Autonomy as a Moderator of the Relationships Between the Big Five Personality Dimensions and Job Performance

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In this study we investigated the moderating role of autonomy on the relationships between the Big Five personality dimensions and supervisor ratings of job performance. On the basis of data from 146 managers, results indicated that two dimensions of personality, Conscientiousness ($r = .25$) and Extraversion ($r = .14$), were significantly related to job performance. Consistent with our expectations, the validity of Conscientiousness and Extraversion was greater for managers in jobs high in autonomy compared with those in jobs low in autonomy. The validity of Agreeableness was also higher in high-autonomy jobs compared with low-autonomy ones, but the correlation was negative. These findings suggest that degree of autonomy in the job moderates the validity of at least some personality predictors. Implications for future research are noted.

In recent years there has been a resurgence of interest in the validity of personality measures as predictors of job performance. This is due largely to the emergence of the five-factor structure of personality (Digman, 1990) and to recent meta-analytic evidence that has demonstrated that certain personality constructs are consistently predictive of important job-related criteria (Barrick & Mount, 1991; Hough, Eaton, Dunnette, Kamp, & McCloy, 1990). However, an issue that has not been adequately addressed is whether the validities of personality constructs are influenced by the presence of moderator variables. The purpose of this study was to examine whether one variable, extent of autonomy on the job, moderates the relationship between personality constructs and job performance for management jobs.

First, we briefly examine the five-factor personality taxonomy and recent meta-analytic evidence of the validity of personality constructs. After that, we discuss the moderating effects of situational strength on the relationship between personality and behavior and examine studies that have investigated the moderating effects of autonomy.

The Big Five Personality Taxonomy

A well-accepted personality structure consisting of five factors has recently emerged in the personality literature (see Barrick & Mount, 1991; Digman, 1990; or Goldberg, 1990, for a comprehensive discussion of these factors). This five-factor taxonomy, commonly referred to as the Big Five, has been found in a number of investigations with different theoretical frameworks, with diverse instruments, across different samples (including samples from different cultures), and with ratings obtained from different sources (e.g., Digman, 1990; Goldberg, 1990; McCrae & Costa, 1985; Norman, 1963).

The Big Five factors (and prototypical characteristics for each factor) are: (a) Extraversion (e.g., sociable, talkative, and assertive), (b) Agreeableness (e.g., good-natured, cooperative, and trusting), (c) Conscientiousness (e.g., responsible, dependable, persistent, and achievement oriented), (d) Emotional Stability (viewed from the negative pole; tense, insecure, and nervous), and (e) Openness to Experience (e.g., imaginative, artistically sensitive, and intellectual).

Validity of the Big Five Personality Dimensions

Two recent meta-analyses (Barrick & Mount, 1991; Hough et al., 1990) have reanalyzed published and unpublished criterion-related validity studies with personality taxonomies. Although these reviews adopted slightly different personality frameworks, both sets of conclusions can be summarized in accord with the Big Five taxonomy. In general, these studies indicate that one dimension of personality, Conscientiousness (which includes achievement and dependability constructs), is a valid predictor ($\rho > .20$) for all occupational groups and all job-related criterion types studied. Furthermore, as part of the U.S. Army Selection and Classification Study (Project A), McHenry, Hough, Toquam, Hanson, and Ashworth (1990) also found that achievement and dependability were valid predictors of targeted criteria. Taken together, these results demonstrate that persons who are responsible, dependable, persistent, and achievement oriented (i.e., high in Conscientiousness) generally perform better than those who are not.

In addition, Barrick and Mount (1991) reported that Extraversion was a valid predictor for two occupations involving social interaction, management ($\rho = .18$) and sales ($\rho = .15$). Although other personality dimensions were also found to be valid predictors for some occupations or criterion categories, the magnitude of these validities was smaller (generally, $\rho \ll .10$).

Finally, it must be noted that in our meta-analytic review...
(Barrick & Mount, 1991), we investigated whether moderators would affect the relationship between the Big Five and criterion measures within various job categories (e.g., professionals, police, managers, sales, and skilled or semiskilled). For the managerial occupation we reported that substantial variance in observed validities remained after corrections were made for four statistical artifacts (i.e., sampling error, between-study differences in test unreliability, criterion unreliability, and degree of range restriction). As this suggests, it is appropriate to search for moderator variables that can account for differences in validities across studies. In this study we investigated whether the amount of autonomy on the job is one such moderator of the relationship between personality and performance.

