Moderation of Personality Test Validity

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MODERATION OF PERSONALITY TEST VALIDITY

A Thesis
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of the Requirements for the Degree
Master of Arts

by
Christopher David Woolard
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MODERATION OF PERSONALITY TEST VALIDITY

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Personality testing can be an adequate instrument for prediction of future job performance. However, the predictive ability of these tests has been only moderate at best. This researcher attempted to determine if feedback would help improve the predictive ability of personality tests. The results indicated that feedback did not moderate the relationship between the personality dimensions and job performance for all of the personality constructs except Openness to Experience. This researcher also attempted to replicate the findings of the Barrick and Mount (1993) study which found that autonomy moderated the relationship between Conscientiousness, Extraversion, Agreeableness, and job performance. This researcher found support for Barrick and Mount’s findings for Extraversion and Conscientiousness, but not for Agreeableness.
Moderation of Personality Test Validity

Personality measures are frequently used in the selection process (Cascio, 1995). According to Cascio (1995), the use of personality measures in selection will continue to increase as work becomes more team oriented and service oriented. Personality measures will provide a formidable tool to measure characteristics workers will need in order to be successful on the job. Additionally, managers are beginning to insist that personality characteristics be taken into account due to the increased importance of personal relations arising from the shift in America from a manufacturing-based economy to a service-based economy. The widespread use of personality measures combined with the call for increased use of personality measures raises a basic question that has been debated for many years. The question is how valid are the inferences drawn from personality measures in a personnel context? The answer to this question has yet to be answered adequately. Tett, Jackson, and Rothstein (1991) determined the validity coefficient of personality measures to be 0.24, whereas Barrick and Mount (1991) obtained an average correlation coefficient of 0.11. Neither of these coefficients compare favorably with the validity coefficients obtained from cognitive ability tests or structured interviews.

Personality measures appear to have relatively little adverse impact when used in selection (Reilly, 1996). The low levels of adverse impact could result in large savings by an organization due to the reduction in legal costs. If the validities of personality measures
could be improved, they could be an extremely useful tool in the selection process.

Research (Barrick & Mount, 1993) suggests that moderator variables may affect the validities of personality measures. The purpose of this study is to examine how situational variables and personality variables interact to affect the validity of scales measuring the Five Factor Model of personality.

**Personality Constructs**

Through the years many psychologists believed behavior is best understood by examining individual personality traits (Feshback & Weiner, 1991). The individual differences approach believes that a significant amount of behavior can be predicted using personality measures. The situational approach, on the contrary, posits that situational variables are better predictors of future behaviors. The situational side will be discussed in greater detail later in this report. In this section, the researcher will discuss the predominant personality theory used in selection and the instrument that will be used in this study to assess personality dimensions.

Currently the predominant personality theory in selection is the Five Factor Model (FFM) of personality. When earlier research of personality tests were performed, there was no well-accepted taxonomy for classifying personality traits (Barrick & Mount, 1991). In the past 15 years, researchers have generally agreed that there are five robust personality dimensions (Barrick & Mount, 1991). These five personality dimensions have led to the resurgence of personality measures in selection (Barrick & Mount, 1993). These five personality dimensions have been labeled the “Big Five” by Goldberg (1981).

The five personality dimensions were conceptualized under the assumption that
most of the predominant personality characteristics are embedded in human language.

Allport and Odbert (1936) examined a dictionary to delineate terms that described or were related to personality. After deleting nondistinctive behaviors, the authors arrived at a final list of approximately 18,000 words. This list was trimmed down by Cattell (1945), who factor analyzed the words and discovered five factors that had large factor loadings and seven others with much smaller loadings. Fiske (1949) then simplified Cattell’s variables and obtained personality ratings on 128 participants. The results suggested five factors of personality. Tupes and Christal (1961) analyzed personality traits in a wide variety of participants and continually discovered five consistent factors that emerged across samples. These five personality dimensions are as follows: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience.

Extraversion has also been labeled Surgency (Norman, 1963; Tupes & Christal, 1961; Goldberg, 1981) or Assertiveness (Borgatta, 1964). This dimension usually describes interpersonal traits (John, 1990). Individuals high on this dimension are generally talkative, assertive, active, energetic, and outgoing. These individuals tend to seek excitement and are cheerful and upbeat. An example of an individual high on this dimension would be the prototypical salesman. Those low on this dimension are quiet, reserved, withdrawn, and retiring. These individuals are not socially anxious, but rather, they prefer to be alone. They are not unhappy but do not appear as happy or exuberant as an individual high on this dimension. This dimension has the second highest average validity coefficient across occupations at 0.13 (Barrick & Mount, 1991). The validity coefficients were somewhat higher when specific occupations were looked at. For
managerial occupations the validity coefficient was 0.18, and for sales positions the coefficient was 0.15.

The second dimension is Agreeableness. Agreeableness along with Extraversion generally account for the greatest amount of variance in personality measures (John, 1990). Also, like Extraversion, this dimension describes interpersonal characteristics (John, 1990). This dimension has also been name Likeability (Borgatta, 1964), Friendly Compliance (Digman & Takemoto-Chock, 1981), or Social Adaptability (Fiske, 1949). An individual high on this dimension believes in helping others. Traits highly correlated with this dimension are sympathetic, kind, affectionate, and soft-hearted (John, 1989). Traits negatively correlated with Agreeableness are fault-finding, cold, quarrelsome, and cruel (John, 1989). This dimension had very low validity coefficients in a meta-analysis performed by Barrick and Mount (1991). The authors found the average correlation coefficient across occupations to be 0.07.

The third dimension and the one that has received the greatest attention in selection is Conscientiousness. However, Peabody and Goldberg (1989) labeled this dimension Work, and Digman and Takemoto-Chock (1981) described this dimension as Will to Achieve. This trait can be described as task behavior or impulse control (John, 1990). Those high on this dimension have a desire to achieve. These individuals are concerned with planning and organizing and can also be characterized as efficient, responsible, and precise (John, 1989). An individual low on this dimension would display characteristics such as carelessness, forgetfulness, and irresponsibility (John, 1989). It should be evident why this dimension has received the greatest attention in selection. A
successful employee usually displays a number of the characteristics associated with this dimension. In fact, this dimension has the highest validity coefficients across occupations according to Barrick and Mount (1991) at 0.22. Although this validity coefficient is the largest of all the dimensions, it is only moderate at best.

The last two factors are the smallest of the five. The fourth dimension is Emotional Stability. This dimension has also been labeled Neuroticism (McCrae & Costa, 1985). Characteristics of this dimension would be stable and calm on the high end and tense, anxious, nervous, and moody on the low end (John, 1989). This dimension can include more than psychological distress. Costa and McCrae (1992) stated that individuals high on this dimension may be more prone to irrational ideas and be less able to control their impulses. The validity of this trait is extremely low. Barrick and Mount’s (1991) meta-analyses arrived at an average validity coefficient across occupations of 0.08.

The last dimension is Openness to Experience. This dimension describes the quality of a person’s mental and experiential life (John, 1990). This dimension has also been named Culture (Norman, 1963; Tuples & Christal, 1961) and Intellect (Digman and Takemoto-Chock, 1981; Goldberg, 1981; Peabody & Goldberg, 1989). Characteristics highly correlated with this dimension are wide interests, imagination, intelligence, artistic ability, and insight. These individuals are curious and are prone to entertain new ideas and unconventional values (Costa & McCrae, 1992). Those characteristics that negatively correlate with Openness to Experience are narrow interests, simple, and shallowness (John, 1989). Individuals low on this dimension are somewhat conservative in their appearance and outlook (Costa & McCrae, 1992). Although a characteristic that was
highly correlated with Openness to Experience was intelligence, the two are not interchangeable (Costa & McCrae, 1992). An individual can be very intelligent yet very closed to new experiences and visa versa. Intelligence is but one facet of Openness to Experience. An individual can have poor intelligence and still be fairly high on this dimension because he/she may be artistic and imaginative. Although they are both cognitive, they are clearly different from IQ or intellect.

