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SELF-ESTEEM, LOCUS OF CONTROL AND THE JOB EXPERIENCE: A CAUSAL ANALYSIS

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ABSTRACT

SELF-ESTEEM, LOCUS OF CONTROL
AND THE JOB EXPERIENCE:
A CAUSAL ANALYSIS

By

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Previous research and practice concerning the relationship between job experience and personality are reviewed. The variety of theoretical frameworks and study designs used to empirically study this relationship have not resolved the issue of causality. The present study was designed to explore this issue further. Specifically, causal relationships between two widely accepted, well-researched personality constructs (locus of control and self-esteem) and job characteristics, as measured by the Job Diagnostic Survey (Hackman & Oldham, 1975) were examined. A cross-lag correlation design, corrected cross-lag coefficient analysis, dynamic correlations, and frequency-of-change-in-product-moment techniques were used to analyze data. Inconsistent and nonsignificant results were noted and possible explanations are discussed.

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REVIEW OF THE LITERATURE

The relationship between personality and job experience is one which has been of concern to researchers who study individuals at work for many years. In this review, I will begin with a discussion of how early pioneers dealt with the causality issue in the work experience-personality relationship and how it has affected the field of Industrial Psychology. Next, the theories and research of those that have questioned the traditional view of the causal process between work and personality will be reviewed. Finally, I will discuss the personality traits which are of concern to this study to determine what sort of relationship they might have to an individual's job experience.

In 1887, Karl Marx noted the negative effects of the bureaucratic social environment on the "characteristics" of the individual. This thesis was elaborated by Durkheim (1902), who maintained that the characteristics of individuals could be examined as a function of the labor class to which they belonged. These early sociological theorists felt that occupational experience had an impact upon a worker's psychological functioning.

Early pioneers in the field of industrial psychology, however, seemed to follow another direction. One of the

principles of scientific management, as developed by Frederick Taylor (1911), stated, "employees selected for the work should be as perfectly matched to the physical and mental demands of the job as possible." The logic of this principle underlies much of the work in personnel testing, then and still today. Individuals are viewed as static with a stable set of characteristics which can be matched against those of successful job incumbents and/or specified job requirements to predict future performance on the job. The assumption is that certain personal qualities are best suited for particular occupations and that the process of choosing and succeeding in an occupation often involves matching one's personal qualities with those required in a given line of work. Any correspondence between an individual's occupation and personality are viewed as a result of selection and/or modification of the job to meet incumbents' needs and values (Kohn & Schooler, 1973).

This same "selection" thesis underlies much of the logic of the vocational preference literature. For example, Rosenberg (1957) presented correlational evidence that self-confidence and "manner of relating to people" were related to occupational choice. He claimed his results suggest that personality will influence the type of career an individual accepts. More recently, the theory of vocational choice proposed by Holland (1973, 1976) assumes most people can be categorized as resembling one of six personality types and that people tend to prefer and search for environments that

are consistent with their dominant personal characteristics. Many studies have reported positive relationships between individual differences and preferences for type of work (e.g., Robey, 1974). Morse and Young (1973) showed personality related to task preferences. These works, however, were cross-sectional in design and the direction of causality was all too often assumed, rather than empirically tested.

The selection hypothesis of the work experience/personality relationship can be placed in a "self-consistency" theoretical framework as suggested by Korman (1970). He offers the following hypothesis as to the nature of work behavior, "All other things being equal, individuals will engage in and find satisfying those behavioral roles which will maximize their sense of cognitive balance or consistency." This implies, he notes, that individuals will tend to choose and find most satisfying those job and task roles which are consistent with their self-cognitions. Korman emphasized the role of self-esteem in determining work outcomes. His theory and research adds credence to the hypothesis that individual personality will effect both occupational choice and reactions to the job experience.

Much of the research dealing with task design in the past decades has emphasized the moderating influence of individual differences on the relationship between job characteristics and behavioral and affective worker response. For example, Hackman and Oldham (1975), Wanous (1974), and Brief and Aldag (1975) have consistently demonstrated that

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job satisfaction is related to task characteristics more positively for employees with high-growth need strength than for workers with low-growth needs. Although some of this research treating growth needs as a moderator has led to inconclusive results (e.g., Stone, 1976), no one has denied the importance of individual characteristics in the study of task design and the importance of "fit" between an individual's personality and the characteristics of his or her job.

Research and practice in the fields of personnel selection, vocational preference and task design have implicitly treated individual characteristics as "causal" variables which influence differences in affective and behavioral response to work. What these bodies of research do not indicate, however, is whether individual personality differences, themselves, result in part from qualitative differences in the kinds of work people experience as they move along their career paths.

A variety of theoreticians in the social sciences have held the position that given a certain social milieu, persons playing various culturally defined roles will take on certain personality attributes (Mead, 1944; Reisman, 1950; Fromm, 1941). E. C. Hughes (1958) claimed, "A man's work is one of the more important parts of his social identity, of his self; indeed, of his fate in the one life he has to live." An understanding of occupational life, then, is incomplete unless one understands the social-psychological outcomes of occupational role performance (Nosow & Form, 1962).

The "job experience affecting personality" hypothesis, suggested in the theoretical work above, is one which has been neglected in much of Industrial Psychology literature. If valid, however, it would not only provide a better understanding of occupational life, but it would be of practical use to career counselors. Individuals who have developed a career plan at the initial stage of their careers might modify such a plan if individual perceptions, values and thinking processes are affected by the job relationship. Brousseau (1978) noted "a job designed to mesh well with an individual's current personality may differ from the kind of job for which he would be best suited in the future." Kohn and Schooler (1978) noted that this line of research would provide a critical test of a theoretical question central to the entire field of social structure and personality--whether social structure affects personality only through its influence on childhood socialization processes or also through a continuing influence during the entire life span.

This "personality consistency" issue was examined in the comprehensive longitudinal study conducted by Block (1971). One hundred and seventy-one men and women were studied and followed quite closely from early childhood to adulthood. Though not the main focus of the study, Block concluded, "The unity or consistency of personality is compellingly apparent in these data and is manifest in so many and so diverse ways as, perhaps, to establish the unity principle empirically once and for all."

This question of how personality is developed and influenced during individual's lives has been, and continues to be, a major concern of psychology. Research and theory in this area has been guided by four major psychological models: trait psychology, psychodynamics, situationism, and interactionism. An excellent overview of these approaches can be found in Engler and Magnusson's (1976) review of personality theory and research.

One of the most dominant forces in psychology research has been the trait perspective. Although various trait theorists disagree to the specific structure and content of traits, they agree that traits are the prime determinants of behavior and serve as a predispositional basis for apparent response-response (correlational) consistencies of behavior in different situations. As trait theory does, psychodynamic theories assume a basic personality core which serves as a predispositional basis for behavior in various situations. This approach is concerned with the dynamics of the elements of the personality structure. The work of Freud and other neo-Freudian's (e.g., Jung, Erickson) characterizes the psychodynamic model.

Focusing on environmental factors, as opposed to person factors, situationism regards the stimuli in the situation as the basic determinants of individual behavior. Although some working in this vein infer internal motives, the classical situationist, Skinner (1953), denies the legitimacy of these motives and is concerned only with the empirical

analysis of the stimulus and the reinforcement contingencies that shape behavior. The interactional model goes beyond the situational approach, stressing the importance of person-situation interactions in personality. This approach assumes that the individual's behavior is influenced by the situation, but the person also selects the situations in which he or she performs.

The majority of research in Industrial and Organizational Psychology stems from the trait perspective. This is not a surprising observation, since the field "grew out of psychology's early success in describing and measuring differences between people (Dunnette, 1976)." The areas of Industrial Psychology referred to earlier could definitely be classified as trait-oriented. Research dealing with personality and the work situation, however, seems to stem from either the trait or situationist frameworks.

Many authors have suggested ways in which job experience (the situation) may affect personality. Although none were specified exactly as such, many of these theories seem to stem from a situationist perspective. One of the main themes of Argyris' Personality and Organizational Theory (1957, 1964, 1973) is the study of individual differences. He suggests many ways of creating work worlds in which these individual differences could flourish. He feels that individuals have predispositions (or needs) which are highly influenced by the situation, yet also highly potent to the individual. The individual seeks to fulfill these predispositions, yet

their exact nature, potency, and degree to which they have to be fulfilled are influenced by the organizational context, for instance, the job content or context (Argyris, 1973). He suggests that the more the organization approximates the properties of a formal organization (for example, work which prohibits independent behavior), the more individuals will be required to seek expression of needs which approximate "infant" (as opposed to "adult") personality characteristics. By blocking the expression of certain adult needs (for example, the need for competence), employees are forced to adapt to this kind of environment by adjusting internal personal forces so that these needs are no longer felt or no longer create tension.

Indeed, research evidence exists which shows that experience on a task or job may affect the need and goal states of employees. For example, Breer and Locke (1965), in a laboratory study varied the degree to which collective and interdependent task behavior was required of research subjects. An effect of working on tasks requiring interdependent behavior was a fairly substantial change in the subjects' measured attitude regarding the value of collective endeavors in a wide variety of situations.

Several empirical researchers have presented evidence from the work sphere that supports the "job experience causes personality" hypothesis. For example, Kornhauser (1965) presented findings which indicated that task experience could in fact alter the personal orientations of the

participants on an enduring basis. Based on interviews with 655 blue-collar, auto industry workers, his most outstanding finding was that mental health varied consistently with the level of jobs the men held. When he compared factory workers by occupational categories, the higher the occupation (with respect to skill and associated attributes of variety, responsibility, and pay), the better the average mental health. Those in lower skilled jobs reported low self-esteem, high anxiety, and an absence of an active or goal-orientation. To determine if these occupational differences in mental health were effects of job conditions or were due to differential selection of the kinds of persons who enter and remain in the several types of work, Kornhauser controlled for education and a variety of other pre-job characteristics (for example, father's socioeconomic status, school success). He found that observed differences in mental health could not be accounted for by these factors and concluded that his analyses underscored the existence of significant occupational effects apart from other determinants.

Kornhauser felt that work performed essential psychological functions, stating, "It operates as a great stabilizing, integrating, ego-satisfying central influence in the patterns of each person's life." Consequently, if the job fails to fulfill the needs of the personality (or, at least, movement toward satisfaction of these needs), symptoms of impaired mental health are likely to appear. He

felt it unlikely that individuals could find adequate substitutes to the job to provide a sense of significance and achievement, purpose and justification for their lives.

