

THE JOB CHARACTERISTICS THEORY: A REVIEW

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INTRODUCTION

Many scholars have argued that one way to increase employee performance and personal outcomes is by *enriching* the job. Both employee performance and personal outcomes, especially satisfaction, can be improved through job enrichment by giving greater opportunity to the individual for developing personal achievement. Thus, job enrichment can be viewed as a work design to restructure jobs with the intent of making them more challenging, motivating and satisfying to the individual (Loher et al., 1985). By far, a popular approach to task design research is the job characteristics model.

This article reviews Job Characteristics Theory, which was originally published about twenty years ago; however, studies about the theory have continued. Unlike other critical evaluations, which assessed the theory empirically, this review is fundamentally based on other published studies. The discussion about the theory is divided into four sections. The first section summarizes the theory. In the second section cross-sectional tests of the theory are discussed. Since the theory is associated with the Job Diagnostic Survey, the evaluation of the JDS is relevant and discussed in the third section. Finally, the strengths and weaknesses of the theory are evaluated longitudinally, and the usefulness of it is also described.

THE JOB CHARACTERISTICS THEORY

Job characteristics theory (Hackman and Oldham, 1976, 1980) describes the relationship between job characteristics and individual responses to work. The theory specifies the task condition in which individuals are predicted to prosper in their work. There are five job dimensions prompting three psychological states that lead to some beneficial personal and work outcomes. The theory also includes individual difference variables as moderator of the relationship between the characteristics and the outcome variables.

Hackman and Oldham (1976, 1980,) define the five job characteristics as follows:

Skill variety: the degree to which a job requires a variety of different activities in carrying out the work, involving the use of a number of different skills and talents of the person.

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

Task significance: the degree to which the job has a substantial impact on the lives of other people, whether those people are in the immediate organization or in the world at large.

Autonomy: the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedure to be used in carrying it out.

Job feedback: the degree to which carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of his or her performance.

It is possible to combine the five characteristics into a single index that reflects the overall motivating potential of a job. In the model (see Figure 1) specific job characteristics, i.e., skill variety, task identity and task significance, affects the individual's experience meaningfulness of work; autonomy influences experienced responsibility for outcomes; and feedback from job leads to knowledge of the actual results of the work activities. This leads to the formula of motivating potential score (MPS) as follows:

$$\text{MPS} = (\text{skill variety} + \text{task identity} + \text{task significance}) / 3 \times \text{autonomy} \times \text{feedback}.$$

Hackman and Oldham (1976, 1980) define three psychological states in their theory. To experience the work as meaningful is to feel that the work the individual does is generally worthwhile, valuable, or important by some system of values he or she accepts. The individual *experience personal responsibility* means that he or she feels personally accountable for the results of the work he and/or she does. Finally, the person who has *knowledge of the results* of one's work knows and understands how effectively he or she is performing the job. According to job characteristics theory, all three of the psychological states must be experienced by an individual if desirable outcomes are to emerge.

If any one of three psychological states is not present, several outcome variables such as motivation and satisfaction will be weakened. The theory emphasizes that the most important outcome variable is *internal motivation* which exists when good performance is an occasion for self-reward and poor performance prompts unhappy feelings. Other predicted outcomes are growth satisfaction, general job satisfaction, work effectiveness, quality work performance, absenteeism and turnover. *Growth satisfaction* is a feeling that one is learning and growing personally or professionally at work. *General satisfaction* reflects responses to unspecified work conditions as measured by questions such as "generally speaking, how satisfied are you with your job?" (Hackman and Oldham, 1980: 89). *Work effectiveness* includes quality and quantity of the goods or services produced. Quality work performance can be measured by, for instance, the number of errors made by employees. Absenteeism is the easiest to measure if there is an available work attendance record in a given period. Since the unit analysis of job characteristics model is the individual, turn over is simply defined as the intention to quit the employee's job.