In this study, the scale used to measure the Five Factor Model of personality is the NEO Five-Factor Inventory or NEO-FFI. The NEO-FFI is a shortened version of the Revised NEO Personality Inventory (NEO PI-R), which is a revised version of the NEO Personality Inventory (NEO PI)--all of which were developed by Costa and McCrae (1992). The NEO PI-R measures the Big Five personality dimensions as well as 6 facets embedded in each dimension. The NEO-FFI contains 60 total items and does not include the 30 facets, with 12 self-report item scales to measure each dimension.

The NEO PI first began as an instrument to measure Neuroticism, Extraversion, and Openness to Experience solely and was called the NEO inventory. Eventually, scales were added to measure Agreeableness and Conscientiousness and the scale was renamed the NEO PI. The NEO PI had only global scales to measure Conscientiousness and Agreeableness. These scales were revised and a few minor changes were made on the NEO PI. The new scale was then given the label NEO PI-R (Costa & McCrae, 1992).

The NEO-FFI was developed by factor analyzing the items from the NEO PI-R then choosing the twelve with the strongest positive and negative loading on each dimension. After these items were selected, they were replaced to ensure a large variety in
content. Items were also reworded or replaced so that at least one-third of them were scaled in opposite directions.

The NEO-FFI appears to be an adequate substitute for the longer measure. The NEO-FFI correlated strongly with the NEO PI-R dimensions. The correlations between the NEO-FFI and NEO PI-R were 0.90 for Extraversion, 0.87 for Conscientiousness, 0.92 for Neuroticism, 0.77 for Agreeableness, and 0.91 for Openness to Experience (Costa & McCrae, 1988). Information from the NEO-FFI is clearly not as rich as the NEO PI-R, but these correlations indicate the NEO-FFI is an acceptable short form for the NEO PI-R.

Reliability of the NEO-FFI is adequate based on the internal consistency and test-retest reliability coefficients given by Costa and McCrae (1992). The common measure of internal consistency is coefficient alpha. Coefficient alphas obtained from a large sample (N=1,539) of participants were .77, .81, .86, .68, and .73 for Extraversion, Conscientiousness, Neuroticism, Agreeableness, and Openness to Experience, respectively. These numbers are lower than the NEO PI-R coefficient alphas but are still in the acceptable range. Test-retest reliabilities were given for the NEO-FFI using a college sample. The time between test administrations was three months. The reliability coefficients for the dimensions were .80, .79, .75, .79, and .83 for Openness, Neuroticism, Agreeableness, Extraversion, and Conscientiousness, respectively. Again the test-retest reliability is acceptable.

Coefficient alpha and test-retest reliabilities for the five dimensions are all suitable. Validity of the NEO-FFI was ascertained via convergent and discriminant validities (Costa & McCrae, 1988). The convergent validity of the NEO-FFI was performed by correlating
scores on the NEO-FFI with scores on a five-factor adjective based self-report scale. The convergent correlations ranged from .62 to .56, N=375, p<.001 (Costa & McCrae, 1988). Discriminant validity correlations ranged from -.20 to .20. These correlations indicate the NEO-FFI items designed to tap one Big Five dimension are not significantly tapping the other Big Five dimensions. These validity correlations indicate the NEO-FFI is a suitable measure for assessing the Big Five personality dimensions.

**Situational Variables**

Opposing the individual differences mentality is the situational approach. The situational approach emphasizes the influence of the situation over the influence of personal traits in predicting behavior (Feshback & Weiner, 1991). The situational approach suggests that environmental characteristics are the best predictors of behaviors. Not surprisingly, Gutenberg, Arvey, Osburn, and Jeanneret (1983) found that validities do differ as a function of gross job content. This finding means that the situation, or job content, caused validity coefficients to differ, which would lend support to the situational approach.

This section includes a discussion of the situational measure used in this study. This researcher uses the Job Diagnostic Survey (JDS) (Hackman & Oldham, 1976) to measure situational aspects of the job. Several researchers have used the JDS to measure certain aspects of the job (e.g. Barrick & Mount, 1993; Colarelli, Dean, & Konstans, 1987).

The Job Diagnostic Survey (JDS) was developed to measure the variables associated with the Job Characteristics Model. Five core job characteristics are the bases
of the Job Characteristics Model. The first is skill variety. A job can be described by the
different tasks an employee does on the job, or the number of skills a job requires. A job
that requires an individual to perform a number of different tasks or use a number of
different skills would be high in skill variety. A factory line worker would probably be low
on this aspect since he/she may perform only one task repetitively. The second core
characteristic is task identity. If a worker is required to complete the product from start to
finish, the job has high task identity. An individual who performs a job analysis, develops a
selection test from that, and selects a new incumbent, would be high on task identity. The
impact a job has on others defines the third core characteristic, task significance. A
policeman would be high on task significance due to the impact he/she may have upon the
community. The next core characteristic is autonomy; it refers to the amount of
independence and freedom in decision making and scheduling one experiences in the work
performed. A job that has a great deal of employee empowerment would be high in
autonomy, due to the freedom in decision making entitled with this empowerment. The
final core characteristic, feedback, indicates the amount of information that is provided
regarding how the employee performs on his/her job. Feedback can come from the job
itself or from others. The JDS measures feedback from both of these sources. Both types
of feedback are the characteristics that will be most relevant in this study.

The JDS measures these characteristics via two sections. The first section asks
employees to indicate on a seven-point scale how much of each characteristic they
perceive to be present on their job. The second section has employees assess the accuracy
of statements concerning the characteristics of their job.
These five core job characteristics (i.e., skill variety, task identity, task variety, autonomy, and feedback) influence three critical psychological states which in turn affect a person's motivation and satisfaction on the job. The core characteristics describe specific aspects of the job. These psychological states are not as specific as the core characteristics and provide more of a Gestalt view of the employees perception of their job. The first three core characteristics lead to the first critical psychological state, meaningfulness of the work. Meaningfulness of work can be defined as overall meaningfulness and value of the job. A job high in this critical psychological state could be described by the incumbent as valuable and worthwhile. The individual performing this job feels the job is making a difference somewhere or to someone, and the employee feels the job is important.

Autonomy, the second psychological state, determines the amount of responsibility an individual has for the result of his/her work. It refers to the accountability or responsibility an employee has for the results of his/her work. A job with relatively little supervision will probably be high in this psychological state. An employee in this job will feel that he/she makes the decisions and has to answer for any decisions made. Knowledge of results provides information regarding how the worker is performing in his/her job. Knowledge of results is the last psychological state. This psychological state refers to how well employees understand the results concerning how effectively they are performing their work. The questions from the JDS measuring knowledge of results will be compiled with the results of feedback from the job itself and feedback from others and averaged to derive an overall feedback score for each employee.

These psychological states are measured by two sections in the JDS. One section
measures agreement with statements about work experiences. The other section instructs employees to report how accurate statements are based on what someone else in that position would feel. The employee is supposed to imagine someone else in that same position and try to respond in a way that employee thinks the other person might feel about the job.