Kohn and Schooler's research (1969, 1973) reported similar findings based on a sample of 3,101 men employed in the United States. They found that occupational conditions conducive to the exercise of self-direction in one's work--namely, freedom from close supervision, substantively complex work, and a non-routinized flow of work are empirically tied to valuing self-direction and to having an orientation to oneself and to the outside world consonant with this value. Using a two-stage least squares technique, they found that "substantive complexity of the job" significantly affected occupational commitment, job satisfaction, parental valuation of self-direction, anxiety, self-esteem, stance toward change and intellectual flexibility, much more than these facets of psychological functioning affected substantive complexity. They concluded, "In all cases, job affects man more than man affects job."

Kohn and Schooler's (1969) work, seemed to be cast in a situational framework. They suggested that job experience influences personality by shaping perception of reality. Individuals' jobs affects their perceptions, values and thinking processes because it shapes the everyday realities and demands they must cope with. The researchers thought a generalization model best explained their findings, claiming

that workers' ways of coping with the realities of their jobs is generalized to non-occupational realities.

The conclusions reached in both the Kornhauser and the Kohn and Schooler studies, however, seem unwarranted, given the cross-sectional data employed. Although both attempted to "work around" this problem, causal interpretations are not as credible as those reached from a longitudinal investigation, as Kohn and Schooler (1978) conducted later.

Using a follow-up sample of 687 male subjects from their original study, the researchers employed a maximum-likelihood confirmatory factor analysis by which they were able to separate measurement error from real change in the parameters of interest. A reciprocal causal model was developed for these measures of the two variables of interest in their study, "substantive complexity" of the job and the "intellectual flexibility" of the respondents. By substantive complexity, the researchers meant the degree to which the work in its very substance requires thought and independent judgment. Their index of intellectual flexibility was measured by an individual's intellectual performance in an interview situation.

Despite the fact that these variables showed high stability over a ten-year time span, a structural equation causal analysis demonstrated that the effect of the substantive complexity of an individual's job on intellectual flexibility was strong--almost one-fourth as great as the men's earlier levels of intellectual flexibility on their

later intellectual flexibility. This effect, however, was contemporaneous. The lagged effect of intellectual flexibility on substantive complexity was found to be even more pronounced.

Given the high stability of intellectual flexibility scores over the ten year period, Kohn and Schooler interpreted these findings as impressive evidence of the immediate effects of substantive complexity. The causal effects of intellectual flexibility on substantive complexity of the job, however, proved even more pronounced and occurred more gradually over time than the opposite effect. They concluded, "Current intellectual flexibility has scant effect on current job demands, but it will have a sizeable effect on the further course of one's career."

The authors claimed their findings came down solidly in support of those who see occupational conditions as affecting personality. They didn't deny the fact that individual personality is a major determinant in job selection, but this, they claimed, was not seriously at issue. They suggested their results offer clear evidence that one dimension of social structure, substantive complexity of work, affects personality not only during childhood socialization, but also throughout adulthood.

These conclusions, however, might be a bit overstated. The researchers found that the influence the job had on their personality variable was only <u>contemporaneous</u> and given the constructs they dealt with the results seem to be

quite logical. Surely, a complex job (as opposed to one which is simple) would seem to have immediate effect on an individual's flexibility in attempting to cope with the intellectual and verbal demands of an interview situation. More convincing evidence of a "job effects personality" hypothesis would have been indicated by a strong lagged effect of substantive complexity on intellectual flexibility.

Such an effect was noted in the work of Brousseau (1978), who also conducted a longitudinal study. His research was grounded in a situational theoretical framework, much like that of Kohn and Schooler's (1973), based on the proposition that "individuals' life orientation and levels of emotional well-being are influenced by the stimulus complexity of their job experiences." The job is viewed as a source of stimuli which has the potential to affect the development of individuals' capacities for abstract or complex cognitive processes and, thereby, their perceptual and emotional orientations and goals. Citing the work of Schroder, Driver and Streufert (1967), the author claimed a high degree of cognitive complexity should allow the development of a "proactive orientation" (striving to attain more things) toward life. This, in turn, would contribute positively to an individual's self-confidence, self-esteem, and general emotional well-being.

Brousseau suggests that jobs which entail performing complex or risk types of work should, over time, enhance the development of one's cognitive capacities, and contribute

to a high level of emotional well-being. This relationship, however, may be moderated by certain factors. An example the author offers is the "extent a worker is cognitively complex prior to taking a job." Brousseau feels that cognitive complex individuals, because of a propensity to shape their circumstances and perceive numerous alternative courses of action, would involve themselves in "richer" experiences in the non-work sector of their lives.

Brousseau collected longitudinal data from a sample of 116 scientists and managers working at a large petroleum products company, with a five year lag, in an attempt to demonstrate support for these theoretical relationships. Five characteristics of employees' jobs were gathered as a measure of job complexity, using the Job Diagnostic Survey (Hackman & Oldham, 1975). Both individual worker response and mean response for particular manpower categories were analyzed. Four personality scales derived from a short version of the Guilford-Zimmerman Temperament Survey were collected to measure, (1) active orientation to life, (2) philosophical orientation, (3) freedom from depression, and (4) self-confidence.

Results from partial correlation analyses provided moderate support for his hypotheses. The use of longitudinal data and partial correlations analyses ruled out "selection effects" as an explanation of the relationship between job characteristics and personality. Individual JDS score data and mean manpower category JDS responses

indicated that changes in two personality subscales--"active orientation" and "freedom from depression" were positively associated with the "Task Significance" and "Feedback from Job" JDS subscales.

Brousseau hypothesized that job tenure acts as a moderator of the job experience-personality relationship, and thus associations between job characteristics and personality change would increase in magnitude as function of time. His findings, however, provided only weak (at best) evidence of such an effect. Partial correlation coefficients between Job Diagnostic Survey scores and post-test scores on "Active Orientation" and "Freedom from Depression" scales were more highly positive for the high tenure group than for the low tenure group.

Although Brousseau used a better design than the previous research in this area, some aspects of his study should be carefully scrutinized. The use of such a limited, high status sample rather limits the generalizability of his results and the variability of JDS responses. The use of four factor analyzed dimensions of the Guilford-Zimmerman Survey with no mention of construct validity should be questioned, especially since the author seemed to have difficulty defining his factors.

Another difficulty with the Brousseau study was the application of partial correlation analyses to his data. To be able to totally control for a variable, perfect reliability must be assumed. Given that his personality constructs

at time one were measured with measurement error (clearly not an unreasonable assumption) his partial correlation coefficients are subject to bias. Another, more pressing problem, with partial correlation analysis is the inability of the procedure to test for spuriousness, by which is meant that the relationship between two variables is not due to the causal effects of either but to the effects of a third variable. The possibility of both personality and job experience reflecting causal variables outside of the work sphere is a tenable hypothesis. For example, socio-economic status has been reported to be related to both personality and occupational choice (Kohn & Schooler, 1969; Kohn, 1969). It is quite possible that socio-economic status or some combination of other variables are the causal elements which influence both personality and perceptions of job experience.

Despite the problems associated with the "job affecting personality" research, these studies do suggest that the type of work an individual experiences has the potential of influencing certain aspects of personality. Studies reviewed to this point have investigated the influence work has on an overall index of mental health, intellectual functioning as evidenced by a measure of intellectual flexibility, and four factor analyzed dimensions of the Guilford-Zimmerman Temperament Survey. Surprisingly absent from this list, however, are more widely accepted, more thoroughly understood aspects of personality.

The author feels that processes by which the job experience might effect or reflect personality will be more fully understood in a study that investigates certain aspects of personality, rather than employing the global measures of emotional well-being that have been used in the past. Of the many personality theories which abound in psychology today, a large number make use of the concept of traits. In many theories, the organization of those traits constitute the personality. Rather than searching for causal processes between job experience and abstract definitions of personality, it is important to first explore some of these trait dimensions of personality.

A wide variety of personality dimensions have been employed to enrich theories of behavior in organizations. Two dimensions, locus of control and self-esteem, have been theorized and empirically shown to be particularly relevant to the work situation. For this reason I have chosen to examine these personality constructs in relation to job experience. Following is a discussion of these constructs, reviews of how these variables have been related to individual behavior in the work setting and discussions of how these variables might be causally related to the work experience.

Locus of Control and Job Experience

The internal-external locus of control construct, as derived from Rotter's (1954) social learning theory, refers

to the extent to which an individual perceives that success or failure is dependent upon his own initiative as opposed to being the result of fate, luck, chance or powers beyond one's personal control. High "internals" perceives a reinforcing event as dependent upon their own behavior. On the opposite end of the continuum, high "externals" perceive what happens to them as being determined by forces over which they have no control. Literally hundreds of studies investigating this personality variable are in the psychological literature (see reviews by Phares, 1976; Rotter, 1966; Strickland, 1975).

The literature does provide strong evidence that internals do exhibit more initiative and competence in attempts to control their environment (e.g., Joe, 1971; Lefcourt, 1972; Phares, Ritchie & Davis, 1968; Rotter, 1966; Seeman & Evans, 1962). This initiative is evident in Valecha's (1972) finding that internals tend to be better informed about their occupations. In a study reported that same year, Pines and Julian found internals in problem-solving situations to be particularly oriented toward gathering and processing information while externals seemed more concerned with social requirements and doing what was expected of them. Organ and Green's (1974) results suggest that internals are indeed successful at controlling their environments. Internals experienced significantly less ambiguity about their work roles than did externals.

Hamner and Organ (1977) note that this phenomenon is logical. If individuals believe that their rewards are contingent on their behavior, they will place higher values on and actively search for strategic kinds of information and knowledge. This would seem to indicate that internals would be most attracted to job experiences in which they were able to receive information that would indicate how well they were performing. Such jobs, for example, could be characterized by much performance feedback and, perhaps, by completion of a "whole" and identifiable piece of work (because a "whole" piece of work provides much more information as to how well an employee performed, as opposed to simply completing a part of that job). In addition, one could hypothesize that internals, in an effort to control their environment, would seek out highly autonomous jobs, in which they could determine work schedules and procedures. One could also hypothesize, based on Pine and Julian's (1972) findings that externals will seek out positions in which requirements are clearly elaborated. For example, work experiences found to be high in autonomy, and low in feedback might prove threatening to the high external and would be avoided by them.