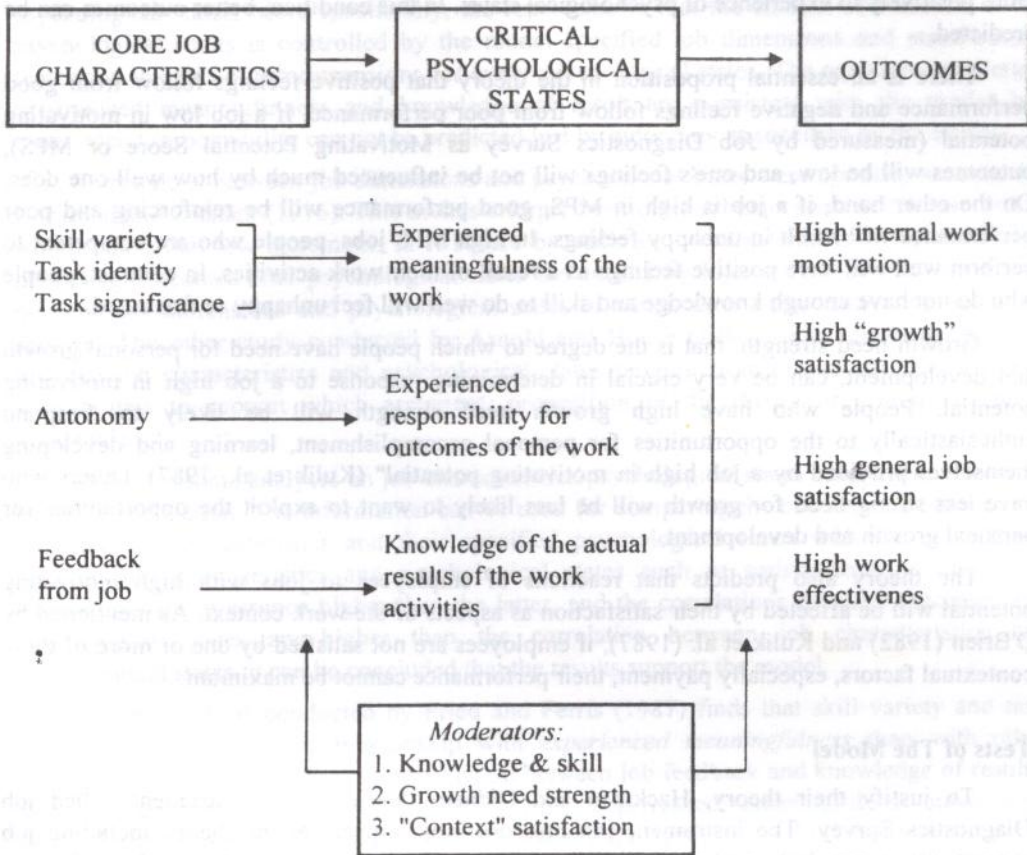


Figure 1. The Job Characteristics Model
(From Hackman and Oldham, 1980, p. 90)

Hackman and Oldham (1976, 1980) recognized that not all employees will respond positively to a job high in motivating potential. There are three characteristics of people which are especially important in moderating both the job characteristics-psychological states relationship, as well as the psychological states-outcome relationship (Hackman and Oldham, 1980; Kulik, Oldham and Hackman, 1987). They are *knowledge and skill* to perform the work, *growth need strength*, and *work context* such as pay, job security, coworkers, and managers. At the link between the job characteristics and the psychological states, when the job characteristics and the psychological states, when the job characteristics are good, it is more likely that psychological states will be experienced if moderator variables are high, especially growth need strength than if moderator variables are low. Referring to the link between the psychological states and outcome variables, individuals with high moderator variables respond

more positively to experience of psychological states. In this condition, better outcomes can be predicted.

There is an essential proposition in the theory that positive feelings follow from good performance and negative feelings follow from poor performance. If a job low in motivating potential (measured by Job Diagnostics Survey as Motivating Potential Score or MPS), outcomes will be low, and one's feelings will not be influenced much by how well one does. On the other hand, if a job is high in MPS, good performance will be reinforcing and poor performance will result in unhappy feelings. In high MPS jobs, people who are competent to perform well will have positive feelings as a result of their work activities. In contrast, people who do not have enough knowledge and skill to do well will feel unhappy or frustrated.

Growth need strength, that is the degree to which people have need for personal growth and development, can be very crucial in determining response to a job high in motivating potential. People who have high growth need strength will be likely to "respond enthusiastically to the opportunities for personal accomplishment, learning and developing themselves provided by a job high in motivating potential" (Kulik et al., 1987). Others who have less strong need for growth will be less likely to want to exploit the opportunities for personal growth and development.

The theory also predicts that reactions of employees to jobs with high motivating potential will be affected by their satisfaction as aspects of the work context. As mentioned by O'Brien (1982) and Kulik et al. (1987), if employees are not satisfied by one or more of these contextual factors, especially payment, their performance cannot be maximum.

