & Rowe, 1979).

There are several other decision style models that we could draw upon for analyses similar to that just presented. Most of these models are based upon Karl Jung's theory of psychological types (e.g., McKenney & Keen, 1974; Myers, 1976; Hellriegel & Slocum, 1975). For example, the Myers model and the Hellriegel-Slocum model describe decision styles based on two dimensions: Sensing-Intuiting (attention to facts and details versus attention to patterns and use of abstract concepts), and Thinking-Feeling (basing decisions on impersonal criteria versus using personal or "humanistic" decision criteria). Combining these two dimensions yields the following four styles:

Sensing-Intuiting: Concern with immediate facts having personal or humanistic import.

Intuiting-Feeling: Concern with new possibilities having humanistic significance.

Sensing-Thinking: Pragmatic problem-solving, based on facts.

Intuiting-Thinking: Impersonal, long-range thinking, based on abstract concepts, patterns, and possibilities.

Using this style model to analyze the two Tax Specialist positions, we could hypothesize that the Sensing-Thinking style fits best with Position A, whereas the Intuiting-Thinking style fits best with Position B. To the extent that either position entails dealing directly with clients we might expect that increased amounts of Feeling would also be required to assure that job incumbents will be responsive to the needs of individual clients.

Other style models. In addition to problem-solving, other style models have been developed that could be utilzed to identify personal attributes that fit other categories of behavior required by a job. For example, in the leadership category, contingency models such as those developed by Tannenbaum and Schmidt (1958) and by Vroom and his colleagues (Vroom & Yetton, 1973; Vroom & Jago, 1974) provide guidelines that could be utilized to identify the leadership styles that best fit the requirements of the job. Similarly, findings from research on conflict provide leads indicating the types of behavioral styles that promote collaborative versus competitive behavior (see review by Thomas, 1976, 1979).

In short, a survey of the relevant literature usually will yield useful insights into the personal styles and other attributes that fit a particular pattern of behavior required by a job. In most cases, style theorists have devised instruments or other procedures that also could be utilized to assess the extent to which individuals' behavioral predispositions fit the styles

that have been identified as relevant to the job. Information on the validity and psychometric properties of these and other instruments often can be found in periodic reports appearing in such publications as Buros' Mental Measurements Yearbook, and Educational and Psychological Measurement.

Matching rewards and motives. Analysis of job-person fit from the perspective of motivation, as opposed to abilities and styles, requires an approach that differs somewhat from those that have been described so far. To some extent, motivation can be considered a function of the degree to which a job fits an individual's aptitudes and, especially, styles. That is, if a job requires behavior that matches an individual's preferred styles, that person should experience greater motivation than he or she would if assigned to a job requiring an unfamiliar pattern of behavior. However, there can be exceptions. Some individuals are likely to respond well to situations that "stretch" them somewhat to learn new styles and skills. This might be true, for example, of people who highly value personal growth.

To deal with motivation issues at this level requires consideration of the extent that the job itself provides rewards or opportunities that satisfy basic motives. BOS-based job descriptions might not provide sufficient information to make this kind of determination. This is because a behavioral job description mainly indicates what the job demands of the individual, but may only hint at what the job gives the individual.

Consider, for example, the need for achievement. According to McClelland's (1961) model, individuals with stong achievement needs are attracted to, and perform well in, situations that: (1) allow them to take personal responsibility for finding solutions to problems; (2) involve opportunities to take moderate risks, or to set moderately difficult goals; and (3) provide relatively frequent, concrete feedback about goal attainment.

A detailed behavioral job description should enable at least a partial determination of the degree to which a job satisfies these conditions. For instance, it should be possible to determine whether a job incumbent is expected independently to generate solutions to problems. Referring again to the description of the two Tax Specialist positions, it appears that Position B offers more independent problem-solving opportunities than does Position A. However, neither of the behavioral descriptions says much about the extent to which incumbents are allowed to set moderate goals or whether they receive frequent feedback about goal attainment. Therefore, to determine whether a job meets the criteria that satisfy a strong achievement motive requires probing beyond the information that typically is included in a behavioral job description.

Fortunately, motivation. theorists have developed a number of conceptual models that, like McClelland's model of the achievement motive, indicate precisely the sorts of information that are needed to determine the degree to which a particular job provides opportunities to satisfy a specific motive. Hackman and Oldham's work on the personal growth motive is a good example. Their model specifies the particular job characteristics

that interact with growth needs to produce high internal work motivation. In addition, they have designed a job assessment instrument, the Job Diagnostic Survey (Hackman & Oldham, 1975), specifically to measure the degree to which jobs possess the characteristics that fit strong growth needs. The instrument also contains scales for assessing job incumbents' needs for personal growth.

Few other models of work motivation have been developed as highly and researched as thoroughly as the Hackman Oldham model. Nevertheless, researchers and practicioners can gain insights into the job conditions that fit other motives by examining the literature on particular facets of motivation. In most cases, descriptions of motives provide at least indirect clues about the sorts of jobs with which the motives are most compatible. In addition, if a motive has been described, an instrument usually has been designed to measure it. For example, Schutz's model of interpersonal behavior defines three categories of social motives (inclusion, power, and affection) that are measured by the FIRO-B (Schutz, 1958). Although, few instruments have been designed expressly to assess a job's motivating properties (the Job Diagnostic Survey is one of the few exceptions), there are some instruments available that could be modified to serve this purpose. For example, Litwin and Stringer's (1968) instrument for assessing the motivational characteristics of organizational climate (in terms of achievement, power, and affiliation motives) could be modified to diagnose the motivational properties of specific jobs. Instruments such as these can be utilized as supplements to other job assessment methods, such as the BOS technique, to determine the degree to which a job offers opportunities to satisfy a variety of work-related motives.