Reliability of these sections are assessed by measuring internal consistency (Hackman & Oldham, 1975). Internal consistency of the seven job dimensions are given as coefficient alphas. The coefficient alphas are .71, .59, .66, .66, .71, .59, and .78 for skill variety, task identity, task significance, autonomy, feedback from the job itself, dealing with others, and feedback from agents, respectively (Hackman & Oldham, 1975). Coefficient alpha for the three psychological states are .74, .72, and .76 for experienced meaningfulness of the work, experienced responsibility for the work, and knowledge of results, respectively (Hackman & Oldham, 1975). High reliability coefficients, however, tell us nothing about the validity of the items.

To demonstrate validity of the five core job characteristics, researchers (e.g. O'Reilly & Caldwell, 1979; Terborg & Davis, 1982; Griffin, Bateman, Wayne, & Head 1987) changed objective job characteristics of the job and then assessed whether the JDS core characteristics changed accordingly. Laboratory experiments have yielded some promising results concerning the validity of the five core characteristics. O'Reilly and Caldwell (1979) had participants perform a clerical task. In one condition the task was "enriched" and the other the task was "unenriched." The scores on the JDS were significantly higher for the enriched condition than the for unenriched condition, and the
JDS was better able to discriminate differences between the two groups than an alternative measure of the same job characteristics. Similar results were also found by Terborg and Davis (1982), and Griffin, Bateman, Wayne, and Head (1987). The JDS scores were significantly higher on enriched jobs than on unenriched jobs. The validity of the core job characteristics has also been assessed via field experiments. Receptionists jobs were enlarged at a large university (Griffin, 1985). JDS results between the receptionists with enlarged jobs and a sample that did not receive the job enlargement indicated significant changes on JDS dimensions variety, significance, job feedback, agent feedback, and motivating potential score (Griffin, 1985). Luthans, Kemmerer, Paul, and Taylor (1987) randomly assigned salespeople into two groups. In one group a discussion was held on how to enlarge the position. In the control group a discussion was held discussing benefit programs at the company. JDS scores increased on all the dimensions, but the increase was not significant for task identity or autonomy. The results of laboratory and field experiments all indicate the JDS is valid in assessing the five core characteristics.

The construct validity of the JDS has been assessed via the Multitrait-Multimethod (MTMM) design. This design can be used to assess the agreement between two similar measures. Sims, Szilagyi, and Keller (1976) used the MTMM design to assess agreement between the JDS and the Job Characteristics Inventory (a measure developed to measure same job characteristics as the JDS). The convergent correlations were moderate-to-good ranging from .65 to .74. The discriminant correlations were not as promising. These correlations ranged from .35 to .42. Wilson and Grey (1984) conducted similar research but used the Work and Life Attitude Survey (a self-report instrument designed to measure
the same job characteristics as the JDS). The convergent correlations were high for task significance \( (r = .76) \) and feedback from agents \( (r = .80) \). The convergent correlation was moderate for task identity \( (r = .63) \), job feedback \( (r = .62) \) and autonomy \( (r = .58) \) and low for task variety \( (r = .40) \). The discriminant correlations followed a similar pattern, except for task variety, to the convergent correlations. The discriminant correlations were high for task variety, task significance, feedback from agents \( (r = .28, r = .23, \text{ and } r = .24 \text{ respectively}) \), and moderate for task identity, job feedback, and autonomy \( (r = .20, r = .16, \text{ and } r = .19 \text{ respectively}) \). These results lend some support for the validity of the JDS. The MTMM results in combination with the laboratory and field experiment results all indicate the JDS is a valid instrument for measuring the job characteristics.

Job satisfaction, growth satisfaction, and internal work motivation have also been shown to have high correlation with the JDS characteristics. Fried and Ferris (1987) correlated scores on the JDS with measures of overall job satisfaction, growth satisfaction, and internal work motivation. The results indicated a significant correlation between overall job satisfaction, growth satisfaction, and internal work motivation. The significant correlation indicates criterion-related validity for job satisfaction, growth satisfaction, and internal work motivation.

Renn, Swiercz, and Icenogle (1993) stated that factor analytic reviews of the JDS have resulted in fewer than the five core job characteristics, thus suggesting that caution should be given if one desires to look at the results of a particular core characteristic. Research conducted by Idaszak and Drasgow (1987) addressed this problem. The authors hypothesized that measurement artifacts on the JDS were the cause for factor analytic
results obtaining different characteristics. The measurement artifacts were the negatively worded questions on the JDS. Once the JDS was revised and these questions were reversed, factor analytic results confirmed the five factor model. Kulik and Oldham, (1988) reported a few cautions that must be warranted in the use of the JDS. The first is the JDS uses the same question to assess the core characteristics and the affective outcomes. The use of the same question would cause the correlations between core characteristics and the affective outcomes to be inflated due to the common variance associated with the use of the same questionnaire. This would seemingly lead to a higher correlation between core characteristics and affective outcomes than core characteristics and behavioral outcomes, however, the explained relationship between the different variables has not received a great deal of support. A better explanation is that behavioral outcomes are not directly related but, rather, distantly related to the core characteristics and may be influenced by extraneous variables: employee’s health or financial status. There is also a restriction of range, because the organization has terminated employees with a high absentee rate or for poor performance. This restriction of range will deflate the correlation between core characteristics and behavioral variables. Another caution concerning the JDS is respondents may lie or fake responses to appear consistent across all responses. This aspect of the JDS is the reason its use is cautioned in selection purposes.

Interaction

The majority of behavioral scientists would conclude that behavior is influenced by both the situation and the person (Chatman, 1989). The interaction of the person and
situation accounts for the majority of variance in behavior (Bem & Funder, 1978). Bowers (1973) stated that the average variance of behavior due to traits was 13%, for situations approximately 10%, and for interactions between the person and situation 21%. Clearly, how the person and situation interact is a major determinant of behavior. As mentioned earlier, perhaps the validities of personality measures could be improved if the interaction of the situation and personality traits are taken into account.

Psychologists have begun to study this interaction and have ascertained some interesting conclusions. Mowday and Spencer (1981) determined that need for achievement moderated the relationship between job scope and absenteeism. Lee, Ashford, and Bobke (1990) determined that the interaction of type A behavior and perceived control was significantly related to job performance. Schmit and Ryan (1992) ascertained that validities of personality tests and ability tests were moderated by test-taking disposition and motivation. These three studies all show the significant effect moderator variables may have upon behavior. Absenteeism, job performance, and test validities were all affected by certain moderator variables. Clearly, moderator variables can provide a valuable source of information beyond that of only a specific individual trait or situation variable.

Barrick and Mount (1993) applied this moderator variable approach to personality testing and selection. Barrick and Mount hypothesized that the validity of Extraversion and Conscientiousness would be higher in jobs with a high degree of autonomy. The authors used the JDS and several other questions designed to measure autonomy. Personality dimensions were assessed via the Personal Characteristics Inventory, a Five
Factor Model scale, which correlated highly with the NEO PI. The results indicated that Conscientiousness, Agreeableness, and Extraversion all had significantly higher validities in jobs with high autonomy than when just traits or just autonomy were correlated with performance. The correlation of performance and the interaction of autonomy and Conscientiousness was .31, which is greatly improved from meta-analytic results. The correlation of the interaction and performance is also an improvement over the zero order correlations between Conscientiousness and performance, which was .25 in the Barrick and Mount sample. The correlation between the interaction of Extraversion and autonomy with performance was .24, which improved from .14 when Extraversion was correlated with performance. Agreeableness also showed a large improvement between the zero order correlation between Agreeableness and performance ($r = .01$) and the interaction correlation and performance ($r = .18$). It should be noted that high levels of Agreeableness and autonomy actually had a negative relationship with job performance. It also should be noted that the gains in predictability from the interactions are conservative estimates because managerial grade level and military status were taken into account first. The results of this study clearly indicate job content and personality traits interact to affect validity.