Situational Strength and Autonomy

It has long been argued that the relationship between personality characteristics and behavior is moderated by the strength (or demands) of the situation (Bem & Allen, 1974; Bem & Funder, 1978; Chatman, 1989; Mischel, 1977; Monson, Hesley, & Chernick, 1982; Stagner, 1977; Weiss & Adler, 1984). That is, the extent to which a person's personality characteristics predict behavior is hypothesized to differ depending on the degree to which the external environment inhibits a person's freedom to behave in idiosyncratic ways.

Researchers in this area have distinguished between strong and weak situations. Strong situations are those in which there are considerable demands or pressures to induce conformity (Mischel, 1977). In such situations the person is restricted in the range of behaviors that she or he may be both willing and able to exhibit. In contrast, weak situations are those in which there are rather few demands or pressures to conform. Under these conditions the person has considerable discretion in determining which behaviors, if any, to undertake. Thus, individual differences in personality characteristics are more likely to influence the specific behavior a person adopts.

Most research in this area has occurred in laboratory settings where strong and weak situations are induced experimentally. In organizational settings it is well known that jobs differ in the extent to which the incumbent can perform the job in idiosyncratic ways, that is, select the appropriate work behaviors, decide the order and pace of job tasks, coordinate those activities with other employees, and so forth. The dimension of work that best captures these differences is the amount of autonomy on the job (Hackman & Oldham, 1976; Lee, Ashford, & Bobko, 1990; Peters, Fisher, & O'Connor, 1982; Steers & Spencer, 1977). For example, an assembly line job that is closely supervised, highly structured, and machine paced provides very little opportunity for individual differences in personality to be expressed. On the other hand, an outside sales position, such as life insurance agent, that receives very little supervision, has relatively little structure, and is individually paced allows for a much broader range of individual differences to be expressed. These extreme examples illustrate that personality variables may predict job performance better in some situations (or jobs) than in others. In this study we examined the extent to which the amount of autonomy on the job moderates the validity of personality constructs. We recognize that autonomy and situational strength are not identical constructs; nonetheless, in organizational settings the amount of autonomy on the job is a reasonable proxy for conditions that permit (weak situations) or inhibit (strong situations) individual differences in personality to be expressed.

Tests of the Moderating Effects of Autonomy

Although there is some consensus in the personality literature that personality traits may be more useful in predicting behavior when autonomy is high than when it is low (Mischel, 1977; Monson et al., 1982; Stagner, 1977), very little research has directly investigated this in work situations. In the closest study to date, Lee et al. (1990) found that the degree of autonomy a person has in his or her job moderated the relationships between Type A behavior and job performance, job satisfaction, and somatic complaints for employees from a variety of organizations. The results supported the hypothesized effect of autonomy, because the interactions demonstrated that people who score high on Type A behavior have the highest job performance and satisfaction when they work in highly autonomous jobs.

Some research in the area of job design is relevant to this study (Hackman & Lawler, 1971; Hackman & Oldham, 1975). However, these studies differ in several ways from those that have examined situational strength. First, personality rather than situational strength is assumed to be the moderator between autonomy (as one component of the Job Characteristics Model) and measures of job performance and job satisfaction. Second, the personality measures used are different from those in this study. For example, Growth Need Strength is used to represent the employee's work values or need for personal growth and development on the job. Third, most studies examine such attitudes as job satisfaction as the outcome of interest rather than such behaviors as job performance.

There are some studies, however, that have used personality measures, such as need for achievement, that appear to be part of the Conscientiousness dimension. For example, Steers and Spencer (1977) used a sample of 115 managers from different departments of a manufacturing firm and found a sizable moderator effect for need for achievement on the relationship between autonomy and a supervisor's rating of performance. In another study with 569 employees in state and local governmental agencies, Mowday and Spencer (1981) reported significant moderating effects for need for achievement between autonomy and the supervisor's rating of performance. In this study (Hackman & Lawler, 1971; Hackman & Oldham, 1975) moderated the relationship between autonomy and performance and satisfaction when they work in highly autonomous jobs.