Tests of The Model

To justify their theory, Hackman and Oldham developed an instrument called job Diagnostics Survey. The instrument can measure most aspects of the theory including job characteristics, psychological states, outcomes, especially internal motivation and satisfaction, and growth need strength as a moderator variable. The JDS assesses respondents perception to aspects of the theory. Hackman and Oldham (1976, 1980) also developed the Job Rating Form (JRF) to measure job characteristics from people who do not themselves work on the focal job such as supervisors or observers. This instrument was designed to test the "objectivity" of employee ratings.

The first test clarifies the theory was conducted by Hackman and Oldham (1976). In general, they conclude that the test confirms the model. They show that correlation between job characteristics and psychological states with internal motivation, general satisfaction and growth satisfaction as outcomes are significant, but only some psychological states and job characteristics significantly correlate with absenteeism and work effectiveness. In addition, the research finds that the contribution of psychological states is maximized when all states are present. On the other hand, the relationship between job dimensions and the outcomes decrease by controlling psychological states and the increase of R square by adding the five job dimensions to the regression predicting the outcomes are .01, .02 and .09 for internal motivation, general satisfaction, and growth satisfaction, respectively. The latter findings lead to the conclusion that the relationship between job characteristics and outcomes is mediated by

psychological states. More specifically, the report shows that the amount of variance in the psychological states is controlled by the model specified job dimensions and standardized regression weights of job dimensions for every psychological states. The equations predicting experienced meaningfulness and knowledge of result are consistent with the model but experienced responsibility can not be predicted just by autonomy as specified by the model.

Correlations between job dimensions and psychological states were not fully reported by Hackman and Oldham (1976). This invites critique from other scholars such as O'Brien (1982) who predicts that low increments in R square by adding job characteristics to the regression predicting outcomes after psychological states are caused by high correlation (.80 or above) between job dimensions and psychological states in which their items measuring the same concept. The other study conducted by Arnold and House (1980) finds simple correlations between job characteristics and psychological states ranging from .11 to .54. There is not enough data to support which argument, proposition of the theory or critique, is more acceptable.

There are some analyses on job characteristics-psychological states relationships, through bivariate correlation. The information can be used for comparing the correlations between the specified job characteristics and their specified psychological states with the correlations between job characteristics and psychological states such as satisfactions. If the initial correlations are in essence higher than the latter, and the correlations between outcomes and psychological states are higher than the correlation between job characteristics and psychological states, it can be concluded that the results support the model.

A meta-analysis conducted by Fried and Ferris (1987) finds that skill variety and task significance have stronger relationship with *experienced meaningfulness* than with other psychological states as well as the correlation between job feedback and knowledge of results. Since experienced responsibility and, in part, experienced meaningfulness have high correlations with unspecified job dimensions, the model, again, is not fully supported. On the other hand, the relationships between psychological states and personal outcome are stronger than relationship between job dimensions and those outcomes.

The relationship model between specified job dimensions and psychological states may be caused by the inter-dependent of the core job dimensions. Many factor analyses examining the dimensionality indicate inconsistent results. Dunham (1976) and Stone and Gueutal (1985) reported that the factorial solution of JDS was a single-factor. Harvey, Billings and Nilan's (1985) study indicated that Hackman and Oldham's a priori structure is confirmed, however, a general factor is more recommended. The a priori dimensionality of JDS is supported by study of Lee and Klein (1982). Pokorney, Gilmore and Beehr's (1980) study found five-factor solution but only three of the five factors be similar three of the a priori dimensions of JDS. Aldag, Barr and Brief's (1981) review found that only three of ten studies confirmed the a priori factor structure. Idaszak and Drasgow (1987) and Kulik, Oldham and Langner (1988) concluded that the five a priori factory exist but there was a sixth factor consisting of the negatively worded item from JDS, but when data from each sample group were analyzed (Idaszak, Bottom, and Drasgow, 1988), three, four, and five-factors solutions appeared. This result implies that the larger samples of study determine the result of factor analysis and tend to support a priory factor structure.