Barrick and Mount (1993) used a single situational variable, autonomy, as the moderator variable. The present study attempted to utilize the interaction ideology but the situational variable was feedback. As mentioned earlier, the JDS was used to measure feedback. The JDS measures feedback from three sources; feedback from others, feedback from the job itself, and knowledge of results. For this study, the researcher compiled the
information derived from these three sources to determine overall job feedback. Intuitively it would be logical to conclude that job feedback and Conscientiousness would be related. People high on Conscientiousness have a high desire to achieve. Job feedback would be vital for these people. Job feedback indicates their level of performance or achievement. Therefore, there would be an interaction between job feedback and Conscientiousness on job performance. People high on Conscientiousness would perform higher in jobs with a great deal of feedback than those low on Conscientiousness because the feedback helps them determine how well they are achieving.

There has been some preliminary support for the notion that amount of feedback and Conscientiousness interact to affect performance. Mudgett and Quinones (1997) also assumed a similar relationship between Conscientiousness and feedback. The authors assumed that “conscientious individuals can be expected to adjust their goals to be more in line with past performance and set realistic and achievable goals to be more in line with past performance and set realistic and achievable goals which will lead to goal attainment” (p.5). The authors were interested in how types of feedback interacted with personality dimensions to affect specific criteria, including performance on a task and subsequent goal level. The authors had participants perform a Naval Air Defense simulation where courses of action had to be taken based on certain characteristics of an incoming target. The total number of correct responses indicated their overall performance. The authors provided performance data to participants by two different types of feedback: norm feedback and absolute feedback. Norm feedback provides information by comparing an individual’s performance level to other people’s performance level (Mudgett & Quinones, 1997).
Absolute is not based on a norm or average and is based solely on the individual's performance. The results of the Mudgett and Quinones study concluded that there was an interaction between Conscientiousness and feedback on subsequent performance. Participants high in Conscientiousness performed higher when positive absolute feedback was given than when positive norm feedback was given. Participants high in Conscientiousness performed lower when negative absolute feedback was given than when negative norm feedback was given.

The present study will differ from Mudgett and Quinones (1997) in three ways. First, in the Mudgett and Quinones study there was a greater emphasis on goals and goal setting and absolute and norm feedback. The purpose of this study is to assess how job feedback moderates personality traits and performance. Second, the criterion in this study will be actual job or typical job performance measured via performance appraisals not performance on a simulation. Typical performance refers to the performance an individual will do, not what they can do (DuBois, Sackett, Zedeck, & Fogli, 1993). In the Mudgett and Quinones (1997) study, the authors were concerned with the maximum performance of the participants. Maximum performance is when participants perform at their highest possible level (DuBois, Sackett, Zedeck, & Fogli, 1993). In other words, Mudgett and Quinones wanted participants to perform the best they possibly could. In this study, typical performance will be the criteria. Third, Mudgett and Quinones (1997) provided feedback in terms of goal attainment and provided feedback using two types of methods, norm and absolute feedback. This researcher will use feedback from the job itself, feedback from others, and knowledge of results to assess overall feedback on the job.
Feedback does appear to moderate the relationship between Conscientiousness and performance (Mudgett & Quinones, 1997). Based on these results, it would be logical to assume similar results would occur when actual job performance is the criterion and feedback information is measured by the JDS. These results lead to the first hypothesis, the validity of Conscientiousness will be higher when both job feedback and level of Conscientiousness are high.

Mudgett and Quinones (1996) hypothesized that Extraversion would moderate the relationship between feedback and goal setting. Their logic was that those high on Extraversion would pay more attention to social cues and feedback could be a social cue. Those high on Extraversion would pay a great deal of attention to feedback and adjust their actions according to the feedback. Results indicated that Extraversion was a moderator between feedback and subsequent goal level. Moreover, the level of Extraversion had an effect on performance when feedback was given, regardless of the type of feedback given. Participants high on Extraversion performed higher when positive feedback was given than when negative feedback was given. The authors concluded that Extraversion was a moderator between feedback and performance on the Naval Air Defense simulation. Again there appears to be a relationship between Extraversion and feedback. Therefore, my second hypothesis is that the validity of Extraversion will be higher when both job feedback and level of Extraversion are high. No relationship is hypothesized for the other three Big Five dimensions (Openness to Experience, Agreeableness, and Emotional Stability) and job feedback due to their lack of validity for most positions determined by Barrick and Mount (1991). The relationship between
autonomy and Conscientiousness, Extraversion, and Agreeableness will also be investigated to attempt to replicate the results of Barrick and Mount (1993). No relationship will be hypothesized between autonomy and the other Big Five dimensions (Openness to Experience and Emotional Stability). The other three job characteristics (skill variety, task identity, and task significance) will also be analyzed to determine if they moderate the Big Five dimensions and performance but no relationship will be hypothesized.

To reiterate, the hypotheses regarding job design (as measured by the JDS), personality, and job performance are as follows:

Hypothesis 1: The validity of Conscientiousness will be higher when both job feedback and level of Conscientiousness are high than when job feedback or level of Conscientiousness is low.

Hypothesis 2: The validity of Extraversion will be higher when both job feedback and level of Extraversion are high than when job feedback or level of Extraversion is low.

Method

Participants and Procedure

A total of 134 participants were used in this study. One participant was dropped due to careless answering (all C’s on questions 51-60 on the NEO-FFI). The participants for the study came from three organizations. The first was a large Midwestern church that includes a school. From this organization, 24 participants were used. The employees came from a large variety of positions including secretaries, teachers, and janitors. The second organization was a large Midwestern insurance firm. Ten employees were used from this
organization, which mainly consisted of managers. The final organization was a Midwestern manufacturing organization. From this organization, 100 employees were used. These participants consisted of mostly blue collar factory workers.

On company time, employees completed the personality inventory and Job Diagnostic Survey on a completely voluntary basis. The study was briefly explained to the participants and they were asked to sign a waiver allowing the author to obtain their performance appraisal data. Performance appraisal information was provided by the employee's supervisors.

Instruments

NEO-FFI. The Neo-FFI is a 60 item questionnaire developed to measure the five dimensions of the FFM of personality. There are twelve items for each of the five dimensions. The instructions directed participants to rate amount of agreement or disagreement with statements on a five point likert scale.

Job Diagnostic Survey. The revised Job Diagnostic Survey (JDS) was used to assess the moderator variable, feedback. The revised version contains only two negatively worded items in section two, as opposed to the original version which has seven negatively worded items in this section. Sections one, two, three, and five of the JDS were used in this study. The first two sections measure the core job characteristics and sections three and five measure the psychological states. These sections were the relevant sections for this study and were the only sections used due to time constraints (see Appendix).

The moderator variable, feedback, was ascertained by determining an overall feedback score. The overall feedback score was obtained by averaging the responses from
the eight questions dealing with job feedback. There were two questions measuring feedback from the job itself, two questions measuring feedback from agents, and four questions measuring knowledge of results.

Criteria

Actual job performance was assessed by obtaining employee performance appraisals. The performance appraisals used in this study were the ones currently in use at the organization and were obtained from the employee’s managers. The scores on the performance appraisals were averaged to obtain an overall job performance score for each employee.

The performance appraisal data from the different organizations rated employees on many different aspects and needed to be averaged to form a composite score. The church and school performance appraisals and the insurance companies performance appraisals contained many poor items. For example, one item was “is open minded to suggestions,” another item stated “builds positive relationships with colleagues.” The words open minded and positive relationships are rather vague and difficult to quantify or measure accurately. Items containing vague wording, measured attitudes, or measured personal beliefs were eliminated. The author deleted items that were not task related based on the author’s judgement. Scores from the remaining items were used. All the organization’s performance appraisal items were averaged to arrive at an overall performance score. The second step was to combine the average performance appraisal scores from the three organizations into one performance appraisal variable. The performance appraisals used different scales and had different raters. Therefore, it was
necessary to sort the data set by organization and standardize within each organization, creating one criterion variable.