On the other hand, one should not conclude that a large correlation between locus of control and job characteristics means support for the selection hypothesis. As opposed to "selecting into" jobs, it is also quite possible that experience in a job with certain characteristics could alter

locus of control. For example, Rotter (1975) attributed an increase in external scores in college populations during the late sixties to increased feelings of alienation due to societal events. This same process could be happening in the work environment, those employed in highly authoritative working conditions which provide little or no feedback as to performance could experience an increase in externality. In a more positive light, those employed in highly enriched jobs, which provide feedback and autonomy, could become internals, because they have a means to receive information necessary to control their environment.

Keeping within the boundaries of Brousseau's theoretical framework, one could argue that a highly complex job could affect locus of control orientation because the high source of stimuli would enhance one's cognitive capabilities. Citing Schroder, Drive and Streufert (1967), Brousseau argued "a high degree of cognitive complexity provides the individual with the capacity to generate more elaborate plans and goals and a wider array of options for dealing with circumstances." Those with highly developed cognitive abilities are able to perceive a greater variety of courses for coping with situations (Lefcourt, 1975). Wolk and Ducette (1974) have presented evidence which suggest that internals show marked superiority over externals in amount of both intentional and incidental learning. They regard this incidental learning ability as a cause, rather than effect of internality despite the fact their research was of a correlational nature.

Within this framework, one could reason that the increased cognitive complexity of the employee in the enriched job experience would result in a higher internal locus.

A study which did concern this causality issue was conducted by Andrisani and Nestel (1976). They found that locus of control systematically influenced success in the world of work, independent of individual differences in skills, abilities, and demographic distribution. Also, they found evidence that advancement in occupational status, advancement in annual earnings and reentry into the labor force is systematically related to increasing internal control over a two-year span. Despite the fact the researchers dealt only with measures of success in the job experience, their findings suggest that locus of control is responsive to employment experience. The authors' note the consistency of this finding with their hypothesis that "unfavorable work experiences are thought to increase tendencies toward external control."

Self-Esteem and Job Experience

The construct of self-esteem has been the subject of much attention in psychological literature. In fact, reviews of the literature (i.e., Wylie, 1974), suggest that this trait has been related to almost every variable imaginable. Care should be taken in comparing much of this research, however, as Gergen (1971) warns that the term has been used in a variety of ways by different authors.

Much of the work done with this construct in Industrial/ Organizational literature has employed Korman's theory of work behavior which postulates three sources of self-esteem. Chronic self-esteem is seen as "a relatively persistent personality trait that occurs relatively consistently across various situations" (Korman, 1970, p. 32). Task-specific self-esteem is described as a function of experience with identical or similar tasks. Socially influenced self-esteem is a function of others' expectations of one's behavior. Although this trichotomized conceptualization of self-esteem has proved invaluable in motivation and satisfaction research, the present study is concerned only with chronic self-esteem.

The approach to this construct that I take is influenced by Coopersmith's (1967) and Rosenberg's (1965) work. Like these authors, I refer to self-esteem as the individuals judgment of their self-worth. I will treat it as a global dimension that is resistent to change in the short run.

Brousseau's (1978) theoretical framework for his "job effects personality" hypothesis predicted higher levels of self-confidence and self-esteem for those who have experienced high stimulus jobs. As noted earlier, the more highly cognitive capabilities which they felt would result from such experience would have a positive influence on ability to perceive a greater variety of courses of action for coping with difficult situations, which Lefcourt (1973) found to lessen anxiety and emotional distress. Brousseau believes this lessening in anxiety and emotional distress

would contribute positively to an individual's self-esteem. This reasoning seems to stem from the fact that so many researchers have found self-acceptance to be negatively associated with anxiety measures (e.g., Cowen, Heilizer, Axelrod, & Alexander, 1957; Hanlon, Hofstaetter & O'Conner, 1958).

Support for this hypothesis can be found in the work of Bachman and O'Malley (1977). Employing path analysis to longitudinal data, these researchers found that occupational attainment had a modest, but direct positive impact on self-esteem. On the other hand, they concluded that high school self-esteem had little or no direct causal impact on later educational or occupational attainment. Given the fact that occupational status has been shown to be related to more complex jobs (Fitzgerald & Schmitt, Note 1), Bachman and O'Malley's data would seem to support the hypothesis that job experience affects personality.

Another perspective on how job experience might relate to self-esteem stems from Korman's (1966, 1967, 1969) research, which supports the hypothesis that self-esteem is a determinant of occupational choice. In these studies, support was found for the prediction that chronic (as opposed to task-specific and socially influenced) self-esteem is positively related to seeking out and choosing occupations which are seen as satisfying one's self-perceived needs.

Reasoning for this phenomenon is grounded in self-consistency theory. High self-esteem individuals, who have

had needs satisfied in the past will seek out situations in which these needs can be satisfied in the future. On the other hand, low self-esteem workers who have not been able to satisfy needs in the past are more likely to become more familiar with non-need satisfying situations (Korman, 1969). Hence, it is predicted that self-esteem will influence perceptions of job experience.

Focus of Study

The present study is designed to explore causal relationships between the two personality traits, locus of control and self-esteem, and perceived job characteristics. Previous research and practice concerning this relationship have provided support for a "personality effects job" hypothesis, a "job effects personality" hypothesis and another hypothesis which proposed that the two affect one another. In lieu of formulating specific hypotheses in accord with one of the above, this researcher has conducted an exploratory study which has tested for the possibility of any causal relationships (including reciprocal) between the variables of interest.

Given this open framework, the present study is difficult to classify in one of the theoretical personality models discussed earlier. In fact, the major assumptions of all three models were investigated: (1) do traits determine the situation (job experience), (2) does the situation determine the traits, or (3) is there evidence that not only

do events affect the behavior of individuals, but the individual is also an active agent in influencing environmental events (reciprocal causation)?

In addition, the proposed research was designed to avoid the interpretational difficulties of the cross-sectional nature of the early studies and the inadequate analyses of later longitudinal studies concerning causality between personality and job experience. Accordingly, a longitudinal design was used and the resulting panel data analyzed. To eliminate the problems which Brousseau's partial correlation analytic procedure imposed on his conclusions, a causal analytic technique "better adapted for panel data analysis" (Kenny, 1975), which assumes measurement error, was utilized.

This technique can also evaluate evidence of reciprocal causation, as suggested by Kohn and Schooler's (1978) research. As a further test to determine which variable has the greatest influence and whether any causal relationships are negative or positive, the frequency-of-change-in-product-moment (FCP) were used. To determine the possibility that additional variables are causing the variables of interest to covary, a possibility which remained untested in both the Brousseau and Kohn and Schooler analyses, the present study also employed Vroom's dynamic correlation analysis.

Job Tenure as a Moderator

Brousseau (1978) hypothesized that the causal relationship between change in personality and job characteristics will become more pronounced as job tenure increases. Support for this hypothesis in his research, however, was very weak. In their study of career stages, Hall and Nougaim (1972), found the new organizational member to be more concerned with "defining an identity" than longer-tenured workers. This finding would seem to indicate that the greatest amount of interplay between personality and work would occur during the early stages of job experience. Indeed, Katz's (1968) findings suggest that the strongest attitudinal responses to job characteristics occur between the first and third years of job tenure. The possibility of stronger causal relationships between the job and personality during the early stages of an individual's career was investigated in this research effort. An appropriate sample was split into low tenure and high tenure subgroups and differences in the direction and strength of causal relationships between the subsamples was evaluated.

In summary, the present research is concerned with the direction of causality between two personality constructs, locus of control and self-esteem, and job experience. Exploratory in nature, this study was not confined to any one of the many theoretical frameworks that surrounds the job experience-personality relationship. Results which indicate that self-esteem and locus of control "cause" job

characteristics would lend support to much of the work done in personnel selection and other areas of industrial psychology concerned with personality and work. On the other hand, findings which point to the reverse hypothesis--"job experience effects personality" would add credibility to some of the theoretical positions discussed in the literature review.

Results indicating that job experience would effect personality or, perhaps, a reciprocal causation between the variables of interest would suggest a dynamic interplay between job and personality. The fit between an individual and his or her job would then have to be reviewed as a dynamic rather than as a static relationship. This would be of considerable interest to those involved in personnel testing, job design and career counseling. The type of job people are best suited for at the beginning of the job experience, may not be the type for which they would be best suited in the future (Brousseau, 1978).

METHOD

Subjects

As suggested by Kenny (1975), longitudinal designs should include replications across different groups of subjects. Hence, two samples were employed in this study. The first consisted of 120 full-time employees, all newly hired into a variety of State Civil Service jobs and a large service industry. This sample, referred to as the "new hires" hereinafter, was chosen because of the diverse variety of jobs and the short length of job tenure of these individuals, all being with their respective organizations for one year or less at the time of the first data collection. The average age of the 71 females in this sample was just under 25, while the mean age of the remaining 49 males was just under 22. The job level of the group was generally low, averaging the equivalent of a clerical job, though some low-level professionals were included. Surprisingly, however, the mean education level of the group indicated some college education for a majority. In addition, the workers seemed to be adequately paid, with a mean hourly wage of six dollars.

The second group analyzed included 331 full-time employed individuals attending a vocationally related program

of study at Lansing Community College (LCC). This group contained an even wider variety of jobs than the first sample. The 118 females and 112 males in this sample had a mean age of 33. This group was surprisingly similar to the first in both mean level of education (one or two years of college study) and mean hourly wage (approximately six dollars an hour).

The LCC sample was divided into two subgroups on the basis of job tenure. As suggested by Katz's (1978) work, those with two years or less job tenure at the time of the first data collection were placed in the "low" job tenure group. The LCC vocational education sample was divided into 130 low tenure subjects and 200 high tenure. When dichotomized as such, the groups differed very little on a number of demographic variables, such as the size of community in which they reside, amount of schooling, sex, and race. On the other hand, expected differences in age and hourly wage were found; the high tenure group having a mean age of 34, two years higher than that of the low tenures and a mean hourly wage of seven dollars an hour, fifty cents higher than that of the low tenures.

Measures

Job Experience

One of the problems in comparing research in this area is the variety of measures of job experience used by the different researchers. This is understandable given the

different theoretical frameworks these authors have used. For example, substantive complexity of the job, as developed and utilized by Kohn and Schooler (1973, 1978) was based on ratings of the degree to which thought and independent judgment were used, judged by sociologists. On the other hand, Kornhauser's (1965) work was based simply on experience in jobs of different skill levels.