JOB-PERSON DYNAMICS

So far, we have concentrated on the relatively static problem of matching people and jobs. However, to utilize job assignments for developmental purposes requires consideration not only of the immediate fit between a person and a job, but also consideration of the likely effects of current and future job assignments on an individual's personal characteristics.

Until recently, there has been little theoretical or empirical basis for taking into account the developmental effects of job assignments when planning career development strategies. During the 1960s, several studies had succeeded in showing that employees' personal orientations and values often correlate with certain features of the jobs they perform (e.g., Kornhauser, 1969; Kohn & Schooler, 1969). However, because the studies were cross-sectional, it could not be concluded that correlations between job characteristics and personal characteristics demonstrated the effects of jobs on people. As some writers (e.g., Hulin & Blood, 1968) argued, the findings just as easily could reflect the outcomes of selection processes whereby individuals choose or are selected for jobs that fit their personalities.

In order to cast a more definitive light on the effects of work experience, a number of researchers have conducted longitudinal studies during the past decade. Although the variables that have been investigated

have differed considerably from one study to another, each has collected data on individuals' personal characteristics at two points in time separated by a period of years, and information about one or more of the jobs that individuals have held during the intervening period. Consequently, researchers have been able to draw relatively confident conclusions about the effects of various job characteristics on changes in the personal attributes of people in their samples. The results of these studies have produced important findings.

Longitudinal Studies of Job Effects

The most extensive research on the long term effects of work on individual development has been conducted by Melvin Kohn and Carmi Schooler at the National Institute of Mental Health. In 1974, Kohn and Schooler collected additional data on the personal characteristics and jobs of over 700 men employed in a representative sample of civilian occupations who originally had participated in a similar survey ten years earlier. In analyzing their data, Kohn and Schooler (1978, 1982) employed confirmatory factor analysis (which partials out commonalities among variables) to evaluate causal effects among job characteristics and personal characteristics. The results of their causal analyses showed that, over time, performing jobs that involve high amounts of "substantive complexity" (i.e., complex work with people, data, and things) increases individuals' levels of intellectual flexibility and "self-directedness" (i.e., beliefs and values opposing fatalism, authoritarianism, conformity, self-deprecation; and

favoring trustfulness, and high standards of personal responsibility). They found also that freedom from close supervision is associated with declining levels of "distress" (i.e., anxiety, low self-confidence, self-deprecation, low trust, and low conformity). In short, their findings indicate that experience with a complex job that allows one to make one's own decisions tends to increase an individual's cognitive complexity, sense of personal efficacy, and emotional well-being.

In addition, because their data included information on jobs and personal characteristics measured at two points in time, Kohn and Schooler were able to determine whether personal attributes measured at one point in time, systematically influence the characteristics of jobs that individuals hold at a later point in time. Their analyses showed that a high level of intellectual flexibillity is associated with movement to increasingly complex future jobs. Similarly, strong feelings of self-directedness lead individuals toward jobs with greater amounts of freedom from close supervision. These findings show that certain job effects and selection effects are reciprocal. Specific facets of personality lead individuals to choose (or to be selected for) jobs that possess particular characteristics which, in turn, further strengthen those same personal qualities. Conceivably, this self-reinforcing cycle of effects continues throughout the span of an individual's career.

Through a set of unique analyses, Kohn and Schooler also were able to gain insights into the ways in which changes in particular facets of individuals' personal characteristics spark changes in other characteristics over time. In reporting their findings, they comment (1982, p.1280):

> The intrapsychic effects, the heretofore-missing component of the job-personality system, are impressive. Ideational flexibility both positively affects and is positively affected by self-directedness. Self-directedness both negatively affects and is negatively affected by distress. Noteworthy among these intrapsychic effects are the strong effects of self-directedness on both ideational flexibility and distress. Self-directedness affects both ideational flexibility and distress decidedly more strongly than they affect self-directedness or than they affect each other. If one of the three dimensions of personality is pivotal, it is self-directedness.

These findings on intrapsychic processes are particularly important in that they indicate how work experiences that might be anticipated to have developmental effects on specific personal characteristics may have broader, more systemic effects on the structure of an individual's personality.

Findings similar to those reported by Kohn and Schooler also have been reported by other researchers. For example, Mortimer and Lorence (1979) surveyed 513 male college students during their senior year and, again, ten years later to determine: (1) the effects of work values held prior to graduation on subsequent job experience; and (2) the extent to which work values are influenced by experience with different types of jobs and rewards.

The values that Mortimer and Lorence measured include: extrinsic

values (desires for prestigious positions, opportunities for advancement, and high income); people values (desire to be helpful to society, and to work with people rather than things); and intrinsic values (desire to exercise one's skills and abilities, to express one's personal interests, and to be creative). On the job side of the equation, they gathered data on compensation, autonomy (actually, a composite measure of decision latitude, innovative thinking required by the job, and job challenge); and social content (amount of time spent dealing with people, and degree to which the job involves helping people).

Using confirmatory factor analysis to investigate causal relationships, Mortimer and Lorence, like Kohn and Schooler, found that work values influence job selection, and that particular work values themselves frequently are strengthened by types of work and rewards that fit those values. Specifically, they found that individuals who most highly valued intrinsic rewards in their senior year were located, ten years later, in jobs that provided the highest amounts of autonomy. Likewise, individuals who most highly valued extrinsic rewards were located in the highest paying jobs (and the more highly autonomous jobs) ten years later. The selection effects of prior work values were most pronounced for people values; persons with the strongest people values most consistently found their way into jobs with high levels of social content.