Tests of the moderator effect have been recently more concentrated on growth need strength rather than skill and knowledge and work context. To test the moderating effects of GNS on the job characteristics-psychological states and the psychological states-outcomes relationships, Hackman and Oldham (1976) compared the top and the bottom quartiles of employees based on their scores of GNS. The median correlations between product of the psychological states with outcomes, except absenteeism, were higher on high GNS than that on low GNS groups. These differences were statistically significant. The same result was also found on median correlations between skill variety and task significance with experienced meaningfulness, autonomy with experienced responsibility, feedback with knowledge of results, and MPS with psychological states and internal motivation. Arnold and House (1980) used hierarchical multiple regression analysis for testing the moderating effects of GNS found that some analysis support for GNS moderating job dimensions-psychological states relationship, but not support for the moderating effect of GNS on the psychological states-outcomes relationship.

Since then, studies about GNS as a moderator variable have limited on the relationship between job characteristics or MPS and outcomes rather than job characteristics-psychological states and psychological states-outcomes relationships. The following discussion shows the role of GNS as moderator of job characteristics-outcomes relationships.

Oldham, Hackman and Pearce (1976), for instance, identified the different relationships between MPS and some outcome variables on high and low GNS groups and found that the relationships are higher in high GNS group. Hierarchical regression was also used by Maille (1984) and the results indicated that increment R square after entering GNS variable in the multiple regression analysis, in which MPS, goal specificity and goal difficulty were used as predictors of intrinsic work motivation and work satisfaction, were significant.

A later study (Spector, 1985) examined need strength moderator findings through meta-analysis. This study compares correlations between job scope and outcomes, including job satisfaction, internal motivation, performance, absenteeism and involvement of high and low need strength groups across multiple studies. Mean correlations of overall job scope with general satisfaction, growth satisfaction, internal satisfaction, and performance are higher for the high need group than for the low need group. Statistically these differences are significant. Absenteeism and involvement fail to be differentiated by GNS between groups. Meta-analysis also be used by Fried and Ferris (1987) to test moderating effect of GNS on MPS-performance relationship. The relationship between MPS and performance in the latter study was higher among people with high GNS (.45) than among those with low GNS (.10).

The moderating effects of GNS on job dimensions-outcomes relationships have been tested cross-sectionally. Longitudinal studies, on the other hand, have rarely been done. Graen, Scandura and Graen (1986) have tried to test the moderating effect of GNS in a field experiment. They assume that if GNS assesses individual needs for growth opportunity, the growth opportunity itself should exist in a given period. So, they manipulated growth opportunity for high and low GNS in a certain period, 32 weeks. The results demonstrated interaction effects between GNS and growth opportunity. The better outcome were found on high GNS group that had growth opportunity than the same group that did not have opportunity. On the other hand, the low GNS groups were not different in outcomes between

treated, by giving growth opportunity, and untreated groups. In other words, only high GNS employees responded to the growth opportunity.

So far studies have not been conclusive as some other scholars are hesitant to conclude that GNS is a moderator. For instance, O'Brien (1982) concluded "very weak, if any". The calculation of the effect of GNS as moderator (O'Brien, 1986) showed that weakness. Moreover, Aldag, et al (1981) interpreted that GNS was moderator regarding strength of relationship rather than direction, and Robert and Glick (1981) could not give any conclusion because of inconsistent results. The inconsistent findings may be caused by a weakness of the theory or inadequate measurement or methodological problem or all. It is difficult to identify which causal problem affects inconsistent findings.

In the recent statement of the theory, Hackman and Oldham (1980) and Kulik, Oldham and Hackman (1987) modified their initial theory by including skill and knowledge and work context as moderator variables. Unfortunately, studies on the moderating role of skill and knowledge are difficult to find. The exception is O'Brien's (1983) study, which involved skill utilization in the job characteristics model. In this study, satisfaction as outcome measured by JDI and facet satisfaction are higher on high skill-utilization employees than low-skill utilization group.

Underutilization can deteriorate employee's talent and create frustration. Consequently, jobholders will not be satisfied and productive. This has been a consideration of Kulik et al. (1987) in suggesting that redesigning work should attend to employee's skill and knowledge. Moreover, they argue that working on a complex job is better than when underutilization happens; however, employees who are not competent enough for a job high in MPS may experience unhappiness but will increase knowledge and skill in the long term. The influence of job dimensions on knowledge and skill can lead to unclear roles because the characteristics of these moderator variables are very similar to theses of the dependent variables.