In this study we test two major hypotheses. First, on the basis of recent meta-analytic results (Barrick & Mount, 1991; Hough et al., 1990), we hypothesized that two personality constructs, Conscientiousness and Extraversion, would be valid predictors of managerial performance. Second, and most important, we hypothesized that the validity of these two personality constructs would be higher when the degree of autonomy in the job
was high. We did not hypothesize any relations for the other dimensions of personality (Emotional Stability, Agreeableness, and Openness to Experience) because of the weak and inconsistent results reported for those dimensions for management jobs (Barrick & Mount, 1991).

Method

Sample and Procedure

The sample for this study was taken from 154 participants of a training program presented by the U.S. Army Management Training Activity Department. Ninety-five percent volunteered to participate in the study, which resulted in a total sample of 146. The subjects were mid-level managers (62%) and first-line supervisors (38%) who were primarily male (68%), college graduates (56%), and middle aged (M = 43 years, SD = 6). All were civilians who worked in U.S. Army installations located across the country. Fifteen percent of the subjects reported directly to army officers, and the remainder reported to civilian managers. The job grade levels held by the subjects were Grade 11 (4% of the sample), Grade 12 (458), Grade 13 (32%), Grade 14 (15%), and Grade 15 (4%).

The subjects completed a personality inventory and a brief questionnaire that measured the extent of autonomy in their job. (These measures are discussed in greater detail later) Supervisors also rated the subjects' job autonomy, as well as their performance.

Construct Valid Measures of the Big Five

Construct valid measures of the Big Five personality constructs were developed in the following way. First, the personality scales from several established personality inventories were categorized into one of the Big Five personality dimensions described earlier or a miscellaneous dimension by six expert raters. (A more detailed explanation of the rating procedure and inventories included is provided in Barrick & Mount, 1991.) These ratings provided initial evidence about the construct assessed in each personality scale. Next, the items from these personality scales were listed, and we identified the underlying traits assessed by each. Items were retained if both of us agreed the item corresponded to one of the prototypical characteristics of which the construct was composed. This resulted in a pool of 232 items that comprehensively assessed the prototypical characteristics of the five personality constructs.

These items constituted an instrument called the Personal Characteristics Inventory (PCI), which was administered to over 800 respondents (415 students in a large midwestern university, 298 salespeople from two large nationwide organizations that manufacture consumer durable goods, and 100 middle managers from the U.S. Army, a different sample of managers than that used in this study). Respondents indicated their degree of agreement with each item on a 3-point scale (1 = agree, 2 = neither agree nor disagree, and 3 = disagree). They were instructed to respond as they actually are, not as they would like to be.

The accumulated data were factor analyzed by the principal components method and varimax rotation. Note that several factor analytic procedures were performed on the data, including different extraction methods (i.e., principal components analysis and principal axes factoring), the extraction of several different sets of factors (i.e., 5, 6, and 7), the use of various procedures for determining the number of factors to be retained (i.e., larger than unity eigenvalues, the scree test, and psychological meaningfulness of the factors), and a number of different rotation techniques (i.e., varimax and direct oblimin). Regardless of the procedures used, the results were very similar to those reported in this article.

The questionnaire was revised on the basis of the factor analytic results and the psychometric properties of the items and factors (dimensions). We retained items that had rather high factor loadings on a priori factors and exhibited a simple structure (i.e., did not also load on other factors). Of the 232 items in the trial inventory battery, 137 items were selected as measures of the five personality constructs: 25, 20, 40, 22, and 30, respectively, for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience. Coefficient alpha reliability estimates were .85, .67, .93, .85, and .86, respectively. In addition, we gathered test-retest reliability data for 63 salespeople over a 9-month period, and the values were .73, .70, .84, .73, and .79, respectively.

We also obtained additional evidence to support the construct validity of the scales. In one study, 205 students responded to both the PCI and the NEO-PI Personality Inventory (Costa & McCrae, 1985), which also measures the Big Five. (Note that there was no overlap in items between the PCI and the NEO-PI) Correlations (uncorrected) among similar constructs were .68, .56, .71, .67, and .63 for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience, respectively. In another study a sample of 88 salespeople completed the 20-item, bipolar adjective trait scales originally used by Norman (1963) to represent the Big Five model. The correlations (uncorrected) between similar constructs were .66, .51, .67, .64, and .59, respectively. In both studies, correlations across dissimilar constructs were much lower. These results are quite similar to those reported by other researchers. For example, Goldberg (1992) reported correlations between similar personality dimensions from a set of 100 Big Five markers and the NEO-PI that ranged from .46 to .69 as evidence of the construct validity of those markers.