High autonomy and high compensation both tended to reinforce the values that caused individuals to choose or be selected for jobs having those qualities. Persons located in jobs involving high autonomy were most

likely to have developed stronger intrinsic values since their senior year in college. Similarly--and in contrast to what Maslow's (1954) need hierarchy model would predict--individuals in the higher paying jobs were most likely to have developed stronger extrinsic values and to have experienced declines in the strength of their intrinsic values and (especially) people values over the ten year period. However, despite the strong selection effects of people values, changes in people values were only weakly associated (at a statistically non-significant level) with the social contents of individuals' jobs. Instead, the development of stronger people values was more clearly associated with high work autonomy.

In another longitudinal study, Brousseau (1978) investigated changes in the personal characteristics of a sample of engineers, scientists, and managers employed by a petroleum products company. The results of partial correlational analyses showed that, over a mean period of six years, individuals in the sample developed increasingly active orientations (increased levels of optimism, enthusiasm for taking on new projects, and willingness to take risks) and greater emotional well-being (feelings of energy, vitality, and general well-being) to the extent that their jobs involved high task identity (performing "whole" tasks from beginning to end) and high task significance (performing work perceived to have important consequences for others).

In later analyses using an expanded sample from the same organization, Brousseau and Prince (1981) found that these same job characteristics were associated positively with changes in numerous other

personal characteristics measured by the Guilford-Zimmerman Temperament Survey (Guilford & Zimmerman, 1949), such as general activity level, restraint, social ascendance, and friendliness. Many of these apparent job effects were unanticipated. Possibly, they reflect the operation of intrapsychic processes, such as those reported by Kohn and Schooler, whereby the effects of job experience on particular personal characteristics prompt further changes in personality structure.

Additional evidence demonstrating the impact of work experience on emotional well-being is provided by a ten-year longitudinal study conducted by Karasek (1979) of a representative sample of the Swedish labor force. He reports that individuals who performed jobs involving low decision latitude experienced increasing levels of emotional depression over the ten-year period.

Several other studies have investigated the impact of job experience on individuals' perceived locus of control. In one study, Andrisani and Nestel (1976) found that upward job mobility promotes an internal locus of control (sense of being personally in control of one's life, as opposed to believing that one's circumstances are influenced principally by "external" factors over which one has no control). In another study, Anderson (1976) found that, over a two-year period, small business owner-managers who coped most effectively (as measured by financial performance) during and after a flood that threatened their businesses also developed an increasingly internal locus of control.

An Efficacy Enhancement Model

Despite the fact that the studies reviewed above utilized a variety of measures of job characteristics and personal attributes, when viewed collectively several common themes emerge from the findings. Most of the studies measured some facet of job complexity (e.g., Kohn and Schooler's "substantive complexity," Mortimer and Lorence's "autonomy," Brousseau's "task identity"). Several studies also measured opportunities for "self-direction" on the job (Kohn and Schooler's freedom from "close supervision," Karasek's "decision latitude" and, again, Mortimer and Lorence's "autonomy"). On the person side, most of the studies measured some facet of personal efficacy (e.g., Kohn and Schooler's "self-directedness," Mortimer and Lorence's "intrinsic values," Brousseau's "active orientation," Anderson's "internal locus of control"). With these commonalities in mind, the positive impact of job complexity and self-direction on individuals' feelings of personal efficacy is the finding that enjoys strongest support from the studies.

As Figure 1 indicates, the link between job complexity and self-direction (summarized in the figure as JCSD) and sense of personal efficacy represents what appears to be one of the most important relationships in job-person dynamics. That this is a key relationship is suggested not only by the support that it receives from different studies, but also by Kohn and Schooler's findings indicating the pivotal role in intrapsychic dynamics that self-directedness plays as a factor affecting

other aspects of personality.