The same problem would seem to hamper current efforts to test differing causal relationships between the personality traits of interest and job experience. As noted in the sections dealing with these constructs, type and amount of feedback, level of autonomy, level of need satisfying ability and stimulus complexity are all dimensions of the job experience which hypothetically could reflect or affect personality.

The Job Diagnostic Survey (Hackman & Oldham, 1975), however would seem to provide a solution to this dilemma. A version of the short form of this instrument, which was used to assess workers' perceptions of the characteristics of their job, provides much of the information needed to test the various theories discussed earlier. Most importantly, Brousseau (1978) argues that the characteristics measured by the instrument are closely related to those he feels would contribute to the stimulus complexity of individuals' job experiences. The JDS has been used successfully as a measure of complexity (vs. simplicity) by Ivancevich (1978), also.

The short version of the JDS measures five "core" job dimensions:

> Skill Variety. The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.
>
> Task Identity. The degree to which the job requires completion of a "whole" and identifiable piece of work--i.e., doing a job from beginning to end with a visible outcome.
>
> Task Significance. The degree to which the job has a substantial impact on the lives or work of other people--whether in the immediate organization or in the external environment.
>
> Autonomy. The degree to which the job provides substantial freedom, independence, and discretion of the employee in scheduling the work and in determining the procedures to be used in carrying it out.
>
> Feedback from the Job Itself. The degree to which carrying out the work activities required by the job results in the employee obtaining

direct and clear information about the effectiveness of his or her performance.

In the analyses, each dimension of these core job characteristics was explored. In addition, an overall index of job complexity was derived from these scores. This score provides a summary measure of job experience. As suggested by Brief, Wallace, and Aldag (1975) and Dunham (1976), a simple linear combination was employed.

Locus of Control

This construct was measured by 11 items, which were responded to using four-point Likert-type scale of agreement, as developed by Herbert S. Parnes (Andrisani & Nestel, 1976). The scale constitutes an abbreviated version of Rotter's (1966) Internal-External Locus of Control Scale. Parnes selected items from the original scale on the basis of their appearance to be more general, adult-oriented and work-related (see Appendix B).

Self-Esteem

This trait was measured by the ten-item scale developed by Rosenberg (1965), to measure the self-acceptance aspect of self-esteem. Rosenberg treated self-esteem as a global concept rather than as a number of specific ones and this approach is apparent in the content of his items. None of the questions deal with task-specific situations or the reactions to the expectations of others (socially-influenced

self esteem). For this reason, this scale provides a measure of Korman's generalized ("chronic") self-esteem (see Appendix C).

Procedure

All scales of interest to the present study were a part of a larger questionnaire mailed to the subjects on two occasions, approximately one year apart. On both occasions, subjects were paid three dollars to return the surveys. Return rates were approximately 40% on both occasions for both samples.

Data Analyses

Cross-Lag Analysis

The cross-lag panel correlation analytic technique initially discussed by Simon (1954) was utilized, using corrections for changes in reliability in the variables over time and the Pearson-Filon test of differences between correlations described by Kenny (1975). This technique has been refined and utilized successfully by a number of researchers, including Greene (1979), Ivancevich (1978), Vroom (1966) and Lawler (1968). Feldman (1975) and Kenny (1975) have carefully specified the limitations of cross-lagged analysis; their suggestions were incorporated in this analysis. Most importantly, the technique does not establish causality in the way an experimental study would, but it does establish the most likely direction of causality,

particularly when competing hypothesis concerning causality are available (Feldman, 1975), as is the case in the present study.

Cross-Lag Analysis of Overall Job Diagnostic Survey Score (JDS) and Locus of Control (LOC)

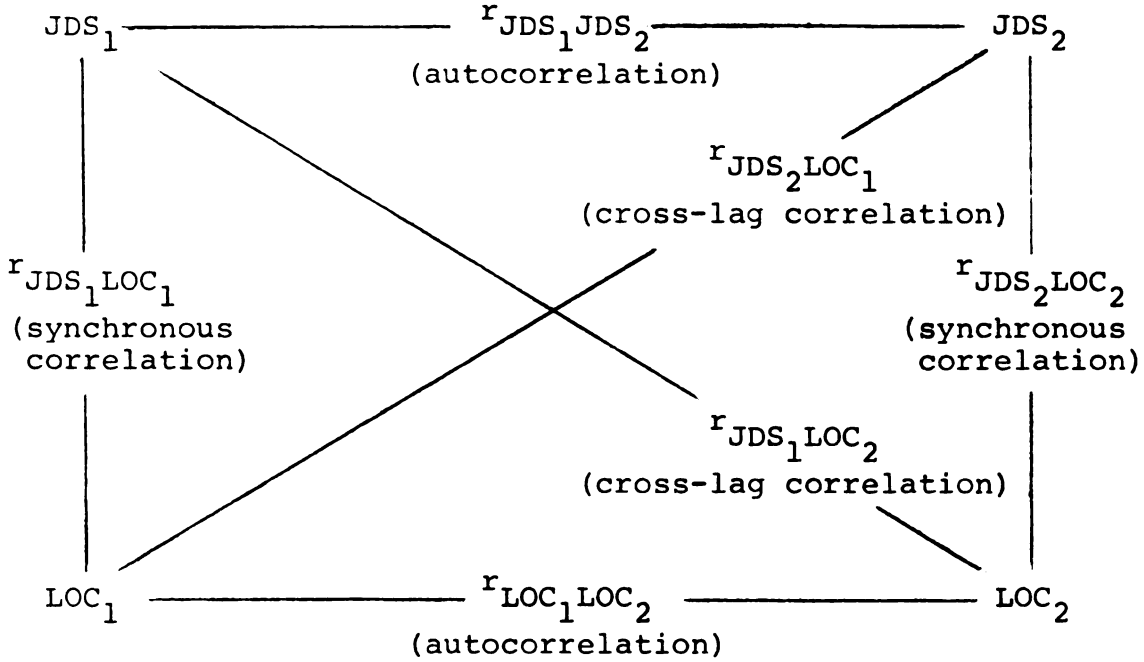

Figure 1

The cross-lagged panel technique requires measures of the variables be taken at two points and the computations of six correlations for each pair of the variables of interest (see Figure 1). For example, correlations between overall (JDS) score and locus of control (LOC) at the same point are called synchronous correlations, the correlation between JDS at time one and JDS at time two and LOC at time one and LOC at time two are autocorrelations, and correlations

between JDS and LOC across time are the cross-lagged correlations. If JDS causes LOC then the magnitude of the correlations should be such that: $r_{JDS_1LOC_2} > (r_{JDS_1LOC_1} = r_{JDS_2JDS_2}) > r_{JDS_2LOC_1}$. It is important to test for the equality of the synchronous correlations. The cross-lag model demands this equality before a valid interpretation of cross-lag differences can be made. If LOC causes the JDS score then the positions of $r_{JDS_1LOC_2}$ and $r_{JDS_2LOC_1}$ are reversed. In addition, evidence of a reciprocal relationship between the variables of interest would be found if both cross lagged coefficients were approximately equal and larger in magnitude than the synchronous correlations. For example, $r_{JDS_1LOC_2} = r_{JDS_2LOC_1} > r_{JDS_1LOC_1} = r_{JDS_2LOC_2}$.

The hypotheses tested in cross-lagged analysis are, first, the equality of synchronous correlations to test for stationarity and, second, the equality of cross lags to test for spuriousness. One cannot use Fisher's Z transformation to test for the significance of the differences between these correlations since the correlations are correlated. Instead, a transformation cited by Peters and Van Voorhis (1940) and attributed to Pearson and Filon may be used to test for differences. A statistical test of reciprocal relations in the cross lag technique, to test for the feasibility of the reciprocal hypothesis, has not yet been offered in the literature. Therefore, if this situation should arise in a cross lag analysis, a subjective judgment must be made.

Theoretically, if all the assumptions of the cross-lag analysis procedure have been met and equal cross-lags result, a null hypothesis of spuriousness might be accepted. That is, the variables of interest do not cause each other, but are co-symptoms of some set of common causes. Although this is the null hypothesis of the test of equality of cross-lagged coefficients, alternate explanations for equal cross-lags are possible. For example, causal relationships might be too small to be detected, the measured cross-lag might not correspond to the actual cross-lag and, as mentioned, there is the possibility that the variables could cause each other.

In many cases, synchronous correlations have been shown to be unequal due to attenuation by measurement error. Kenny (1975) refers to this situation as quasi-stationarity and claims that the variable with the higher autocorrelation will appear to operate as an effect and the variable with the lower autocorrelation will appear to be the causal variable. He has presented a quasi-stationarity correction procedure which is applied to the cross-lagged correlations prior to the calculation of the test of the difference of these two correlations. This correction method involves the calculation of a reliability ratio. A reliability ratio greater than one indicates an increase in reliability over time, while a value less than one suggests a decrease in reliability. The calculation of the reliability ratio

requires at least three variables; in this study--JDS scores, self-esteem, and locus of control.

Reliability ratios were calculated as follows:

$$K^2_{JDS} = \frac{r_{JDS_2SE_2}}{r_{JDS_1SE_1}} \frac{r_{JDS_2LOC_2}}{r_{JDS_1LOC_1}} \quad \frac{r_{SE_1LOC_1}}{r_{SE_2LOC_2}}$$

$$K^2_{SE} = \frac{r_{SE_2JDS_2}}{r_{SE_1JDS_1}} \frac{r_{LOC_2SE_2}}{r_{LOC_1SE_1}} \quad \frac{r_{JDS_1LOC_1}}{r_{JDS_2LOC_2}}$$

$$K^2_{LOC} = \frac{r_{LOC_2JDS_2}}{r_{LOC_1JDS_1}} \frac{r_{LOC_2SE_2}}{r_{LOC_1SE_1}} \quad \frac{r_{JDS_1SE_1}}{r_{JDS_2LOC_2}}$$

The reliability ratios were then used to correct the observed cross-lagged correlation coefficients as follows:

$$r_{JDS_1LOC_2} = (K_{JDS}/K_{LOC})^{\frac{1}{2}} \quad (r_{JDS_1LOC_2})$$

$$r_{JDS_2LOC_1} = (K_{LOC}/K_{JDS})^{\frac{1}{2}} \quad (r_{JDS_2LOC_1})$$

Dynamic Correlation Analysis

As an indication that additional variables are causing the two variables of interest, Vroom's (1966) dynamic correlation coefficient were examined. This coefficient is calculated by correlating the change in X from time one to time two with the change in Y over the same time interval. According to Vroom, the stronger this correlation is, the lower is the probability that the covariance in X and Y can be attributed to the effects of a third variable.