Finally, we conducted one other study that is relevant to the construct validity of the PCI. In the study, 19 doctoral and master's students in a personnel selection class were presented with the items on the PCI. The items were presented in random order, and the subjects were instructed to assign each item to one of the five factor dimensions, defined by the set of marker traits identified by Goldberg (1992). At least 18 of the 19 raters assigned each item to the appropriate personality construct. These results provide evidence of the content validity of the items derived from the PCI.

In summary, development of the PCI was based on both a deductive and inductive approach (Buros, 1984). That is, the choice and definition of the Big Five constructs preceded and governed the selection of items. Items were screened on the basis of the internal structure that emerged from a factor analysis of the original PCI. Furthermore, judgments obtained by trained raters provided evidence of the content validity of the items. Finally, rather high correlations of similar constructs on the PCI with those on the NEO-PI and on the bipolar adjective trait scales provides additional evidence about the construct validity of the PCI.

Criterion Measures

We developed a performance appraisal form on the basis of an analysis of the management jobs. Eight dimensions were identified as important for job success: (a) Planning, (b) Administration, (c) Development, (d) Communication, (e) Coordination, (f) Effort, (g) Organizational Commitment, and (h) Know-How. Raters were provided each dimension's name, a brief definition, and clarifying examples. Raters were also informed that ratings were being collected for research purposes. Ratings were made on a 7-point scale that ranged from consistently below 1 (1) to always exceeds job requirements (7). Each supervisor rated the manager who reported to him or her (coefficient α = .88). In addition, we obtained an overall performance rating, which was a summary evaluation of the manager's overall performance, compared with work expectations.

Moderator Variable—The Autonomy Measure

Extent of job autonomy was assessed with a 6-item questionnaire. Two items were selected from the autonomy measures in the Job Diagnostic Survey (Hackman & Oldham, 1976). Four additional items were
developed (patterned after the two Job Diagnostic Survey items) to more comprehensively assess managerial autonomy. The items were (a) "There is a lot of autonomy in doing the job"; (b) "The job is quite simple and repetitive"; (c) "If someone else did the job, they could do the tasks in a very different manner than I do"; (d) "The way the job is performed is influenced a great deal by what others (supervisors, peers, customers, etc.) expect of the incumbent"; (e) "The way the job is performed is influenced a great deal by company rules, policies and procedures"; and (e) "The work itself provides a lot of clues about what the incumbent should do to get the job done." For each item, the rater was asked to indicate whether the statement was an accurate or inaccurate description of the job. Responses were coded in such a way that higher scores indicate more autonomy. Taken together, the items measured the degree of discretion the respondent had in selecting appropriate work behaviors, deciding the order and pace of job tasks, and coordinating those activities with others.

The questionnaire was completed by both the participating manager and the immediate supervisor. The interrater reliability value was .55, and the internal consistency coefficient (alpha) was .70. The managers' autonomy ratings were factor analyzed, and as expected, it was found that all 6 items loaded on a single factor. To provide further evidence of the construct validity of the autonomy measure, we conducted a separate study. Sixty-two Master's of Business Administration (MBA) students made ratings about the degree of autonomy in six different jobs on the basis of job descriptions adopted from the Dictionary of Occupational Titles (U.S. Department of Labor, Employment and Training Administration, 1977). The jobs and their respective Dictionary of Occupational Titles codes were as follows: manager of production supervisors (289.117-022), insurance sales agent (250.257-010), assembly-line supervisor (739.137-010), executive secretary (201.362-030), industrial janitor (381.687-018), and assembly-line operator (806.684-010). We selected these jobs to represent a broad range of autonomy levels. Half of the subjects rated the degree of autonomy present in a job by using a summary measure. In doing this job, an employee would have a lot of freedom and independence doing the work and would have a major 'say' in scheduling the work, determining the procedures to use, and deciding how to carry it out." The other half rated each job on the 6-item autonomy scale described earlier.