The organization comprised of the church and school used two types of performance appraisal, one type for the church and one type for the school. The church type of performance appraisals and the school type of performance appraisals were standardized separately and compiled with the data from the other organizations to create another version of the criterion variable. This added version was necessary because the church and school, although they conduct business out of the same building, are really two separate entities.

Analysis

For the test of moderation, a series of interaction variables were created. Each new variable was created by multiplying each personality Conscientiousness and Extraversion by the overall feedback variable. Also, each Conscientiousness, Extraversion, and Agreeableness were multiplied by autonomy to replicate the results of Barrick and Mount (1993).

A moderated multiple regression strategy was used to test for the moderator as suggested by Stone-Romero and Anderson (1994). In this procedure, organization was entered on the first step to account for any variance that may arise due to organizational differences. Employees with certain personality characteristics may also be attracted to certain organizations. Taking organization into account first controls for these differences. The personality variable was entered on the second step of the regression analysis, the JDS variable was entered on the third step, and the interaction term was entered on the fourth
The change in $R^2$ between the third and fourth step was analyzed to detect a moderator variable.

Results

As mentioned earlier, two criterion variables were created. One was standardized by organization and the second standardized the school and church performance appraisals separately and then included these with the other organizations standardized performance ratings. The two criterion variables were correlated to determine if differences between the criterion variables existed. The two criterion variables correlated .95, indicating very little differences between the variables. Because there were no differences between the criterion variables, the analyses will all be reported using the criterion variable where the church and school organization were analyzed separately.

Before the relationship between performance and main effects and the interaction variables were investigated, the reliabilities (given as coefficient alpha) of the relevant scales were computed on this sample. Reliabilities lower than those reported could indicate careless answering. The reliabilities of the Conscientiousness, Extraversion, Agreeableness, Openness to Experience, and Neuroticism were .78, .70, .74, .73, and .80, respectively. The JDS scales autonomy, feedback from the job, feedback from agents, and knowledge of results were .75, .73, .87, and .81, respectively. These reliabilities are comparable to published coefficient alphas for each scale.

The results of this study indicate that feedback was not a moderator between personality and performance (Table 1). This table is broken down by personality dimensions showing the change in $R^2$, the Overall $R^2$, and the significance of the change in
R\(^2\) for each personality dimension at each step of the regression equation. The table also shows the results when the entire sample was used and when just the manufacturing sample was used. The R\(^2\) change, after the interaction of the personality dimension and feedback was entered into the hierarchical regression equation, was non-significant for four of the five personality dimensions. This finding indicated that feedback was not a moderator variable, which failed to confirm hypotheses one and two. However, feedback was a moderator for Openness to Experience (p<.05). Table 2 lists the number, mean, and standard deviation for high, medium, and low levels of feedback at high, medium, and low levels of Openness to Experience. As can be seen on Figure 1 those High on Openness to Experience performed better in jobs with high amounts of feedback. Interestingly, the interaction occurred between average and low feedback at the high end of Openness to Experience. Those that had low amounts of feedback actually performed better than those with average amounts of feedback. Interestingly, those low on feedback had a similar performance level to those high on feedback at the high end of the Openness to Experience continuum.
Table 1
Results of moderated regression analysis testing for feedback as a moderator between personality dimensions and performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>ΔR²</th>
<th>Overall R²</th>
<th>p of Δ</th>
<th>ΔR²</th>
<th>Overall R²</th>
<th>p of Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>.000</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.014</td>
<td>.117</td>
<td>.179</td>
<td>.034</td>
<td>.184</td>
<td>.064</td>
</tr>
<tr>
<td>Feedback</td>
<td>.052</td>
<td>.256</td>
<td>.001*</td>
<td>.423</td>
<td>.277</td>
<td>.036*</td>
</tr>
<tr>
<td>Cons. x feedback</td>
<td>.001</td>
<td>.258</td>
<td>.738</td>
<td>.005</td>
<td>.286</td>
<td>.470</td>
</tr>
<tr>
<td>Extraversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.002</td>
<td>.047</td>
<td>.586</td>
<td>.000</td>
<td>.009</td>
<td>.933</td>
</tr>
<tr>
<td>Feedback</td>
<td>.057</td>
<td>.245</td>
<td>.005*</td>
<td>.057</td>
<td>.240</td>
<td>.016*</td>
</tr>
<tr>
<td>Extra. x feedback</td>
<td>.000</td>
<td>.245</td>
<td>.903</td>
<td>.000</td>
<td>.241</td>
<td>.838</td>
</tr>
<tr>
<td>Agreeableness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.004</td>
<td>.064</td>
<td>.464</td>
<td>.004</td>
<td>.061</td>
<td>.485</td>
</tr>
<tr>
<td>Feedback</td>
<td>.056</td>
<td>.244</td>
<td>.006*</td>
<td>.053</td>
<td>.240</td>
<td>.021*</td>
</tr>
<tr>
<td>Agrec. x feedback</td>
<td>.000</td>
<td>.244</td>
<td>.950</td>
<td>.003</td>
<td>.247</td>
<td>.533</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to Exp.</td>
<td>.014</td>
<td>.117</td>
<td>.177</td>
<td>.006</td>
<td>.080</td>
<td>.428</td>
</tr>
<tr>
<td>Feedback</td>
<td>.069</td>
<td>.287</td>
<td>.002*</td>
<td>.060</td>
<td>.258</td>
<td>.014*</td>
</tr>
<tr>
<td>Open. x feedback</td>
<td>.026</td>
<td>.330</td>
<td>.055*</td>
<td>.036</td>
<td>.340</td>
<td>.053*</td>
</tr>
<tr>
<td>Neuroticism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
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<td>.023</td>
<td>.790</td>
<td>.004</td>
<td>.063</td>
<td>.530</td>
</tr>
<tr>
<td>Feedback</td>
<td>.063</td>
<td>.253</td>
<td>.012*</td>
<td>.062</td>
<td>.258</td>
<td>.012*</td>
</tr>
<tr>
<td>Neuro. x feedback</td>
<td>.008</td>
<td>.268</td>
<td>.230</td>
<td>.330</td>
<td>.311</td>
<td>.076</td>
</tr>
</tbody>
</table>

(Total Sample n=134, for Manufacturing Org. Sample n=100)

* Denotes significance or close enough to be considered significant

Table 2
Number, mean, and standard deviations for low, medium, and high levels of feedback at low, middle, and high levels of Openness to Experience

<table>
<thead>
<tr>
<th>Openness to Experience</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Feedback</td>
<td>12</td>
<td>.457</td>
<td>.939</td>
</tr>
<tr>
<td>Average Feedback</td>
<td>18</td>
<td>-.009</td>
<td>1.161</td>
</tr>
<tr>
<td>High Feedback</td>
<td>13</td>
<td>.598</td>
<td>.722</td>
</tr>
<tr>
<td>Average Openness to Experience</td>
<td>18</td>
<td>-.323</td>
<td>.958</td>
</tr>
<tr>
<td>Low Feedback</td>
<td>17</td>
<td>.068</td>
<td>-.884</td>
</tr>
<tr>
<td>High Feedback</td>
<td>13</td>
<td>.682</td>
<td>.787</td>
</tr>
<tr>
<td>High Openness to Experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Feedback</td>
<td>14</td>
<td>.029</td>
<td>.907</td>
</tr>
<tr>
<td>Average Feedback</td>
<td>10</td>
<td>-.820</td>
<td>.902</td>
</tr>
<tr>
<td>High Feedback</td>
<td>19</td>
<td>.099</td>
<td>.926</td>
</tr>
</tbody>
</table>

(Sample n=134)
Based on these results, the three variables (feedback from the job, feedback from agents, and knowledge of results) used to derive the overall feedback variable were analyzed to determine if just one component of overall feedback drives the results, thus specifying which type of feedback is of interest. The three variables comprising the feedback variable were each multiplied by Openness to Experience; then a separate moderated regression analysis was performed for each variable. Feedback from the job was not a moderator variable for any of the personality dimensions (all p's>.05 for change in $R^2$). Feedback from agents was also not a moderator for any of the personality dimensions and performance (all p's>.05 for change in $R^2$). However, knowledge of results was a moderator between Openness to Experience and job performance when just the manufacturing firm data was used ($\Delta R^2=.04$, $p<.05$). When the entire sample was used the results were still close to significance ($\Delta R^2=.02$, $p=.07$). Thus, the pattern of results is
slightly stronger within the largest organization versus all organizations.