Researchers have suggested that dynamic correlations will be biased whenever the scores on the measurements of the variables of interest at time two regress toward the mean of the time one scores. When this form of regression toward the time one mean does occur, the time one scores on a variable will be negatively correlated with the change scores on the same variable. To correct for this problem, partial correlations were used to compute the dynamic correlations, holding the time one scores of each variable involved constant.

As an example in the present study, the dynamic correlation coefficient is the correlation between the differences between JDS scores over time and the differences between locus of control scores over time. It is assumed that the stronger the correlation, the less likelihood there is that changes in the two variables of interest are both caused by a third variable. To correct for the negative correlation in dynamic correlations which results from regression of time two scores toward the mean of time one scores, partial correlations were computed. For example, the dynamic correlation between JDS score and LOC were computed by holding initial values of these two variables constant. Given significant differences in cross-lagged correlations, a significant, large dynamic correlation would suggest the existence of a causal relationship between the variables of interest.

Frequency in Change of Product Moment Analysis

Feldman (1975) noted that another problem encountered with cross-lag analysis is the limited number of causal inferences which the analysis makes possible. For example, it is not possible to distinguish between the source and direction of influence of two correlated variables. Of concern to this study, in which reciprocal relationships are possible, cross-lags are not able to determine which variable had the greatest influence. The frequency-in-change-of-product-moment (FCP) technique was developed by Yee (1968; Yee & Gage, 1968) to overcome these problems and it was employed in this study.

The FCP technique requires that the data collected for each employee to be placed into one of four categories. For example, with JDS score and locus of control score, the data were placed into a JDS+, JDS-, LOC+, LOC- category based on the following steps:

1. The time one and time two raw scores for LOC and JDS were converted to standard scores. Thus, $Z = \frac{(X-\bar{X})}{S}$ was computed for each score.
2. The direction of influence, positive or negative, was identified for each case by determining and evaluating the four cross-product Z-scores for each subject:

   (a) $Z_{JDS_1 LOC_1}$

   (b) $Z_{JDS_2 LOC_2}$

(c) $^{Z}JDS_1LOC_2$

(d) $^{Z}JDS_2LOC_1$

If it was found that $^{Z}JDS_2LOC_2 > {}^{Z}JDS_1LOC_1$ and $^{Z}JDS_1LOC_2 > {}^{Z}JDS_2LOC_1$, then the direction of change is considered positive (+) and job characteristics are identified as the primary positive influence (JDS+). If, however, $^{Z}LOC_1JDS_2 > {}^{Z}LOC_2JDS_1$ was found, then the direction of the change would still be positive, but locus of control is considered the source of positive influence (LOC+). Similarly, if $^{Z}JDS_1LOC_1 > {}^{Z}JDS_2LOC_2$ and $^{Z}JDS_1LOC_2 > {}^{Z}LOC_1JDS_2$ was found, then the direction of influence is negative and job characteristics are identified as the primary negative influence (JDS-). Finally, if $^{Z}LOC_1JDS_2 > {}^{Z}JDS_1LOC_2$ was found, then the direction of change is negative and locus of control is identified as the negative source of influence (LOC-).

3. After each of the cases is classified as JDS+, JDS-, LOC+, or LOC- three chi-square significance tests were used to determine the source and direction of causality. If {(JDS+) + (JDS-)} > {(LOC+) + (LOC-)}, then job characteristics was identified as the primary source of influence (Test One). Secondly, if (JDS+) > (LOC+), then the direction of causal influence from JDS was to increase the

correlation between JDS and LOC (Test Two). Finally, if (JDS-) > (LOC-), then the direction of the causal influence from JDS was to decrease the correlation between JDS and LOC (Test Three).

Combination of Subsamples

The significance tests associated with the cross-lag analyses require large sample sizes for adequate power. For this reason, the low tenure (LCC) sample and the new hire sample were combined. Box's (1949) test of equality of the variance/covariance matrices was used to determine the comparability of the samples before combination. In a test involving the JDS subscales locus of control and self-esteem, the observed variances/covariances were shown to be not different $\chi^2(28) = 2.2489$, $\underline{p} > .05$. In a test which included the summed JDS score, locus of control and self-esteem, no significant difference was found $\chi^2(6) = 2.8801$, $\underline{p} > .05$. Thus, the samples were combined.

RESULTS AND DISCUSSION

Reliability and Dimensionality of Scales

Kenny (1979) has noted the fact that the "more valid, reliable, and unidimensional the measure, the more straightforward is the interpretation (of the cross-lag panel correlations)." In Table 1, coefficient alpha and test-retest correlations for all scales in each sample are displayed. Overall, measures of internal consistence appear reasonable. Of special interest, however, are those scales in which a marked change in reliability is displayed. For example, in the total LCC group, the locus of control scale's coefficient alpha changes from .536 at time one to .736 at the time of the second data collection. As mentioned in the data analysis section, these differential reliabilities of the time one and time two measures can greatly bias the comparison of cross-lagged correlations. Campbell (1963) first pointed out that variables which increase in reliability will appear to be effects and variables that decrease in reliability will appear to be causes. Given the psychological nature of the scales dealt with in this study, a "quasi-stationarity" model is proposed. This model assumes measurement error has attenuated synchronous correlations between the JDS subscales and the psychological scales. This assumption allows

TABLE 1

Reliability Coefficients[a]

	Time I[a]	Time II[a]	Autocorrelation (Test-Retest)
New Hires			
Self-esteem	.855	.877	.630
Locus of control	.746	.711	.603
Autonomy	.760	.839	.501
Skill variety	.788	.778	.616
Feedback from job	.681	.764	.377
Task identity	.764	.775	.369
Task significance	.643	.666	.596
Summed JDS	.868	.900	.618
Feedback from others	.798	.847	.484
LCC (total)			
Self-esteem	.765	.848	.502
Locus of control	.536	.736	.584
Autonomy	.744	.777	.465
Skill variety	.833	.797	.644
Feedback from job	.613	.704	.435
Task identity	.749	.707	.478
Task significance	.613	.642	.453
Summed JDS	.870	.875	.588
Feedback from others	.791	.826	.468
LCC (low tenure)			
Self-esteem	.776	.866	.571
Locus of control	.589	.548	.607
Autonomy	.766	.827	.447
Skill variety	.852	.819	.651
Feedback from job	.648	.778	.446

TABLE 1 (cont'd.)

	Time I[a]	Time II[a]	Autocorrelation (Test-Retest)
LCC (low tenure) (cont'd.)			
Task identity	.747	.713	.553
Task significance	.641	.636	.379
Summed JDS	.887	.889	.586
Feedback from others	.829	.854	.411
LCC (high tenure)			
Self-esteem	.760	.834	.454
Locus of control	.523	.746	.572
Autonomy	.728	.734	.481
Skill variety	.817	.783	.651
Feedback from job	.588	.657	.424
Task identity	.749	.703	.419
Task significance	.590	.652	.511
Summed JDS	.858	.866	.591
Feedback from others	.762	.805	.495
Combined			
Self-esteem	.818	.872	.597
Locus of control	.671	.717	.605
Autonomy	.765	.834	.479
Skill variety	.821	.806	.631
Feedback from job	.666	.784	.408
Task identity	.755	.749	.459
Task significance	.642	.647	.483
Summed JDS	.878	.899	.603
Feedback from others	.813	.851	.405

[a]

for the correction of the cross-lagged correlations for changes in reliability over time.

Principal components analyses of the locus of control and self-esteem scales were performed in each sample. Only the locus of control scale in the new hire sample proved more than unidimensional. Examination of the rotated factor matrix, however, showed items loaded perfectly on two factors differentiating internal and external items. For this reason, I have interpreted this principal components finding as a result of a response bias, rather than as evidence of multidimensionality in the construct.

Locus of Control

Before any valid comparison of the corrected cross-lag coefficients can be made, one must first test for the plausibility of the quasi-stationarity assumption. This was accomplished by testing for differences between the corrected synchronous correlations within each relationship to be examined. Appendix D through H contain results of the cross-lagged analysis, corrected dynamic correlations and FCP analyses for the samples explored in this study. One can see, by comparing corrected correlations between each synchronous correlation at the same point in time, that the quasi-stationarity assumption has been met in all relationships involving locus of control in all samples. Significant cross-lag results are summarized in Table 2.

TABLE 2

Significantly Different Cross-Lags Between Locus of Control and Perceived Job Characteristics

Sample	JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis)		Corrected Dynamic Correlations
		Locus of Control		
		(T1)	(T2)	
1. New Hire Sample	Autonomy			
	(T1)	.206 (.163)	.375*(.277)	.140
	(T2)	.083 (.113)	.332 (.263)	
	Skill Variety			
	(T1)	.126 (.084)	.278*(.172)	-.013
	(T2)	.078 (.126)	.134 (.203)	
	Task Identity			
	(T1)	.087 (.072)	.219*(.168)	.165*
	(T2)	.016 (.021)	.134 (.163)	
2. Total LCC Vocational Education Sample	Task Significance			
	(T1)	.159 (.173)	.091 (.107)	.044
	(T2)	.253*(.215)	.156 (.144)	
	JDS (Summed Scale)			
	(T1)	.271 (.259)	.211 (.219)	.074
	(T2)	.294*(.284)	.240 (.252)	

TABLE 2 (cont'd.)

Sample	JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) Locus of Control (T1)	Locus of Control (T2)	Corrected Dynamic Correlations
3. Low Tenure (LCC Sample	Skill Variety (T1)	.260 (.310)	.163 (.187)	-.018
	(T2)	.317*(.276)	.216 (.181)	
4. High Tenure (LCC) Sample	Task Identity (T1)	.223 (.152)	.308*(.242)	.061
	(T2)	.138 (.175)	.157 (.230)	
	Task Significance (T1)	.189 (.203)	.105 (.129)	.090
	(T2)	.249*(.289)	.173 (.162)	

[a]Test of significance of (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.