We conducted t tests to assess whether there were significant differences between the independent assessments of autonomy by the two groups. The mean level of autonomy did not significantly differ between the two groups of raters for any of the six jobs, ts(60) = 0.31–1.48. Across all six jobs, the rank-order correlation between the two autonomy measures from the two sets of raters was .97. Taken together, these results provide evidence of the construct validity of the 6-item autonomy measure used in this study. In this study, the split-half reliability coefficient for the 6-item autonomy measure was .82.

The average of the supervisor's and incumbent's autonomy score was used as the autonomy measure in this study because it incorporates the view that two different raters have about the degree of autonomy for a given job, which should be a more reliable measure than either measure alone. (Note, however, that analyses based on supervisor or incumbent ratings are similar to those obtained with the average of the ratings and are available on request.)

Results

Means, standard deviations, reliabilities, and correlations for the performance ratings, five personality factors, and autonomy and job level measures are reported in Table 1. Correlations with two performance measures, the sum of the eight dimensional ratings and a single-item overall performance rating, are reported. For purposes of brevity, in any discussion of the performance ratings, we refer to the summed dimensional rating (Results for the overall rating were similar, albeit slightly larger).

As can be seen, Conscientiousness had the highest validity coefficient among the five personality constructs, and as hypothesized, only Conscientiousness (r = .25, p < .01, ρ = .35) and Extraversion (r = .14, p < .05, ρ = .20) had validity estimates that were significantly different from zero. For the other personality constructs (Emotional Stability, Openness to Experience, and Agreeableness), the validity coefficients were near zero and not significantly related to job performance. These results correspond to those reported for management jobs by Barrick and Mount (1991) in their meta-analytic review.

As reported in Table 1, the autonomy measure has a negligible correlation with the criterion. To assess whether the degree of autonomy on the job moderated the relationship between the personality variables and the performance criterion, the hierarchical regression procedures outlined by Cohen and Cohen (1983) were followed. For each personality variable, the main effects attributed to the personality and autonomy measures were entered prior to the interaction term, and then these main effects were partialled from the interaction term of each regression.

In order to control for the effects attributed to the various job levels held by the managers in this study, we first entered their managerial grade level in all regressions. This was done because previous research (Hunter & Hunter, 1984) suggested that the relationship between individual differences in cognitive ability and job performance is stronger as job complexity increases. Generally, higher grade jobs were expected to have greater complexity in this study. In addition, we also controlled for the type of supervisor (military vs. civilian) the manager reported to, because management style may have differed for military supervisors. Note, however, that the results were very similar whether one controlled for both job level (pay grade) and type of supervisor or for neither variable.

The results from the hierarchical regressions are reported in Table 2 and are based on the most conservative test, given that we controlled for both job level and type of supervisor. The results indicate that for three of the five analyses (Conscientiousness, Extraversion, and Agreeableness), the interaction of the autonomy measure and personality construct was significantly related to job performance. The results demonstrate that the magnitude of the validities reported between the personality construct and the criterion is influenced by the level of autonomy present in the job, although the amounts of explained variance attributed to these interactions are somewhat small (R² = .03).

The nature of these interactions can be seen in Figure 1, where performance was regressed on the three personality variables, separately, for different levels of autonomy. On the basis of the procedure recommended by Cohen and Cohen (1983), high, average, and low regression lines (+1, 0, and −1 standard deviations from the mean) were plotted. As shown, the slopes were steeper as autonomy increased. This means that Conscientiousness, Extraversion, and Agreeableness predicted performance better and, hence, had higher validity in jobs where there was high autonomy. The slope for Agreeableness, however, was negative, which indicates that in high-autonomy jobs, managers low in agreeableness performed better than those high in agreeableness.