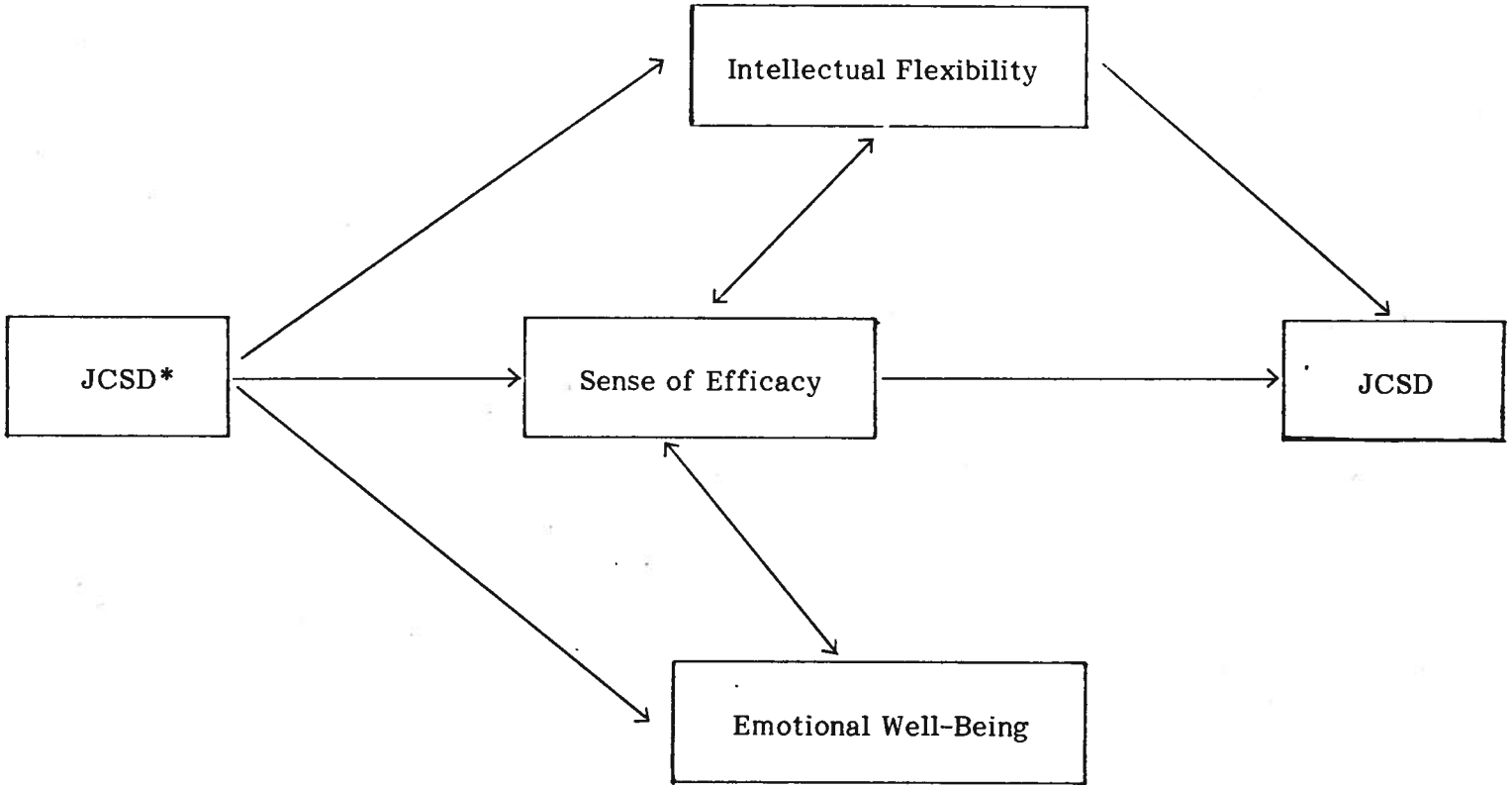
Figure 1 about here

As depicted in Figure 1, high JCSD directly increases individuals' intellectual flexibility and emotional well-being. However, each of these personal qualities influences and is influenced by sense of efficacy (or "self-directedness"). Therefore, job-induced increases in intellectual flexibility are likely to result in an increased sense of personal efficacy which, in turn, is capable of enhancing emotional well-being. Likewise, job-induced increases in emotional well-being are likely to increase sense of efficacy and, thereby, intellectual flexibility. As such, through the reciprocal effects of these two personal attributes on sense of efficacy, any direct or indirect effect of a job on sense of efficacy could spark a chain of intrapsychic processes resulting in substantial changes within an individual's personality.

The potential for quite substantial changes in personality to occur over time becomes even more apparent when the selection processes portrayed in Figure 1 are taken into account. Increasing levels of intellectual flexibility and feelings of efficacy lead individuals toward future jobs with higher levels of JCSD which, in turn, could spark a new round of intrapsychic changes. Operating over the course of an individual's career, this combination of job effects, intrapsychic dynamics, and selection effects, could create a powerful, self-reinforcing cycle of efficacy enhancement. Clearly, such processes could play a critical role in a career development program designed to utilize job assignments systematically as vehicles for employee development.

FIGURE 1

Job-Person Dynamics: An Efficacy Enhancement Model



* Job Complexity and Self-Direction

ELEMENTS OF DEVELOPMENTAL WORK SYSTEMS

Important to bear in mind is the fact that the relationships depicted in Figure 1 are based on findings from large scale, field surveys, rather than the results of experimental studies designed intentionally to promote employee development. As such, the findings represent "naturally occuring" developmental processes that appear to influence the careers of many people working in widely varying occupations, organizations, and industries. Viewed in this light, the findings are all the more intriguing, raising as they do the liklihood that systematic efforts to develop careers through planned sequences of job assignments can achieve broader and more pronounced results.

To conduct such efforts, however, requires use of an information-intensive system in order to capitalize on and move beyond naturally occuring developmental processes. The structure of such a system is presented in Figure 2. The system shown in the figure is called a "developmental work system" to denote the fact that work activities play a central role in the career development process.

As the figure indicates, the system is comprised of a number of elements that represent traditional (and not-so-traditional) human resource functions. However, the system notably differs from the ordinary in that its respective components are linked together in a configuration that facilitates consistent and efficient use of information about jobs, people, and developmental outcomes. These qualities are essential to the design

of any career oriented human resource system (Von Glinow, Driver, Brousseau, & Prince, 1983).