**Replication of Barrick and Mount (1993)**

Barrick and Mount (1993) conducted a study similar to the current study using autonomy as a moderator variable. This researcher attempted to replicate the results of the Barrick and Mount, study which found that autonomy was a moderator between Conscientiousness, Extraversion, and Agreeableness and job performance. In the present study, the results were not replicated when the entire sample was used (Table 3).

However, when just the manufacturing sample was used the results were replicated for Conscientiousness ($\Delta R^2 = .09, p<.01$) and Extraversion ($\Delta R^2 = .04, p<.05$) as shown in Table 3. The number, mean, and standard deviation of performance are given in Table 4 for low, medium, and high levels of autonomy for low, medium, and high levels of Conscientiousness. As can be seen in figure 2, the highest performers were those high on Conscientiousness with jobs high in autonomy, which replicates the results of Barrick and Mount. The number, mean, and standard deviation of performance is given in Table 5 for low, medium, and high levels of autonomy for low, medium, and high levels of Extraversion. As can be seen in figure 3, the highest performers were those high on Extraversion with jobs high in autonomy, which also replicates the findings Barrick and Mount. However, though the results were not duplicated for Agreeableness, the results of the current study can be seen as a replication of Barrick and Mount for Extraversion and Conscientiousness even though the results were replicated solely with the manufacturing organization data. Aggregating data across organizations always risks capturing more error than examining relationships within organizations due to organization specific norms.
or practices. Therefore, it can be concluded that the study results of Barrick and Mount are partially replicated.

Table 3
Results of moderated regression analysis testing for autonomy as a moderator between personality dimensions and performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Sample</th>
<th>Standardized Performance Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta R^2$</td>
<td>Overall $R^2$</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.013</td>
<td>.114</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.002</td>
<td>.121</td>
</tr>
<tr>
<td>Cons. x autonomy</td>
<td>.005</td>
<td>.139</td>
</tr>
<tr>
<td>Extraversion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.002</td>
<td>.046</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.003</td>
<td>.072</td>
</tr>
<tr>
<td>Extra. x autonomy</td>
<td>.018</td>
<td>.151</td>
</tr>
<tr>
<td>Agreeableness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.004</td>
<td>.061</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.003</td>
<td>.079</td>
</tr>
<tr>
<td>Agree. x autonomy</td>
<td>.001</td>
<td>.086</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to Exp.</td>
<td>.014</td>
<td>.117</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.005</td>
<td>.136</td>
</tr>
<tr>
<td>Open. x autonomy</td>
<td>.003</td>
<td>.146</td>
</tr>
<tr>
<td>Neuroticism</td>
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</tr>
<tr>
<td>Neuroticism</td>
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<td>.023</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.005</td>
<td>.074</td>
</tr>
<tr>
<td>Neur. x autonomy</td>
<td>.017</td>
<td>.149</td>
</tr>
</tbody>
</table>

(Total Sample n=134, for Manufacturing Org. Sample n=100)

* Denotes significance

Table 4
Number, mean, and standard deviations for low, medium, and high levels of autonomy at low, middle, and high levels of Conscientiousness

<table>
<thead>
<tr>
<th>Conscientiousness</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Autonomy</td>
<td>20</td>
<td>-.115</td>
<td>.934</td>
</tr>
<tr>
<td>Average Autonomy</td>
<td>10</td>
<td>-.162</td>
<td>1.281</td>
</tr>
<tr>
<td>High Autonomy</td>
<td>4</td>
<td>-.549</td>
<td>8.21</td>
</tr>
<tr>
<td>Average</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Low Autonomy</td>
<td>16</td>
<td>-.226</td>
<td>.865</td>
</tr>
<tr>
<td>Average Autonomy</td>
<td>18</td>
<td>.096</td>
<td>1.022</td>
</tr>
<tr>
<td>High Autonomy</td>
<td>9</td>
<td>.370</td>
<td>.716</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Autonomy</td>
<td>14</td>
<td>-.209</td>
<td>1.039</td>
</tr>
<tr>
<td>Average Autonomy</td>
<td>4</td>
<td>.448</td>
<td>.835</td>
</tr>
<tr>
<td>High Autonomy</td>
<td>5</td>
<td>1.159</td>
<td>.535</td>
</tr>
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</table>

(Sample n=100)
Conscientiousness

Figure 2: Performance levels for those low, average, and high on autonomy for low, middle, and high levels of Conscientiousness

Table 5
Number, mean, and standard deviations for low, medium, and high levels of autonomy at low, middle, and high levels of Conscientiousness

<table>
<thead>
<tr>
<th>Extraversion</th>
<th>Autonomy</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low Autonomy</td>
<td>19</td>
<td>-.256</td>
<td>1.043</td>
</tr>
<tr>
<td></td>
<td>Average Autonomy</td>
<td>8</td>
<td>.741</td>
<td>1.259</td>
</tr>
<tr>
<td></td>
<td>High Autonomy</td>
<td>4</td>
<td>-.188</td>
<td>1.249</td>
</tr>
<tr>
<td>Average</td>
<td>Low Autonomy</td>
<td>25</td>
<td>-.156</td>
<td>.845</td>
</tr>
<tr>
<td></td>
<td>Average Autonomy</td>
<td>11</td>
<td>-.298</td>
<td>1.059</td>
</tr>
<tr>
<td></td>
<td>High Autonomy</td>
<td>5</td>
<td>.589</td>
<td>.789</td>
</tr>
<tr>
<td>High</td>
<td>Low Autonomy</td>
<td>6</td>
<td>-.021</td>
<td>1.028</td>
</tr>
<tr>
<td></td>
<td>Average Autonomy</td>
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<td>-.057</td>
<td>.823</td>
</tr>
<tr>
<td></td>
<td>High Autonomy</td>
<td>5</td>
<td>.526</td>
<td>1.002</td>
</tr>
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</table>

(n=100)
Discussion

The results of this study did not confirm the hypotheses. The results of this study clearly show those high on Conscientiousness did not perform any better than those low on Conscientiousness on jobs with high amounts of feedback. They also show that those high on Extraversion did not perform any better than those low on Extraversion on jobs with high amounts of feedback. In fact, the results indicated that Extraversion and Conscientiousness were not predictors of job performance at any level of feedback. The results also showed that feedback may be a moderator between Openness to Experience and performance. The indication is that, although Openness to Experience is generally a poor predictor of job performance by itself, on jobs with extreme amounts of feedback (high or low) Openness to Experience may be a decent predictor of job performance. The multiple R when Openness to Experience was entered into the equation was .11. The multiple R for the last step of the regression was .30. This increase in the multiple R helps illustrate the usefulness of taking feedback into account when using Openness to
Experience as a predictor.