*$\underline{\rho} < .05$

In the new hire sample, marked differences in the cross-lags show evidence of perceptions of autonomy, skill variety and task identity causing locus of control in a nonspurious manner. These are clearly tenable findings, supporting Brousseau's (1978) theoretical framework in which a job with more complex activities that would require individuals to deal with high levels of stimuli would affect their locus of control orientation. The cross-lags of the new hire sample would appear to confirm this hypothesis, given the significant differences found between cross-lags involving the summed JDS scale.

Examining the corrected dynamic correlations in the Appendices, spuriousness is evident. Despite the fact that two of these correlations are statistically significant, all are very low, which would indicate that other variables are causing both the perceptions of the job and locus of control.

James, Hornick and Demaree (1978) have noted that such discrepancies between cross-lag results and dynamic correlations are not uncommon. In fact, these authors have concluded that "given the usual condition in which the cross-lags and synchronous correlations have the same signs, low to moderate dynamic correlations may occur in a number of situations, including conditions of spuriousness and conditions where causality is a strong possibility." The authors recommend that, in general, the dynamic correlation should not be employed as a test of spuriousness.

Assuming the corrected dynamics are highly fallible indicators of spuriousness and we reject the possibility of spuriousness in these relationships, the interpretation of the source and direction of the causal relationships are still impossible given the nonsignificant results of the FCP analysis. For example, given the fact that $r_{AUTO_1LOC_2} > r_{AUTO_2LOC_1}$, it is still unclear if perceived autonomy is causing an increase in an individual's internal locus of control orientation or that the locus of control orientation is causing a decrease in the perceived autonomy. Ideally, the second and third Chi-square tests would give us an indication as to the positive or negative nature of the causal relationship found in the cross-lags. Unfortunately, the FCP analysis, which utilizes a nominal interpretation of the data, indicates that no causal relationships are to be found in the cross-lags.

Hopefully, some of these problems of interpretation would have been alleviated by comparing results in the other sample. A consistent pattern of cross-lag differences in the LCC Vocational Education sample would have suggested actual causal relations. There was, however, no consistency in the pattern of significantly different cross-lag coefficients was found. Even in the most comparable samples, the new hires and the low tenure LCC Vocational Education sample, no consistent pattern of results were found.

In the total vocational education sample, corrected cross-lags indicate a causal direction from the locus of

control orientation to the summed JDS scale and the Task Significance subscale. When divided into subsamples based on tenure, the low tenure employee cross-lags indicate that the locus of control variable causes perceptions of skill variety. In the high tenure sample, experience with a position high on task identity is shown to cause a change in locus of control and locus of control orientation causes task significance. Once again, the corrected dynamic correlations and FCP analyses do not support these causal findings. Examination of the combined new hire and low tenure LCC group results reveal no significantly different cross-lag coefficients. Given the inconsistency of results among the different analytic techniques and the samples, the interpretation of the statistically significant cross-lag differences is questionable. In fact, these significant differences could simply be the result of chance.

Self-Esteem

Analysis of relationships concerning the self-esteem variable proved even more disappointing than those involving locus of control. Appendices I through M contain results from all samples and subgroups involving the self-esteem variable. They show that in all samples, corrected synchronous correlations are not significantly different from one another, which is a necessary precondition for a valid interpretation of cross-lag differences. However, significant differences of cross-lagged coefficients were found

only in the low tenure sample. These differences are summarized in Table 3.

These differences indicate that self-esteem causes the perceptions of skill variety, task significance, and overall complexity of the job as measured by the summed JDS scale. Once again, however, the corrected dynamic correlations are consistently low, indicating spuriousness. In addition, the FCP analysis revealed no causal relationships between the JDS subscales and self-esteem. This inconsistency among the analyses and among samples renders interpretation of the significant cross-lagged differences questionable.

Strictly speaking, the lack of cross-lag differences should not lead one to accept the null hypothesis of spuriousness of this method. One alternate explanation for a lack of consistent cross-lag differences might include the fact that the variables studied might indeed be causally related, but the magnitude of the effect is too small to be detected. The problem of the measured lag not corresponding to the causal lag, referred to earlier, might also serve to attenuate any true cross-lag differences. Finally, this lack of cross-lag differences could also be evidence that the variables cause each other in a positive, reciprocal manner. Although this explanation is feasible, in terms of an interactionist perspective, the low magnitude of the cross-lag coefficients when compared with the synchronous correlations in all samples rule out this possibility. The

TABLE 3

Significantly Different Cross-Lags Between Self-Esteem and Perceived Job Characteristics

Sample	JDS Scale	Corrected Cross-Lagged and Synchronous Correlations (Uncorrected in parenthesis)		Corrected Dynamic Correlations
		Self-Esteem		
		(T1)	(T2)	
Low Tenure (LCC) Sample	Skill Variety			
	(T1)	.276 (.314)	.176 (.219)	.039
	(T2)	.434*(.360)	.287 (.253)	
	Task Significance			
	(T1)	.221 (.239)	.099 (.114)	-.036
	(T2)	.398*(.348)	.170 (.158)	
	JDS (Summed Scale)			
	(T1)	.272 (.282)	.197 (.217)	.141
	(T2)	.402*(.366)	.310 (.302)	

[a]Test of significance of (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.

*$\underline{\rho} < .05$

lack of consistent cross-lag differences within and across samples and the low corrected dynamic correlations adds credence to a "spuriousness" explanation.

CONCLUSIONS

In this study, an attempt was made to determine the direction of causality between two aspects of personality, locus of control and self-esteem, and job experience, as measured by worker responses to the Job Diagnostic Survey. Exploratory in nature, the research was designed to examine possible causal relationships suggested by previous theory and empirical investigations. Cross-lag, corrected dynamic correlation and frequency-in-change-in-product-moment correlation analysis were performed to uncover these possible causal relations. Although significant cross-lag differences were found results of the other analyses did not correspond with these differences. More seriously, the cross-lag differences were inconsistent across samples, suggesting that the few significant differences might have been simply the result of chance.

Given the inconsistency of the cross-lag differences and the nonsignificant results of the corrected dynamic and FCP analyses, it appears that the study suffered from a very serious problem of spuriousness. Background variables which could influence both the psychological variables and responses to the JDS hampered the interpretability of

possible causal relations in the study and must be included in future research.

A variety of background variables might have served as the cause of both the perceived job characteristics and the psychological variables. For example, socio-economic status has been highly correlated with both locus of control and responses to the Job Diagnostic Survey (see Andrisani & Nestel, 1976; Fitzgerald & Schmitt, Note 1) and could be cause of both. A strategy to control for such background variables in a cross-lag analysis is to simply subtract out the effects of these sources of spuriousness by computing partial correlations between the relevant variables controlling for the background variables.

Although the partialling of background variables might reduce spuriousness within the relationships in this study, this problem might remain given the perceptual nature of the job characteristics measure. Although Hackman and Lawler (1971) claim the "major determinant of such (JDS) perceptions is the objective nature of the job," one should not deny the existence of a perceptual process by which objective task characteristics are "transformed" into the reported perceived task characteristics. In his discussion of "enactment" processes Weick (1977) states that individuals "enact" their environments by actively producing reality from their objective environments and this reality is influenced by various personal characteristics of the individual. In terms of this study, the data suggest that the same psychological

or sociological processes which influence an individual's self-esteem or locus of control orientation also alter the individual's perceptions of the work reality.

The spuriousness evident in this study should lead to a reevaluation of the past research in this area that has neglected to investigate this possibility. Brousseau's (1978) findings, based on partial correlations, did not address the possibility of other causal variables. A more dramatic omission of the possibility that an important variable is unspecified is represented by Kohn and Schooler's (1978) causal model of substantive complexity and intellectual flexibility, in which error in prediction terms in the hypothesized model were fixed at zero. This specification, which presumes that no relevant variables have been omitted from the model, is unwarranted.

Beyond this obvious problem of spuriousness, actual causal relationships between personality and job perceptions might not have been tapped as a result of problems in the research design. The measurement instruments, all of which were questionnaire scales utilizing Likert-type formats, might not have been sensitive enough to adequately evaluate the concepts dealt with. In retrospect, the use of JDS scores as a measure of work experience may be inadequate. To fully appreciate and understand the worker's experience, other methods of data collection are needed. For example, the use of time diaries, records of activities and personal interviews may be more appropriate.

The results of these methods could be compared with JDS responses to determine if the worker's perceptions and behavior actually do correspond. These techniques would also tap other dramatic changes, outside the work sphere, such as marital, family and health problems, that might serve as causal influences on both personality and perceptions of work experience.

Another design flaw which could have hampered this research is the use of a one year lag. This lag might have been simply too short a period to detect any job experience effects on self-esteem and locus of control. On the other hand, this same year lag might have been too long a period to uncover any selection effects. The question of an appropriate time lag could be dealt with in future research with the use of shorter lags and multiple measurement points. Such a design would allow an investigation of possible causal effects within different time lags and a more thorough, systematic analysis of the work experience-personality relationship during a person's career.

Although the analyses presented in the study prohibit the interpretation of either selection or job experience effects, the author feels that investigations in this area must be pursued to fully appreciate the developmental processes involved in the careers of individuals. A more thorough understanding of these causal processes within the job experience and personality relationship necessitates a move away from an intermediary causal design such as

cross-lagged analyses and a movement toward the formation of a more holistic theoretical system which incorporates many of the sources of spuriousness which were not addressed in this study. These causal systems would best be explored with use of structural equation and path analytic models (cf. Duncan, 1975; Heise, 1975).

The use of structural equation modeling would permit the researcher to develop more fully the role of socialization and background factors in personality trait formation and the role of job experience in the changes in these personality traits. Causal paths could be compared from these two sources of influence to determine the most powerful causal agent. More importantly, a nonrecursive causal model could be developed in which possible reciprocal relationships could be examined. If indeed, these causal relations are found, the fit between an individual and his or her job, often treated as a static one in personnel testing and job design, must be reexamined.

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APPENDICES

APPENDIX A

JOB DIAGNOSTIC SURVEY

APPENDIX A

JOB DIAGNOSTIC SURVEY

Respondents were asked to answer each of the following questions concerning their job. Except where noted, the subjects responded to the following scale:

How accurate is the statement in describing your job?

1. Very Inaccurate
2. Mostly Inaccurate
3. Slightly Innacurate
4. Uncertain
5. Slightly Accurate
6. Mostly Accurate
7. Very Accurate

Autonomy

1. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing your work?