Figure 2 about here

Job and Career Path Analysis

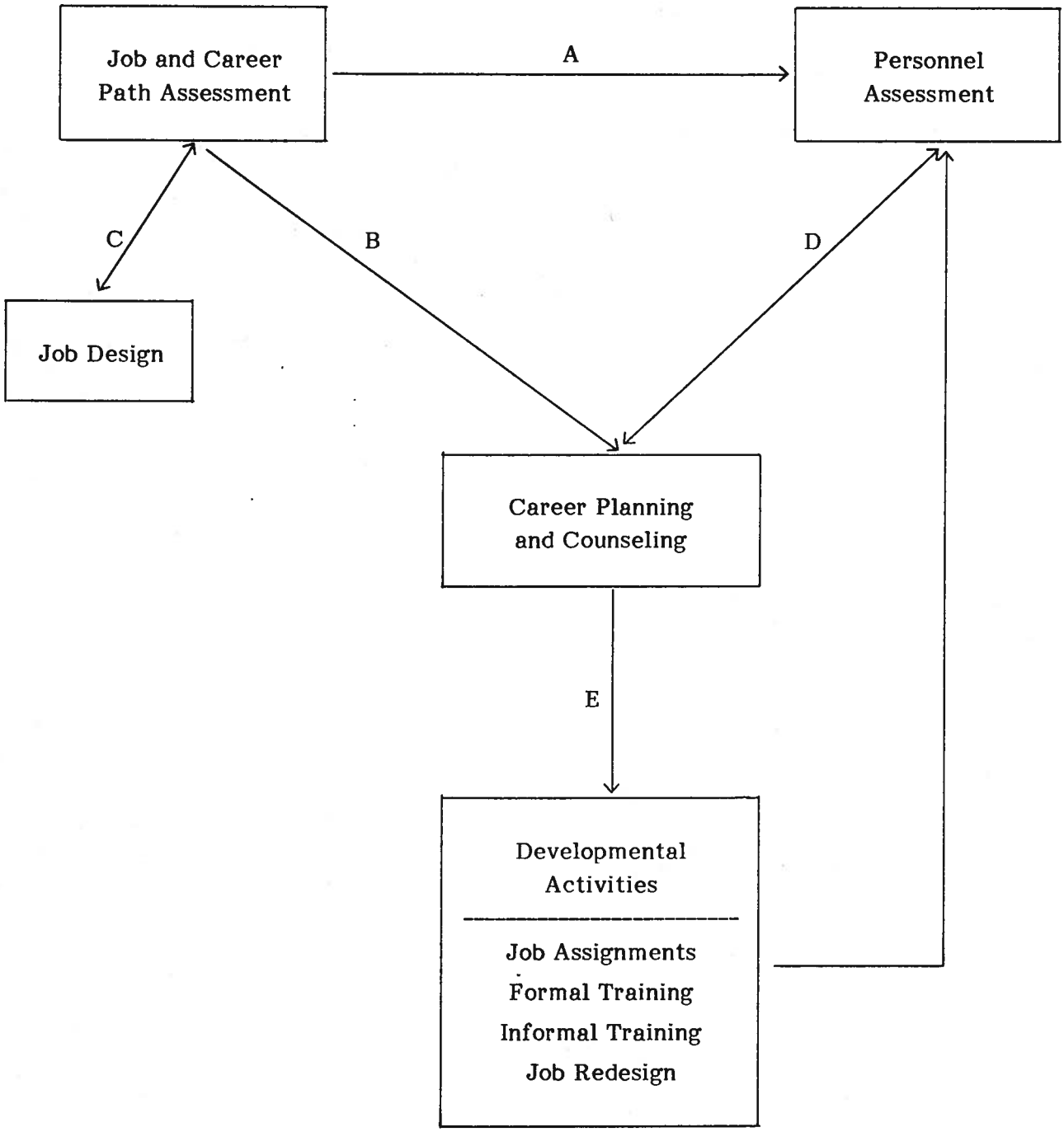
As discussed earlier, use of job assignments to promote development requires that effective job-person matchings be made at each step in a developmental sequence. This is where the job analytic techniques described previously become critical. Their role in the system is to generate profiles indicating the personal qualities that ideally fit each of the jobs in the work system. (Here, the "work system" might include all management jobs in an organization, all hourly jobs, all technical jobs, or all three categories--depending on the intended scope of the career development program.)

In addition to identifying the personal attributes that ideally fit specific jobs, development of job profiles for a set of jobs will indicate the relevant personal attributes that should be assessed in the personnel assessment component of the system. In effect, the results of job analyses define the requirements of personnel assessment programs (Arrow A in Figure 2).

The development of profiles for a set of jobs also provides a basis

FIGURE 2

A Developmental Work System Model



for analyzing the properties of career paths. For example, traditional routes of promotion can be assessed in terms of their suitability as developmental paths. Personal attributes that become increasingly important, or decreasingly important, as one moves along a sequence of jobs can be identified. In this way developmental outcomes likely to result from movement along the sequence can be anticipated and utilized as a basis for career planning (Arrow B in Figure 2).

In some cases, examining the job profiles for a sequence of positions might surface anomalies that could disrupt development. For example, analysis of a set of jobs in the claims department of a large insurance company revealed that middle level claims adjuster jobs required considerably less analytic thinking than did entry level positions and the more senior claims adjuster jobs. Identification of such discontinuities can signal the need for job redesign to create a smoother developmental path (Arrow C in Figure 2). Additionally, examination of job profiles for jobs in different functional areas (e.g., marketing vs. finance) will show how the functions differ not only in terms of technical requirements, but also in terms of other key personal attributes that they require. This information also can inform job design efforts aimed at building "bridge" jobs that establish points of transition between functional areas for those people who wish to move laterally (Driver, 1979b).

Personnel Assessment

There are several considerations to be taken into account in deciding

how the personnel assessment component of a developmental work system should be configured. For example, should there be one standard assessment program, or should there be several different assessment programs? One standard program would involve assessment of individuals on all dimensions that are relevant to the total set of jobs that are included in the work system. This would have the obvious advantage of producing information that later could be utilized to evaluate the goodness of fit between each person who has been assessed and any job in the system. From a selection perspective, this would produce the largest pool of candidates for any one job, including qualified individuals who might otherwise be overlooked. And, from a career planning perspective, it would provide the greatest number of options for job placement and career paths for any one individual. However, a standard program might not be feasible if the set of relevant personal attributes for the jobs in the system is very large, making the assessment process complex, time-consuming and costly.