However, the results indicated that to maximize performance, the organization would want to hire those low and medium on Openness to Experience into jobs with high amounts of feedback. These groups had the highest level of performance.

It is difficult to understand why those with high Openness to Experience scores perform equally well in jobs with extremely high or low feedback and the performance level for jobs with high feedback drops at high levels of Openness to Experience. Perhaps, the reason is because employees high on Openness to Experience are free thinkers, creative, and generally intelligent. Therefore, these employees do not want continual feedback because that might stifle their creativity and, perhaps, they are intelligent enough to know what needs to be done without being told.

The other major finding was that autonomy was a moderator between Extraversion and performance and Conscientiousness and performance. This finding was a replication of Barrick and Mount (1993). Those that were high on Extraversion and those that were high on Conscientiousness performed better on jobs with high amounts of autonomy than did workers low on those personality dimensions. However, Barrick and Mount also found autonomy to be a moderator between Agreeableness and performance, a result that was not replicated.

There are five major implications of this study. First, when using four of the personality traits to predict future job performance in selection, the usefulness of the personality dimensions cannot be increased by analyzing the amount of feedback on the job. In a selection context, the validity of four of the personality dimensions will not be
increased by taking into account the amount of on-the-job feedback.

However, the implications concerning feedback and Openness to Experience are encouraging. Openness to Experience can increase in predictive ability when Openness to Experience is low and when feedback on the job is high. Generally, Openness to Experience is considered a poor predictor of future job performance. When feedback on the job is low, Openness to Experience may be a good predictor of future job performance.

The third implication is that to maximize performance, organizations should hire those high and medium on Openness to Experience for jobs with high feedback. These groups had the highest levels of performance.

The fourth implication concerns autonomy as a moderator variable. The implications here are that on jobs with high amounts of autonomy, Conscientiousness and Extraversion have increased accuracy in predicting future job performance. This finding is important because it replicates Barrick and Mount (1993) with a different sample. Barrick and Mount had primarily managers as their sample. In the present study, the majority of workers were blue collar workers. The results of the current study also show that the findings of Barrick and Mount were not a function of performing many analyses. With an alpha of .05, it would be logical to assume that one in twenty analyses would be significant even when there are no true relationships. Therefore, the results of Barrick and Mount could have been a Type I error. The results of the present study confirm their results and shows the usefulness of Conscientiousness and Extraversion in predicting future job performance when autonomy is high.
The last implication that needs to be addressed is how organizations can use this information. If the organization wishes to improve the predictive ability of Openness to Experience, Conscientiousness, or Extraversion, then autonomy or feedback need to be increased. To improve autonomy, the organization could give more responsibility or empower employees to determine their own schedule or make their own decisions concerning how to complete their work. To improve feedback, it appears vital that the employee understands the feedback. This goal could be reached by providing an opportunity to discuss the feedback and answer questions concerning the feedback given. Research has been conducted (Terborg & Davis, 1982; Griffin, Bateman, Wayne, & Head, 1987; O'Reilly & Caldwell, 1979) in which jobs were enlarged or enriched and autonomy and feedback were increased by changing these aspects of the job. If the aforementioned aspects of the job are improved, then the predictive ability of Conscientiousness, Extraversion, or Openness to Experience should improve.

There are several limitations of this study. The first was the performance appraisals used in this study. The quality of the performance appraisals for the ten participants from the insurance company were very poor with central tendency error occurring. The analyses were run with the insurance company sample deleted to see if a change in results occurred; the amount of change was minimal. The performance appraisals from the church and school were also somewhat poor because many of the items were vague or difficult to quantify.

Another limitation was the within-organization standardization of performance appraisal data. The standardization forces the average score and standard deviation of
scores in each organization to be equal. However, the true performance levels in each
organization may not be the same. Therefore, the criterion variable used in this study may
not reflect true differences in performance between organizations.

A third limitation is that perhaps participants were not motivated or did not
understand how to answer the surveys. As mentioned earlier, one participant answered all
C's on items 50-60 on the personality inventory. Other participants did not answer all of
the questions. There were several other participants who answered the questions wrong by
marking two responses for the same question. Fortunately, those problems occurred on
sections that were not relevant for this study, but such responses still illustrate a lack of
understanding on how to answer the surveys.

Future research should conduct this study again using large samples within each
organization and quality performance appraisal data. Replication of the Openness to
Experience finding is needed to rule out Type I error given the number of hypotheses
tested and the difficult interpretation of the findings. Also, as suggested in Barrick and
Mount (1993) the underlying mechanisms linking personality traits to performance should
be explored further. A study by Motowidlo, Brownlee, and Schmit (1998) studied how
personality traits were linked to performance. The authors determined that Extraversion,
Conscientiousness, Agreeableness, and Neuroticism were not significantly correlated with
job performance. However, knowledge was significantly correlated with skill and skill
was significantly correlated with job performance. The authors also found that
Extraversion was significantly correlated with knowledge and Neuroticism was
significantly correlated with skill. This correlation illustrates how personality traits are
linked to performance, via knowledge and skill, but clearly research needs to explore this area more. Future research should also examine how individuals change their jobs to suit their personality. For example, employees that are on the job for many years may, over time, change the job to suit their personality by structuring their job to have more (or less) feedback or autonomy. This explanation was also suggested by Chatman (1989).

Overall, the hypotheses were not confirmed. Those high on Conscientiousness or high on Extraversion did not perform better in jobs with high amounts of feedback than those low on Conscientiousness or Extraversion. Feedback did appear to moderate the relationship between Openness to Experience and job performance. These results clearly need to be replicated in hopes of providing more evidence for the usefulness of Openness to Experience in selection. Those high on Conscientiousness or Extraversion appear to perform better in jobs with high amounts of feedback than those low on Conscientiousness or Extraversion, replicating the findings of Barrick and Mount (1993).
References


Mudgett, B., & Quinones, M.A. (1997). The effect of personality and feedback type on goal revision and goal commitment. Paper presented at the annual Society for Industrial and Organizational Psychology conference, St. Louis, MO.


Appendix

Job Diagnostic Survey
This questionnaire was developed as part of a Yale University study of jobs and how people react to them. The questionnaire helps to determine how jobs can be better designed, by obtaining information about how people react to different kinds of jobs.

On the following pages you will find several different kinds of questions about your job. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 10 minutes to complete the entire questionnaire. Please move through it quickly.

The questions are designed to obtain your perceptions of your job and your reactions to it. There are no trick questions. Your individual answers will be kept completely confidential. Please answer each item as honestly and frankly as possible.

Thank you for your cooperation.

---

SECTION ONE

This part of the questionnaire asks you to describe your job, as objectively as you can.

Please do not use this part of the questionnaire to show how much you like or dislike your job. Questions about that will come later. Instead, try to make your descriptions as accurate and as objective as you possibly can.

A sample question is given below.

1. To what extent does your job require you to work with mechanical equipment?  

   1  2  3  4  5  6  7

   Very little: the job requires almost no contact with mechanical equipment of any kind.  

   Moderately: many things are standardized and not under my control, but I can make some decisions about the work.  

   Very much: the job requires almost constant work with mechanical equipment.

You are to circle the number which is the most accurate description of your job.

If, for example, your job requires you to work with mechanical equipment a good deal of the time—but also requires some paperwork—you might circle the number six, as was done in the example above.

2. 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 the 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 me almost complete responsibility for deciding how and when the work is done.

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

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

6. To what extent do managers or co-workers let you know how well you are doing on your job?

1 = Very little; people almost never let me know how well I am doing.
2 = Moderately; sometimes people may give me feedback.
3 = Very much; managers or co-workers provide me with almost constant feedback about how well I am doing.