Testing of the moderating effect of work context has been conducted, for instance, by Oldham et al. (1976) Griffeth (1985), and Motangno (1985). Oldham et al. included pay, security, social and supervisory satisfactions and sum of these four contextual factors as moderator variable. To test the prediction that these factors moderate MPS and out come relationships, employees were divided into low and high on each of the work contexts. The correlation coefficients between MPS and outcomes are mostly higher on groups satisfied by contextual factors. The study also combined growth need strength and contextual satisfaction as moderator variables. The relationships between MPS and outcomes, in general, are significantly lower for employees dissatisfied by contextual factors and having low GNS than for individual satisfied by contextual factors and having high GNS. These results support the prediction that contextual factors moderating MPS-outcomes relationships.

If Oldham et al. (1976) introduced perceived work context as moderator variables, Montagno (1985) manipulated conditions, so, a group aware that they were compared with the other, the second group, which was not treated to compare with others. The result indicated that persons who though that they compared with the other group performed better than those who were unaware of other comparing group. In this case, the effect of comparison with others is significant.

Unlike other moderator variables that significantly affect job dimensions-outcomes relationships, participative decision making, which affects the relationship, was limited in its effects, and significantly improved only general satisfaction of some outcome (Griffeth, 1985). This indicated that participation did not strongly moderate the effect of job design as predicted.

Besides moderator variables proposed as in the job characteristics theory, many scholars tried to find other factors that might be influencing job design. Fox and Feldman (1988) found that activity-related-attention representing the arousal level intervened the job characteristics-outcomes link. On the other hand, Lee et al. (1983) found self actualization need strength was a moderator of the job characteristics outcome relationship. Many other variables can be moderators of the relationships if their relationships with proved moderator variables are high. Fear of failure, for example, could be a moderator variable since its correlation with growth need strength is high and significant (Britt and Teevan, 1989). Because individuals with internal locus of control are more responsive when working in a complex task (Perrewe and Mizerski, 1987), the effect of locus of control seems to be similar to growth need strength. Hypothetically, locus of control also could be a moderator variable.

Validation of the Job Diagnostic Survey

As mentioned, Hackman and Oldman (1976, 1980) developed an instrument to measure job characteristics. The instrument, the Job Diagnostic Survey, was designed to measure seven job descriptive constructs: skill variety, task identity, task significance, autonomy, feedback from the work itself, feedback from agents, and opportunity to deal with others. The JDS also includes measures of satisfaction, motivation, and need strength. Unfortunately, most studies about the JDS was more focused on the job characteristic measurements than the other variables.

The JDS assesses perceptions of job characteristics that are determined by objective job properties. In other words, the measurement places emphasis on perceived rather than objective job characteristics. The JDS items invite personal evaluation from employees to interpret the meaning of the items. Nevertheless, JDS scores are sometimes interpreted as the descriptions of objective job properties. Consequently, confusing objective differences among jobs with subjective differences among respondent is a frequent error of interpretation (Robert and Glick, 1981; Taber and Taylor, 1990). To overcome this problem Hackman and Oldham (1976, 1980) suggested to use a rater as source of job descriptions. Some reports show correlations between self-report and rater score are satisfied and significant (e.g., Taber, Beehr and Walsh, 1985). On the other hand, Campion and Thayer (1985) have tried to develop objective job characteristics measurement. Even though their results have weakness and there is not enough support of this effort, their ideas have been promising. If more objective job measures can be done the link between job dimensions and outcome will become clearer.

Later studies (Dean and Brass, 1985; Spangler, 1989; Taber and Taylor, 1990) have suggested to consider the other alternative of the objective-perceived job characteristics relationship. The job characteristics theory ignores the importance of cues from other job holders that may influence perceived task characteristics. The social cues, which have significantly affected perceived job characteristics, could be important for redesigning work.

Not only objective or manipulative job enrichment but also social cues should be necessarily involved in job design.

Internal consistency reliability of the JDS has been assessed by some researchers. Aldag et al. (1981) concluded that average internal consistency of JDS across studies was acceptable (.68). The range of internal consistency in Taber and Taylor's (1990) review is from .65 to .70. On the study of seven public sector employees Lee and Klein (1982) found the range of internal consistency was from .70 to .77. These internal consistencies are only supported by moderate test-retest reliability. From five studies reported JDS test-retest correlations, Taber and Taylor (1990) calculated the weighted average reliabilities. The findings included Variety score variance was .69, Autonomy was .63, Task identity was .48, Significance was .47 and Feedback was .59.