If the jobs in the system differ widely in terms of relevant attributes (not just in the amounts of particular attributes that are needed to produce effective job-person matchings), it might be advisable to establish several different programs, each geared to assess a different set of attributes. This would be especially advisable if the jobs in the system can be grouped into several different "families," each with its own set of relevant personal attributes.

For example, one program might be designed to assess those particular

personal qualities that are most pertinent to supervisory or management positions. Another might focus on the qualities that are most relevant to the technical positions in the system. Depending on how jobs differ, these programs could be subdivided further. For instance, the management assessment program might consist of one version that deals with qualities most pertinent to lower and middle level management positions, and another that focusses on qualities most relevant to senior management and executive positions. However, it should be remembered that moving too far in the direction of using different assessment programs may result in the exclusion of qualified individuals from consideration as candidates for particular jobs and, at the same time, severely restrict the range of jobs and career paths for which an individual might be considered.

One way to compensate for these short-comings is to set up a standard screening process to direct individuals toward the most appropriate programs. Such a screen might be based on evaluation of a core set of qualifications and interests, and could be included as part of the career planning process (Arrow D in Figure 2).

The actual methods that are utilized in an assessment program could include paper and pencil instruments, situational exercises, work samples, and peer ratings (see Finkle, 1976). A detailed discussion of these techniques exceeds the scope of this paper. However, suffice it to say that each technique has its particular advantages and disadvantages. For example, work samples have the advantage of allowing obvservation of individuals'

behavior on tasks most similar to those that will be encountered on a particular job. However, they may provide little useful information about underlying personal qualities that are relevant to other jobs. Moreover, they seldom are adequate for determining whether an individual possesses the motives and interests that are needed to sustain effective performance over a long period of time. Paper and pencil instruments, such as standardized personality or style inventories, on the other hand, are capable of providing information about personal qualities that are relevant to a variety of positions. And, if properly designed or selected, they are useful for assessing characteristics that are needed to motivate effective performance over substantial periods of time. However, they may be less precise than work samples as techniques for estimating a person's immediate ability to perform specific tasks. Because of these trade-offs, the ideal program is one that utilizes a variety of complementary assessment methods.

A growing number of companies operate assessment center programs. However, most of these programs focus narrowly on assessment of overall management potential (Byham, 1970; Finkle, 1976). This limits their utility as part of a system aimed at using specific job assignments as vehicles for development. A more serious short-coming of such programs is that individuals seldom participate in an assessment program more than once. By limiting an individual's participation to a "one shot affair," a program's ability to detect and capitalize on the dynamic processes that are involved in job-person relationships is lost. As Figure 2 illustrates, to fulfill its role as a key element of a developmental work system, an assessment program must allow for periodic reassessment of individuals in order to

track changes they undergo as they move along a developmental sequence of jobs, and as they enter different career stages (Brousseau, 1983).

Career Planning and Counseling

The career planning and counseling element shown in Figure 2 subsumes a number of activities. In some organizations, career planning is only tangentially related to other human resource functions such as job placement, management succession planning, and training. In a developmental work system, however, career planning and counseling are activities of central importance that are linked directly or indirectly to each of the other elements of the system. As Figure 2 illustrates, the career planning and counseling process brings together information about jobs, and career paths (Arrow B), and information about employees generated through personnel assessment programs (Arrow D). This information then is utilized to reach decisions about developmental activities (Arrow E), including job assignments, training and, perhaps, occasional redesign of individuals' present jobs to produce better matchings. As Figure 2 implies, career planning and career counseling should work hand-in-hand. Not only is information about jobs and individuals used to select employees for positions that have openings, it also is utilized to provide individuals with a basis for making informed choices about the development of their n careers.

In most organizations, employees receive career counseling from

their supervisors or managers, few of whom have been trained as counselors (Walker & Gutteridge, 1979). This often leads to the peculiar situation where a person who has never received adequate counseling from his or her own boss is expected to be willing and able to assist his or her subordinates in planning and developing their own careers. In some cases, neither the boss nor the subordinate knows much about job and career opportunities that might be available other than the job titles that appear on an organization chart, let alone how particular jobs and career paths might fit with and develop the subordinate's personal characteristics.

Because of the central roles that career planning and counseling play in the developmental process, some portion of the career advisement that employees receive should be provided by trained counselors who understand careers and the dynamics of job-person relationships. For example, prior to participating in an assessment program, an initial meeting with a career counselor could serve the screening function mentioned earlier. As part of the screening process, counselors could use a framework such as Driver's (1979b) Career Concept model to help counselees clarify their career orientations and to make choices about career paths. Such a "mini-assessment" would assist the counselor and counselee in using information about jobs and career path opportunities available in the work system to decide which type of assessment program the counselee should attend.

Later, after participating in an assessment program, an employee could meet with a counselor to examine the potential fit between his or

her personal characteristics and the profiles of jobs contained in one or more career track. This would serve to indicate not only how well the person presently fits particular jobs, but also the types of skills and other personal qualities that the person would need to develop as he or she moves along a particular job sequence. In addition, it would provide a basis for anticipating how the individual's personal characteristics are likely to be influenced by the work experiences that he or she would encounter in moving from one job to another within a particular career track.

Developmental Activities

The decision outcomes resulting from career planning and counseling activities can take a variety of forms. One important decision, of course, concerns the assignment of a person to a particular position. However, decisions might also be made about the timing of moves between various positions, based on the developmental "stretch" that different assignments might pose for a person, and also on factors such as the person's capacity to cope with change (Brousseau, 1983).