1---------2---------3---------4---------5---------6---------7

Very little; the job gives me almost no personal "say" about how and when the work is done.	Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.	Very much; the job gives almost complete responsibility for deciding how and when the work is done.

2. The job denies me any chance to use my personal initiative or judgment in carrying out the work.

3. The job gives me considerable opportunity for independence and freedom in how I do the work.

Task Identity

4. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the piece of work, which is finished by other people or by automatic machines.

1---------2---------3---------4---------5---------6---------7

My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service.	My job is a moderate-sized "chunk" of the overall piece of work; my own contribution can be seen in the final outcome.	My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service.

5. The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end.

6. The job provides me the chance to completely finish the pieces of work I begin.

Skill Variety

7. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1---------2---------3---------4---------5---------6---------7

Very little; the job requires me to do the same routine things over and over again.	Moderate variety.	Very much; the job requires me to do many different things, using a number of different skills and talents.

8. The job requires me to use a number of complex or high-level skills.

9. The job is quite simple and repetitive.

Feedback from the Job

10. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work

itself provide clues about how well you are doing--aside from any "feedback" coworkers or supervisors may provide?

1---------2---------3---------4---------5---------6---------7

Very little; the job itself is set up so I could work forever without finding out how well I am doing.	Moderately; sometimes doing the job provides "feedback" to me; sometimes it does not.	Very much; the job is set up so that I get almost constant "feedback" as I work about how well I am doing.

11. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

12. The job itself provides very few clues about whether or not I am performing well.

Task Significance

13. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

1---------2---------3---------4---------5---------6---------7

Not very significant; the outcomes of my work are not likely to have important effects on other people.	Moderately significant.	Highly significant; the outcomes of my work can affect other people in very important ways.

14. The job is one where a lot of other people can be affected by how well the work gets done.

15. The job itself is not very significant or important in the broader scheme of things.

Feedback from Others

16. The supervisors and coworkers on this job almost never give me any feedback about how well I am doing this job.

17. Supervisors often let me know how well they think I am performing the job.

18. To what extent do managers or coworkers let you know how well you are doing on your job.

1---------2---------3---------4---------5---------6---------7

Very little; people almost never let me know how well I am doing.	Moderately; sometimes people may give me "feedback", other times they may not.	Very much; managers or coworkers provide me with almost constant "feedback" about how well I am doing.

APPENDIX B

LOCUS OF CONTROL

APPENDIX B

LOCUS OF CONTROL

The following items assess locus of control on a 4-point scale of agreement.

1. Many of the unhappy things in people's lives are partly due to bad luck.

2. In the long run, people get the respect they deserve in this world.

3. Without the right breaks, one cannot be a good leader.

4. What happens to me is of my own doing.

5. Becoming a success is a matter of hard work; luck has little or nothing to do with it.

6. When I make plans, I am almost certain that I can make them work.

7. In my case, getting what I want has little or nothing to do with luck.

8. Who gets to be boss often depends on who was lucky enough to be in the right place first.

9. Most people don't realize the extent to which their lives are controlled by accidental happenings.

10. Many times I feel that I have little influence over the things that happen to me.

11. In the long run, the bad things that happen to us are balanced by the good ones.

APPENDIX C

SELF-ESTEEM

APPENDIX C

SELF-ESTEEM

The following items assess self-esteem on a 4-point scale of agreement.

1. I feel that I'm a person of work, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I tend to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole I'm satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I'm no good at all.

APPENDIX D

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE SAMPLE

APPENDIX D

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE SAMPLE
N = 120

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) — Locus of Control		Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control) — Frequencies				Chi-Square Tests[b]		
	(T1)	(T2)		LOC(+)	LOC(-)	JDS(+)	JDS(-)	(1)	(2)	(3)
Autonomy										
(T1)	.206 (.163)	.375*(.277)	.140	24	9	22	21	1.066	.022	4.033*
(T2)	.083 (.113)	.332 (.263)								
Skill Variety										
(T1)	.126 (.084)	.278*(.172)	-.013	30	12	19	14	.853	2.041	.038
(T2)	.078 (.126)	.134 (.203)								
Feedback from Job										
(T1)	.190 (.165)	.148 (.120)	.096	29	17	15	15	2.961	3.841	.031
(T2)	.112 (.138)	.193 (.223)								
Task Identity										
(T1)	.087 (.072)	.219*(.168)	.165*	23	11	19	22	.480	.214	3.030
(T2)	.016 (.021)	.134 (.163)								
Task Significance										
(T1)	.197 (.191)	.212 (.192)	.154*	26	13	23	13	.053	.082	.038
(T2)	.183 (.202)	.151 (.156)								
JDS (Summed Scale)										
(T1)	.212 (.179)	.342*(.269)	.071	29	19	32	27	.935	.066	1.065
(T2)	.114 (.146)	.219 (.261)								
Feedback from Others										
(T1)	.203 (.246)	.146 (.166)	.126	31	25	25	31	.009	.446	.446
(T2)	.232 (.205)	.225 (.186)								

[a]Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.

[b](1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-)

* $p < .05$

APPENDIX E

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: TOTAL LCC VOCATIONAL EDUCATION SAMPLE

APPENDIX E

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS:
TOTAL LCC VOCATIONAL EDUCATION SAMPLE
N = 331

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) Locus of Control (T1)	(T2)	Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control) Frequencies LOC(+)	LOC(-)	JDS(+)	JDS(-)	Chi-Square Tests[b] (1)	(2)	(3)
Autonomy										
(T1)	.198 (.176)	.120 (.116)	.081	67	42	50	59	.389	.283	.049
(T2)	.213 (.222)	.158 (.178)								
Skill Variety										
(T1)	.206 (.195)	.134 (.138)	.078	57	48	69	32	.044	.950	2.813
(T2)	.248 (.242)	.202 (.213)								
Feedback from Job										
(T1)	.233 (.221)	.202 (.214)	.115*	70	39	60	38	.483	.623	.000
(T2)	.205 (.200)	.207 (.218)								
Task Identity										
(T1)	.206 (.177)	.212 (.198)	.041	65	39	57	46	.000	.402	.424
(T2)	.160 (.172)	.167 (.194)								
Task Significance										
(T1)	.159 (.173)	.091 (.107)	.044	69	36	63	37	.078	.189	.000
(T2)	.253*(.215)	.156 (.144)								
JDS (Summed Scale)										
(T1)	.271 (.259)	.211 (.219)	.074	72	75	82	58	.125	.526	1.925
(T2)	.294*(.284)	.240 (.252)								
Feedback from Others										
(T1)	.150 (.135)	.232 (.228)	.064	73	68	78	79	.755	.006	.680
(T2)	.151 (.195)	.223 (.247)								

[a]Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
[b](1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}: (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$

APPENDIX F

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: LOW TENURE LCC SAMPLE

APPENDIX F

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS:
LOW TENURE (LCC) SAMPLE
N = 131

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis)		Corrected Dynamic Correlations (LOC	F-C-P Results (Locus of Control)				Chi-Square Tests[b]		
	Locus of Control			Frequencies						
	(T1)	(T2)		LOC(+)	LOC(-)	JDS(+)	JDS(-)	(1)	(2)	(3)
Autonomy										
(T1)	.200 (.196)	.022 (.021)	.087	23	19	29	14	.000	.481	.485
(T2)	.123 (.131)	.108 (.111)								
Skill Variety										
(T1)	.260 (.310)	.163 (.187)	-.018	22	19	32	12	.047	1.500	1.161
(T2)	.317*(.276)	.216 (.181)								
Feedback from Job										
(T1)	.244 (.225)	.170 (.151)	.099	25	17	27	15	.012	.019	.031
(T2)	.253 (.286)	.251 (.273)								
Task Identity										
(T1)	.180 (.211)	.097 (.109)	.026	27	17	25	16	.047	.018	.000
(T2)	.183 (.163)	.150 (.128)								
Task Significance										
(T1)	.125 (.142)	.086 (.094)	-.039	23	17	31	14	.188	.907	.129
(T2)	.259 (.238)	.132 (.117)								
JDS (Summed Scale)										
(T1)	.274 (.299)	.156 (.163)	.029	28	31	29	25	.142	.000	.446
(T2)	.286 (.274)	.215 (.198)								
Feedback from Others										
(T1)	.226 (.231)	.287 (.282)	.005	28	27	29	33	.308	.000	.417
(T2)	.245 (.249)	.268 (.262)								

[a]Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
[b](1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$

APPENDIX G

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: HIGH TENURE LCC SAMPLE

APPENDIX G

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: HIGH TENURE (LCC) SAMPLE
N = 200

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) Locus of Control (T1)	(T2)	Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control) Frequencies LOC(+)	LOC(-)	JDS(+)	JDS(-)	Chi-Square Tests[b] (1)	(2)	(3)
Autonomy										
(T1)	.202 (.168)	.191 (.189)	.082	42	27	31	23	.593	1.370	.180
(T2)	.276 (.287)	.193 (.232)								
Skill Variety										
(T1)	.163 (.132)	.141 (.131)	.120*	39	29	36	20	.976	.053	1.306
(T2)	.206 (.221)	.191 (.237)								
Feedback from Job										
(T1)	.214 (.215)	.214 (.248)	.109	39	20	37	27	.130	.013	.766
(T2)	.169 (.146)	.172 (.171)								
Task Identity										
(T1)	.223 (.152)	.208*(.242)	.061	32	20	33	40	3.200*	.000	6.107*
(T2)	.138 (.175)	.157 (.230)								
Task Significance										
(T1)	.189 (.203)	.105 (.129)	.090	48	23	34	18	2.634	2.061	.390
(T2)	.249 (.202)	.173 (.162)								
JDS (Summed Scale)										
(T1)	.263 (.235)	.255 (.263)	.089	45	44	50	35	.052	.168	.810
(T2)	.297 (.289)	.240 (.269)								
Feedback from Others										
(T1)	.082 (.068)	.192 (.184)	.093	48	39	47	47	.199	.000	.570
(T2)	.149 (.156)	.185 (.223)								

[a] [b] Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
(1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$

APPENDIX H

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE-LOW TENURE (LCC) COMBINED SAMPLE

APPENDIX H

CAUSAL ANALYSIS BETWEEN LOCUS OF CONTROL AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE-LOW TENURE (LCC) COMBINED SAMPLE
N = 251