As mentioned, factor structure of job characteristics was not clear. This problem may be caused by the designed scales and various samples differing job level and functions (Fried and Ferris, 1987; Harvey et al. 1985; and O'Brien, 1982). In addition, Harvey et al. (1985) and Idaszak and Drasgow (1987) have shown the effects of negative wording on responses to the JDS. Negative wording items have created a sixth factor besides five a priori factors. To overcome those concerns, later studies (Kulik et al., 1988; and Idaszak et al., 1988) added the number of samples and apply the modified job diagnostic. The result shows additional samples and positive worded items on each job characteristic scale produce a better fit to the five-factor structure as proposed by the theory.

Other critics on the JDS and the theory in general concern with the format of the instrument. Since job dimensions, psychological states, growth need strength and outcomes are assessed by single instrument for job holders, single-source response bias can happen. The high relationship between job characteristics and outcomes exist because of, partially, method effects (Glick, Jenkins and Gupta, 1986) or priming and consistency effect. Answers on job dimension items will influence answers on psychological state and outcome items. There is a tendency that the individual who judges high in MPS will feel satisfied or high on outcome items. Priming and consistency effect inflated interscale correlations were found by Spangler (1989), however, there was no evidence that single-source response bias, which arises when characteristics of respondent induce nonrandom error in single responds, affected tests of the job characteristics model using the JDS.

Applications of the Model

The job characteristics theory was developed to redesign the job. When employee's productivity and personal out-comes are low or tend to decline, the model can be used to modify the work content. Because the theory emphasizes that importance of perceived task characteristics and the objective change of job dimensions will lead to change of perceived job characteristics, redesigning the job can be carried out in two ways. Firstly, task characteristics can be changed objectively. The problem with using this method is to measure how large the job characteristics should actually be changed, however, the change of perceived job characteristics can be measured by the JDS. Secondly, job enrichment is manipulated or "enriched", so, employees think that actual job has been enriched.

Taber and Taylor (1990) reviewed several studies to confirm the relation between objective and perceived job dimensions changes. From laboratory and field experiments reviewed by Taber and Taylor, the results have shown that objective and "enriched" task properties cause significant changes in JDS scores. If the model is true, those changes of perceived job characteristics should be followed by out-come changes. Unfortunately, Taber and Taylor did not report the change of outcomes. In contrast, Terbog and Davis (1982) reported that increasing MPS changed personal outcomes, i.e. internal motivation and satisfaction, in experimental group while there were no changes of MPS or personal outcomes in control group. This result should be interpreted carefully because the effect of MPS on outcome changes cannot be directly attributable to the job characteristic manipulation (O'Brien, 1982). The effect of measurement, as mentioned earlier, did not test in Terbog and Davis's study. In other words the effectiveness of job redesign is questionable.

Particular applications of the theory have been used in many different occupations. The JDS, which has norm for each dimension, can be applied to identify which aspect of a job should be modified. The data from a measurement using the JDS was used by Brannon et al. (1988) in feasibility study for redesigning nursing home job. Perceived task characteristic scores that are different among computer user groups could detect job motivation in Yaverbaum and Culpan (1990) study's.

Because the original theory does not include structural variables, predicted influence individual productivity and satisfaction, it invites criticisms. In addition, some findings, as mentioned, show that personality variables such as need strength and individual characteristics can be changed by job experiences. These facts lead to change of the proposition in which job characteristics and individual characteristics can influence one another. Furthermore, in their later article, Kulik, Oldham and Hackman (1987) consider person-environment fit in the proposition for designing a job. It seems that the latter proposition is more flexible for explaining the work and personality relationship. This proposition may be more comprehensive for the future study in the work design area.

Final Notes

Most parts of the job characteristics theory as well as the methods related to it have been evaluated. The initial findings show the strengths and weakness of the theory. Unfortunately, the evidences seem to be circumstantial rather than conclusive. So, this section is only to summarize the initial discussion assessing the theory. Firstly, the dimensionality of job characteristics is supported if the instrument could be modified and a big number of samples is used. Secondly, original MPS index is questionable. Thirdly, the relationship between job characteristics and outcomes is supported for psychological outcomes but not for objective outcomes such as productivity and absenteeism. Fourthly, the intervening effect of the psychological states is supported. The writer finds that psychological states are rarely involved in a study about job characteristics-outcomes relationship, however, the theory states that to get good outcomes these states should be experienced by employees. Finally, moderator effects particularly growth need strength, even though the job characteristics theory is not perfect, it has been stimulating many research and enriching the concepts of psychology of work and management.

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