In addition, information about the qualities that the person will need to develop as he or she moves from one job to another will suggest the types of activities that are needed to support or reinforce the developmental effects of the job assignments themselves. These supplemental activities might include: (1) attending formal training programs offered by the organization or outside educational institutions; (2) informal training, such as coaching or mentoring by more experienced employees;

(2) temporary assignments to perform special tasks, or to become a member of a special task force.

Some of these developmental activities can be combined. For example, if a number of individuals need to develop increasing amounts of creativity for their current and/or future assignments, they could be assigned to a special task group in which they receive training in creativity-enhancement techniques, such as synectics (Prince, 1968). Then, with the assistance of more experienced employees, they could receive coaching in applying the techniques to real problems facing the organization that require creative solutions. In addition to developing employees, training activities such as these also have the potential advantage of being highly cost-effective by producing immediate and tangible benefits for the organization (i.e., useful solutions to real problems). Similar activities could be utilized to develop particular problem-solving and decision-making styles or, perhaps, even to strengthen particular motives (see McClelland, 1965).

The important point to bear in mind is that the full burden of employee development need not, and should not, fall entirely on training. The coordinated use of job assignments and training activities will result in a synergistic, career development process capable of producing results that could not be achieved by relying solely on training programs or solely on job assignments as vehicles for development.

CONCLUSION

The model presented in Figure 2 provides a framework for capitalizing on current knowledge about job-person dynamics and for drawing together and using important pieces of information that form the mozaic of career development. Thus, the use of such a framework promises markedly more effective career management than can be hoped for in situations where "career development" means simply attending a workshop, as is the case in some organizations, or politically outwitting one's peers, as most commonly has been the case in the past.

In addition to producing immediate gains in the effectiveness of career development, the framework represents a system for building knowledge--knowledge that is needed to reduce the very substantial uncerainties and complexities that continue to surround career development processes. For example, despite insights produced by recent research findings, we still know relatively little about how readily and rapidly particular personal characteristics can be modified by work experience. (Recall that the research described earlier indicates less about what could happen, than what does happen now.) Nor do we know if there exist optimal combinations of job characteristics and personal characteristics that produce the most pronounced developmental effects. These questions can be answered only through longitudinal research, which ordinarily is very difficult to conduct. However, the use of the developmental work system model facilitates longitudinal research.

The developmental work system model represents an "ideal" system. Even in an organization in which the model becomes "institutionalized" as the career management system, many factors not shown in the model would cause career development decisions to depart from the ideal. For example, economic conditions, and the size and stability of the organization, will determine the variety of job and career opportunities that are available, the numbers of people competing for particular positions, and the types of job mobility patterns that are possible. Consequently, variability will exist in the career management process. This variability will create differing degrees of effectiveness in job-person matchings and in the timing of movement of people between jobs. However, if the system operates at all as intended, information should be generated that will record this variability.

Thus, the stage is set for longitudinal research. The short-term and long-term outcomes of different patterns of assignments and mobility can measured and analyzed. The results of such analyses could produce important new insights into career dynamics--insights which, in turn, could be utilzed to improve progressively the effectiveness of career management systems.

REFERENCES

Argyris, C. Problems and new directions for industrial psychology. In M. Dunnette (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1976.

Allport, G.W. Personality: A Psychological Interpretation. New York: Henry Holt, 1937.

Anderson, C.R. Locus of control, coping behaviors, and performance in a stress setting. Journal of Applied Psychology, 1976, 62, 556-451.

Andrisani, P.J., & Nestel, G. Internal–external control as a contributor to and outcome of work experience. Journal of Applied Psychology, 1976, 61, 156-165.

Blauner, R. Alienation and Freedom. Chicago: the University of Chicago Press, 1964.

Brousseau, K.R. Personality and job experience. Organizational Behavior and Human Performance, 1978, 22, 235-252.

Brousseau, K.R. Toward a dynamic model of job-person relationships: Findings, research questions, and implications for work system design. Academy of Management Review, 1983, 8, 33-45.

Brousseau, K.R., & Prince, J.B. Job-person dynamics: An extension of longitudinal research. Journal of Applied Psychology, 1981, 66, 59-62.

Byham, W.C. Assessment centers for spotting future managers. Harvard Business Review, 1970, 48, 150-167.

Cattell R.B. Description and Measurement of Personality. New York: World Book, 1946.

Desmond, R.E., & Weiss, D.J. Measurement of Ability Requirements of Occupations. Research Report No. 34, Work Adjustment Project. Minneapolis: University of Minnesota, 1970.

Desmond, R.E., & Weiss, D.J. Supervisor estimation of abilities required in jobs. Journal of Vocational Behavior, 1973, 3, 181-194.

Driver, M.J. Individual decision making and creativity. In S. Kerr (ed.), Organizational Behavior. Columbus: Grid Publishing, 1979 (a).

Driver, M.J. Career concepts and career managment in organizations. In C.L. Cooper (ed.), Behavioral Problems in Organizations. Englewood Cliffs, N.J.: Prentice-Hall, 1979 (b).

Driver, M.J., & Lintott, J. Managerial Decision Diagnostics. Unpublished paper. Los Angeles: Graduate School of Business Administration, University of Southern California, 1972.

Driver, M.J., & Mock, T. Information processing, decision style theory and accounting information systems. Accounting Review, 1975, 50, 490-508 (a).

Driver, M.J., & Mock, T. Some experimental results in MIS, human information processing and tailored information systems. Paper presented at annual meeting of ORSA/TIMS, Las vegas, 1975 (b).

Dunnette, M.D. Aptitudes, abilities, and skills. In M. Dunnette (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1976.

Dvorak, B.J. Differential Occupational Ability Patterns. Bulletin 8, Employment Stabilization Research Institute. Minneapolis: University of Minnesota, 1935.