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) Locus of Control (T1)	(T2)	Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control) Frequencies LOC(+)	LOC(-)	JDS(+)	JDS(-)	Chi-Square Tests[b] (1)	(2)	(3)
Autonomy										
(T1)	.212 (.181)	.199 (.162)	.123*	41	30	53	37	2.012	1.287	.537
(T2)	.103 (.126)	.172 (.202)								
Skill Variety										
(T1)	.214 (.99)	.206 (.183)	.065	50	29	52	29	.006	.010	.017
(T2)	.179 (.202)	.196 (.210)								
Feedback from Job										
(T1)	.224 (.197)	.169 (.142)	.155*	54	32	47	28	.621	.356	.150
(T2)	.173 (.207)	.234 (.266)								
Task Identity										
(T1)	.149 (.142)	.166 (.150)	.101	52	29	41	38	.006	1.075	.955
(T2)	.082 (.091)	.153 (.161)								
Task Significance										
(T1)	.152 (.164)	.131 (.134)	-.016	49	25	57	28	.629	.462	.075
(T2)	.226 (.220)	.146 (.136)								
JDS (Summed Scale)										
(T1)	.256 (.242)	.246 (.222)	.107*	56	50	60	54	.223	.078	.087
(T2)	.187 (.208)	.233 (.247)								
Feedback from Others										
(T1)	.221 (.241)	.218 (.227)	.049	61	51	55	62	.070	.216	.885
(T2)	.238 (.229)	.254 (.233)								

[a] Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
[b] (1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$

APPENDIX I

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE SAMPLE

APPENDIX I

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE SAMPLE
N = 120

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis)		Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control)				Chi-Square Tests[b]		
	Locus of Control			Frequencies						
	(T1)	(T2)		LOC(+)	LOC(-)	JDS(+)	JDS(-)	(1)	(2)	(3)
Autonomy										
(T1)	.219 (.148)	.275 (.238)	.216*	42	17	19	31	.587	7.934	3.521
(T2)	.252 (.292)	.253 (.375)								
Skill Variety										
(T1)	.087 (.049)	.210 (.152)	-.022	37	13	25	34	.587	1.952	8.511
(T2)	.143 (.198)	.151 (.267)								
Feedback from Job										
(T1)	.239 (.177)	.211 (.200)	.129	45	19	16	29	2.972	12.852	1.688
(T2)	.218 (.230)	.232 (.314)								
Task Identity										
(T1)	.232 (.163)	.254 (.229)	.207*	34	14	22	39	.321	2,161	10.868
(T2)	.089 (.099)	.179 (.253)								
Task Significance										
(T1)	.059 (.049)	.107 (.116)	.207*	34	20	24	31	.000	1.397	1.961
(T2)	.118 (.111)	.085 (.103)								
JDS (Summed Scale)										
(T1)	.219 (.158)	.270 (.249)	.093	33	29	19	24	3.086	3.250	.302
(T2)	.213 (.232)	.242 (.336)								
Feedback from Others										
(T1)	.211 (.219)	.133 (.176)	.182*	28	23	24	35	.445	.173	2.086
(T2)	.277 (.209)	.219 (.212)								

[a]Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
[b](1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$

APPENDIX J

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: TOTAL LCC VOCATIONAL EDUCATION SAMPLE

APPENDIX J

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: TOTAL LCC VOCATIONAL EDUCATION SAMPLE
N = 331

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis)		Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control)				Chi-Square Tests[b]		
	Locus of Control			Frequencies						
	(T1)	(T2)		LOC(+)	LOC(-)	JDS(+)	JDS(-)	(1)	(2)	(3)
Autonomy										
(T1)	.171 (.161)	.197 (.179)	.105*	00	71	72	68	2.891	3.953	.064
(T2)	.209 (.281)	.246 (.261)								
Skill Variety										
(T1)	.227 (.228)	.219 (.213)	.105*	81	77	75	77	.081	.160	.006
(T2)	.256 (.265)	.270 (.269)								
Feedback from Job										
(T1)	.213 (.215)	.158 (.154)	.168*	88	69	70	83	.029	1.829	1.112
(T2)	.214 (.221)	.264 (.263)								
Task Identity										
(T1)	.108 (.099)	.167 (.147)	.101*	79	61	76	95	2.894	.026	6.981
(T2)	.138 (.158)	.189 (.208)								
Task Significance										
(T1)	.232 (.268)	.145 (.162)	.082	86	70	77	75	.029	.393	.110
(T2)	.267 (.241)	.232 (.202)								
JDS (Summed Scale)										
(T1)	.255 (.258)	.245 (.239)	.138*	67	82	82	57	.281	1.315	4.144
(T2)	.299 (.306)	.318 (.315)								
Feedback from Others										
(T1)	.205 (.196)	.209 (.194)	.041	70	74	70	84	.272	.007	.513
(T2)	.139 (.151)	.170 (.177)								

[a] Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-laq coefficients.

[b] (1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).

*$p < .05$

APPENDIX K

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: LOW TENURE (LCC) SAMPLE

APPENDIX K

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: LOW TENURE (LCC) SAMPLE
N = 131

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis)		Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control)				Chi-Square Tests[b]		
	Locus of Control			Frequencies						
	(T1)	(T2)		LOC(+)	LOC(-)	JDS(+)	JDS(-)	(1)	(2)	(3)
Autonomy										
(T1)	.157 (.146)	.104 (.103)	.148*	38	20	28	39	.512	1.227	5.492
(T2)	.279 (.282)	.238 (.255)								
Skill Variety										
(T1)	.276 (.314)	.176 (.219)	.039	33	20	32	40	2.592	.000	6.017
(T2)	.434*(.360)	.287 (.253)								
Feedback from Job										
(T1)	.257 (.225)	.202 (.188	.194	38	21	24	41	.202	2.726	5.823
(T2)	.291 (.312)	.297 (.339)								
Task Idendity										
(T1)	.145 (.161)	.110 (.130)	.108	32	19	27	47	3.872	.271	11.045
(T2)	.152 (.133)	.202 (.182)								
Task Significance										
(T1)	.221 (.239)	.099 (.114)	-.036	36	26	27	36	.000	1.016	1.305
(T2)	.298*(.348)	.170 (.158)								
JDS (Summed Scale)										
(T1)	.272 (.282)	.197 (.217)	.141	32	31	33	20	.698	.000	1.961
(T2)	.402*(.366)	.310 (.302)								
Feedback from Others										
(T1)	.263 (.256)	.189 (.196)	.068	29	27	30	33	.303	.000	.417
(T2)	.260 (.251)	.202 (.207)								

[a] Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.

[b] (1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).

*$p < .05$

APPENDIX L

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: HIGH-TENURE (LCC) SAMPLE

APPENDIX L

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: HIGH TENURE (LCC) SAMPLE
N = 200

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) Locus of Control (T1)	(T2)	Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control) Frequencies LOC(+)	LOC(-)	JDS(+)	JDS(-)	Chi-Square Tests[b] (1)	(2)	(3)
Autonomy										
(T1)	.187 (.176)	.287 (.244)	.071	49	44	44	46	.022	.172	.011
(T2)	.243 (.284)	.256 (.272)								
Skill Variety										
(T1)	.194 (.178)	.275 (.227)	.125*	49	43	50	43	.000	.000	.012
(T2)	.167 (.203)	.259 (.284)								
Feedback from Job										
(T1)	.180 (.204)	.121 (.124)	.138*	45	40	46	52	.787	.000	1.315
(T2)	.165 (.161)	.230 (.203)								
Task Identity										
(T1)	.070 (.054)	.216 (.150)	.110	43	43	45	55	.909	.011	1.235
(T2)	.120 (.173)	.171 (.222)								
Task Significance										
(T1)	.257 (.295)	.193 (.210)	.139	44	39	51	50	1.571	.379	1.124
(T2)	.189 (.174)	.269 (.235)								
JDS (Summed Scale)										
(T1)	.240 (.242)	.285 (.259)	.124	38	44	50	40	.285	1.375	.107
(T2)	.239 (.263)	.326 (.323)								
Feedback from Others										
(T1)	.163 (.153)	.217 (.184)	.009	41	47	39	52	.022	.012	.162
(T2)	.069 (.135)	.135 (.144)								

[a]Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
[b](1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$

APPENDIX M

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE-LOW TENURE COMBINED SAMPLE

APPENDIX M

CAUSAL ANALYSIS BETWEEN SELF-ESTEEM AND PERCEIVED JOB CHARACTERISTICS: NEW HIRE-LOW TENURE COMBINED SAMPLE
N = 251

JDS Scale	Corrected Cross-Lagged[a] and Synchronous Correlations (Uncorrected in parenthesis) Locus of Control (T1)	(T2)	Corrected Dynamic Correlations (LOC)	F-C-P Results (Locus of Control) Frequencies LOC(+)	LOC(-)	JDS(+)	JDS(-)	Chi-Square Tests[b] (1)	(2)	(3)
Autonomy										
(T1)	.162 (.142)	.197 (.178)	.191*	70	40	50	74	.722	3.008	9.553
(T2)	.253 (.280)	.249 (.325)								
Skill Variety										
(T1)	.201 (.168)	.189 (.187)	-.710	72	36	53	73	1.235	2.592	11.890
(T2)	.250 (.253)	.279 (.269)								
Feedback from Job										
(T1)	.245 (.194)	.212 (.198)	.218*	75	42	44	72	.000	7.563	7,377
(T2)	.229 (.245)	.264 (.334)								
Task Identity										
(T1)	.182 (.155)	.187 (.188)	.167*	66	38	47	82	2.472	2.867	15.408
(T2)	.107 (.106)	.195 (.229)								
Task Significance										
(T1)	.144 (.139)	.096 (.110)	-.015	71	44	48	70	.017	4.067	5.482
(T2)	.241 (.216)	.125 (.129)								
JDS (Summed Scale)										
(T1)	.246 (.209)	.235 (.236)	.183*	65	58	54	44	2.606	.840	1.657
(T2)	.276 (.275)	.278 (.328)								
Feedback from Others										
(T1)	.236 (.231)	.162 (.188)	.091	57	49	59	64	1.118	.009	1.735
(T2)	.254 (.219)	.212 (.216)								

[a] Test of significance (1) between corrected synchronous correlations and (2) between corrected cross-lag coefficients.
[b] (1) {(LOC+) + (LOC-)} > {(JDS+) + (JDS-)}; (2) (LOC+) > (JDS+); (3) (LOC-) > (JDS-).
*$p < .05$