7. 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 co-workers or supervisors may provide?

1 = Very little; the job itself is set up so I could work forever without finding out how well I am doing.
2 = Moderately; sometimes doing the job provides feedback to me.
3 = Very much; the job is set up so that I get almost constant feedback as I work about how well I am doing.

Section Two

Listed below are a number of statements which could be used to describe a job. You are to indicate whether each statement is an accurate or an inaccurate description of your job.

Once again, please try to be as objective as you can in deciding how accurately each statement describes your job—regardless of whether you like or dislike your job.

Write a number in the blank beside each statement, based on the following scale:

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

1. The job requires me to use a number of complex or high-level skills.
2. The job requires a lot of cooperative work with other people.
3. The job is arranged so that I can do an entire piece of work from beginning to end.
4. Just doing the work required by the job provides many chances for me to figure out how well I am doing.
5. The job requires me to use a number of complex or high-level skills.
6. The job can be done adequately by a person working alone—without talking or checking with other people.
7. The supervisors and co-workers on this job almost never give me any feedback about how well I am doing in my work.
8. This job is one where a lot of other people can be affected by how well the work gets done.
9. The job gives me a chance to use my personal initiative and judgement in carrying out the work.
10. Supervisors often let me know how well they think I am performing the job.
11. The job provides me the chance to completely finish the pieces of work I begin.
12. After I finish a job, I know whether I performed well.
13. The job gives me considerable opportunity for independence and freedom in how I do the work.
14. The job itself is very significant and important in the broader scheme of things.
SECTION THREE

Now please indicate how you personally feel about your job.

Each of the statements below is something that a person might say about his or her job. You are to indicate your own personal feelings about your job by marking how much you agree with each of the statements.

Write a number in the blank for each statement, based on this scale:

<table>
<thead>
<tr>
<th>How much do you agree with the statement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

1. It's hard, on this job, for me to care very much about whether or not the work gets done right.
2. My opinion of myself goes up when I do this job well.
3. Generally speaking, I am very satisfied with this job.
4. Most of the things I have to do on this job seem useless or trivial.
5. I usually know whether or not my work is satisfactory on this job.
6. I feel a great sense of personal satisfaction when I do this job well.
7. The work I do on this job is very meaningful to me.
8. I feel a very high degree of personal responsibility for the work I do on this job.
9. I frequently think of quitting this job.
10. I feel bad and unhappy when I discover that I have performed poorly on this job.
11. I often have trouble figuring out whether I'm doing well or poorly on this job.
12. I feel I should personally take the credit or blame for the results of my work on this job.
13. I am generally satisfied with the kind of work I do in this job.
14. My own feelings generally are not affected much one way or the other by how well I do on this job.
15. Whether or not this job gets done right is clearly my responsibility.

SECTION FOUR

Now please think of the other people in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job which is most similar to yours.

Please think about how accurately each of the statements describes the feelings of those people about the job.

It is quite all right if your answers here are different from when you described your own reactions to the job. Often different people feel quite differently about the same job.

Once again, write a number in the blank for each statement, based on this scale:

<table>
<thead>
<tr>
<th>How much do you agree with the statement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

1. Most people on this job feel a great sense of personal satisfaction when they do the job well.
2. Most people on this job are very satisfied with the job.
3. Most people on this job feel that the work is useless or trivial.
4. Most people on this job feel a great deal of personal responsibility for the work they do.
5. Most people on this job have a pretty good idea of how well they are performing their work.
6. Most people on this job find the work very meaningful.
7. Most people on this job feel that whether or not the job gets done right is clearly their own responsibility.
8. People on this job often think of quitting.
9. Most people on this job feel bad or unhappy when they find that they have performed the work poorly.
10. Most people on this job have trouble figuring out whether they are doing a good or a bad job.
SECTION Five

Listed below are a number of characteristics which could be present on any job. People differ about how much they would like to have each one present in their own jobs. We are interested in learning how much you personally would like to have each one present in your job.

Using the scale below, please indicate the degree to which you would like to have each characteristic present in your job.

NOTE: The numbers on this scale are different from those used in previous scales.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Would like having this only a moderate amount (or less)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Would like having this very much</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Would like having this extremely much</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. High respect and fair treatment from my supervisor.
2. Stimulating and challenging work.
3. Chances to exercise independent thought and action in my job.
4. Great job security.
5. Very friendly co-workers.
6. Opportunities to learn new things from my work.
7. High salary and good fringe benefits.
8. Opportunities to be creative and imaginative in my work.
9. Quick promotions.
10. Opportunities for personal growth and development in my job.
11. A sense of worthwhile accomplishment in my work.

SECTION SIX

People differ in the kinds of jobs they would most like to hold. The questions in this section give you a chance to say just what it is about a job that is most important to you.

For each question, two different kinds of jobs are briefly described. You are to indicate which of the jobs you personally would prefer—if you had to make a choice between them.

In answering each question, assume that everything else about the jobs is the same. Pay attention only to the characteristics actually listed.

Two examples are given below:

**JOB A**
A job requiring work with mechanical equipment most of the day

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefer A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Prefer A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutrally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Prefer B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Prefer B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you like working with people and working with equipment equally well, you would circle the number 3, as has been done in the example.

Here is another example. This one asks for a harder choice—between two jobs which both have some undesirable features.

**JOB A**
A job requiring you to expose yourself to considerable physical danger.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Prefer A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Prefer A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutrally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Prefer B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Prefer B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you would slightly prefer risking physical danger to working far from your home, you would circle number 2, as has been done in the example.
<table>
<thead>
<tr>
<th>JOB A</th>
<th>JOB B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A job where the pay is very good.</td>
<td>A job where there is considerable opportunity to be creative and innovative.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>2. A job where you are often required to make important decisions.</td>
<td>A job with many pleasant people to work with.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>3. A job in which greater responsibility is given to those who do the best work.</td>
<td>A job in which greater responsibility is given to loyal employees who have the most seniority.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>4. A job in an organization which is in financial trouble—and might have to close down within the year.</td>
<td>A job in which you are not allowed to have any say whatever in how your work is scheduled, or in the procedures to be used in carrying it out.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>5. A very routine job.</td>
<td>A job where your co-workers are not very friendly.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>6. A job with a supervisor who is often very critical of you and your work in front of other people.</td>
<td>A job which prevents you from using a number of skills that you worked hard to develop.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>7. A job with a supervisor who respects you and treats you fairly.</td>
<td>A job which provides constant opportunities for you to learn new and interesting things.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>8. A job where there is a real chance you could be laid off.</td>
<td>A job with very little chance to do challenging work.</td>
</tr>
<tr>
<td>Strongly Prefer A</td>
<td>Slightly Prefer A</td>
</tr>
<tr>
<td>9. A job in which there is a real chance for you to develop new skills and advance in the organization.</td>
<td>A job which provides lots of vacation time and an excellent fringe benefit package.</td>
</tr>
</tbody>
</table>
10. A job with little freedom and independence to do your work in the way you think best.

11. A job with very satisfying teamwork.

12. A job which offers little or no challenge.

Biographical Background

1. Sex: Male ___ Female ___

2. Age (check one):
   __ under 20  __ 20-29  __ 30-39  __ 40-49  __ 50-59  __ 60 or over

3. Education (check one):
   __ Grade School
   __ Some High School
   __ High School Degree
   __ Some Business College or Technical School Experience
   __ Some College Experience (other than business or technical school)
   __ Business College or Technical School Degree
   __ College Degree
   __ Master's or Higher Degree

4. What is your brief job title? ________________________________

   Number of years at current organization: ____________________

   Number of years at current position: ________________________