Finkle, R.B. Managerial assessment centers. In M. Dunnette (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1976.

Flanagan, J.C. The critical incident technique. Psychological Bulletin, 1954, 51, 327-358.

Guilford, J.P. The structure of intellect. Psychological Bulletin, 1956, 53, 267-293.

Guilford, J.P., & Zimmerman, W.S. The Guilford-Zimmerman Temperament Survey. Beverly Hills: Sheridan Supply Co., 1949.

Hackman, J.R. Work design. In J.R. Hackman & J.L. Suttle (eds.), Improving Life at Work. Santa Monica: Goodyear, 1977.

Hackman, J.R., & Lawler, E.E. Employee reactions to job characteristics. Journal of Applied Psychology Monagraph, 1971, 55, 259-286.

Hackman, J.R., & Oldham, G.R. Development of the Job Diagnostic Survey. Journal of Applied Psychology, 1975, 60, 159-170.

Hackman, J.R., & Oldham, G.R. Motivation through the design of work: Test of a theory. Organizational Behavior and Human Performance, 1976, 16, 250-279.

Hellriegel, D., & Slocum, J.W. Managerial problem solving styles. Business Horizons, 1975, 29-37.

Herzberg, R., Mausner, R., & Snyderman, B. The Motivation to Work. New York: Wiley, 1959.

Hulin, C.L., & Blood, M.R. Job enlargement, individual differences, and worker responses. Psychological Bulletin, 1968, 69, 41-55.

Karasek, R.A. Job demands, job decision latitude, and mental strain: Implications for job redesign. Administrative Sciences Quarterly, 1979, 24, 285-306.

Kohn, M.L., & Schooler, C. Class, occupation, and orientation. American Sociological Review, 1969, 34, 659-678.

Kohn, M.L., & Schooler, C. The reciprocal effects of substantive complexity of work and intellectual flexibility: A longitudinal assessment. American Journal of Sociology, 1978, 84, 24-52.

Kohn, M.L., & Schooler, C. Job conditions and personality: A longitudinal assessment of their reciprocal effects. American Journal of Sociology, 1982, 87, 1257-1286.

Kornhauser, A. Mental Health of the Industrial Worker. New York: Wiley, 1965.

Litwin, G.H., & Stringer, R.A. Motivation and Organizational Climate. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1968.

Maslow, A.H. Motivation and Personality. New York: Harper & Row, 1954.

McCormick, E.J. Job and task analysis. In M. Dunnette (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1976.

McCormick, E.J., Jeanneret, P.R., & Mecham, R.C. A Study of Job Characteristics and Job Dimensions as Based on the Position Analysis Questionnaire. Lafayette, IN: Occupational Research Center, Department of Psychological Sciences, Purdue University, Report No. 6, 1969.

McKenney, J., & Keen, P. How managers' minds work. Harvard Business Review, 1974, 52, 79-90.

McClelland, D.C. The Achieving Society. Princeton, NJ: Van Nostrand, 1961.

McClelland, D.C. Toward a theory of motive acquisition. American Psychologist, 1965, May, 321-334.

Mortimer, J.T., & Lorence, J. Work experience and occupational value socialization: A longitudinal study. American Journal of Sociology, 1979, 84, 1361-1385.

Myers, I.B. Introduction to Type. Gainesville, FL: AMSA Foundation, 1976.

Prince, G.M. The operational mechanism of synectics. The Journal of Creative Behavior, 1968, 2, 1-13.

Robey, D., & Taggart, W. Measuring managers' minds: The assessment of style in human information processing. Academy of Management Review, 1981. 6, 375-383.

Schutz, W.C. FIRO: A Three-Dimensional Theory of Interpersonal Behavior. New York: Holt, Rinehart & Winston, 1958.

Schroder, H., Driver, M., & Streufert, S. Human Information Processing. New York: Holt, Rinehart & Winston, 1967.

Taggart, W., & Robey, D. Minds and managers: On the dual nature of human information processing and management. Academy of Management Review, 1981, 6, 187-195.

Tannenbaum, R., & Schmidt, W. How to choose a leadership pattern. Harvard Business Review, 1958, 36, 95-102.

Thomas, K.W. Conflict and conflict management. In M. Dunnette (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally, 1976.

Thomas, K.W. Organizational conflict. In S. Kerr (ed.), Organizational Behavior. Columbus: Grid Publishing, 1979.

Vroom, V.H., & Jago, A.G. Decision making as a social process: Normative and descriptive models of leader behavior. Decision Sciences, 1974, 5, 743-769.

Von Glinow, M.A., Driver, M.J., Brousseau, K.R., & Prince, J.B. The design of a career oriented human resource system. Academy of Management Review, 1983, 8, 23-32.

Walker, C.R., & Guest, R.H. The Man on the Assembly Line. Cambridge, MA: Harvard University Press, 1952.

Walker, J.W., & Gutteridge, T.G. Career Planning Practices: An AMA Survey Report. New York: AMACOM, 1979.

REFERENCES TO BE ADDED

Driver, M.J., & Rowe, A.J. Decision-making styles: A new approach to management decision-making. In C. L. Cooper (Ed.), Behavioral problems in organizations. Englewoold Cliffs, N.J.: Prentice-Hall, 1979.

Dvorak, B. J. The general aptitude test battery. Personnel and Guidance Journal, 1956, 35, 145 - 154.

Ruch, F. L., & Ruch, W. W. Employee aptitude survey: Technical report. Los Angeles: Psychological Services, Inc., 1963.

Vroom, V.H., & Yetton, P. W. Leadership and decision making. Pittsburgh: University of Pittsburgh Press, 1973.