Discussion

The emergence of the five-factor model of personality provides a useful framework for examining the relationship be-
MODERATING EFFECTS OF AUTONOMY

Table 1
Descriptive Statistics and Correlations for All Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</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>
</tr>
</thead>
<tbody>
<tr>
<td>1. Performance (by dimensions)</td>
<td>5.71</td>
<td>0.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.50)</td>
</tr>
<tr>
<td>2. Performance (overall)</td>
<td>5.85</td>
<td>0.93</td>
<td>.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.50)</td>
</tr>
<tr>
<td>3. Conscientiousness</td>
<td>2.48</td>
<td>0.32</td>
<td>.25**</td>
<td>.32**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.89)</td>
</tr>
<tr>
<td>4. Extraversion</td>
<td>2.07</td>
<td>0.42</td>
<td>.14*</td>
<td>.18*</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.85)</td>
</tr>
<tr>
<td>5. Emotional Stability</td>
<td>2.26</td>
<td>0.41</td>
<td>.01</td>
<td>.00</td>
<td>.33**</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.83)</td>
</tr>
<tr>
<td>6. Openness to Experience</td>
<td>2.45</td>
<td>0.33</td>
<td>.06</td>
<td>.13</td>
<td>-.05</td>
<td>.30**</td>
<td>.21**</td>
<td></td>
<td></td>
<td></td>
<td>(.85)</td>
</tr>
<tr>
<td>7. Agreeableness</td>
<td>2.53</td>
<td>0.25</td>
<td>.01</td>
<td>.01</td>
<td>.24**</td>
<td>-.01</td>
<td>.32**</td>
<td>.09</td>
<td></td>
<td></td>
<td>(.67)</td>
</tr>
<tr>
<td>8. Autonomy</td>
<td>5.46</td>
<td>0.98</td>
<td>.07</td>
<td>.04</td>
<td>.07</td>
<td>.13</td>
<td>.16*</td>
<td>.02</td>
<td>.07</td>
<td>.07</td>
<td>(.54)</td>
</tr>
<tr>
<td>9. Job Level</td>
<td>12.70</td>
<td>0.92</td>
<td>.08</td>
<td>.13</td>
<td>.17*</td>
<td>.03</td>
<td>-.08</td>
<td>-.06</td>
<td>-.16</td>
<td>.12</td>
<td>(1.0)</td>
</tr>
</tbody>
</table>

Note. All tests are one-tailed. N = 146. Values in parentheses represent coefficient alphas, except for the performance ratings, which are assumed to be .50. The average interrater reliability of a single supervisor's rating of .50 is based on the average mean estimate reported by Rothstein (1990). This value was used as an estimate of the reliability because the most important source of error in performance ratings are those attributable to differences between raters rather than to the content of the measurement procedure.

tween personality constructs and performance criteria in different occupations. One reason for the rather low validities obtained in some reviews of the validity of personality (e.g., Guion & Gottier, 1965; Schmitt, Gooding, Nee, & Kirsch, 1984) is that no well-accepted taxonomy for classifying personality attributes was available; consequently, meaningful relations between specific constructs and criteria may have been obscured. In our meta-analytic review (Barrick & Mount, 1991), we suggested that another possible reason for the somewhat low validities is that moderator variables may influence the relationship between personality constructs and criterion measures. Results of this study suggest that one such moderator is the amount of autonomy on the job.

For two of the personality constructs, Conscientiousness and Extraversion, the results were in the direction predicted. Managers with higher scores on these constructs performed better in jobs with high autonomy compared with those managers in jobs low in autonomy. On the other hand, for Agreeableness the results were unexpected. Managers with lower scores on Agreeableness performed better in jobs with high autonomy compared with those managers in jobs low in autonomy. Taken together, these findings have important implications for the

Table 2
Results of Moderated Regression Analyses of Personality Variables and Level of Job Autonomy on Performance Ratings (Across Dimensions)

<table>
<thead>
<tr>
<th>Variable</th>
<th>ΔR²</th>
<th>p of Δ</th>
<th>Overall R²</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial grade level</td>
<td>.03</td>
<td>.025</td>
<td>.03</td>
<td>-.19</td>
</tr>
<tr>
<td>Military status</td>
<td>.005</td>
<td>ns</td>
<td>.035</td>
<td>-.09</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.06</td>
<td>.001</td>
<td>.09</td>
<td>.26</td>
</tr>
<tr>
<td>Conscientiousness x Autonomy</td>
<td>.01</td>
<td>ns</td>
<td>.10</td>
<td>.09</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.03</td>
<td>.025</td>
<td>.13</td>
<td>.17</td>
</tr>
<tr>
<td>Extraversion x Autonomy</td>
<td>.02</td>
<td>.05</td>
<td>.05</td>
<td>.11</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>.00</td>
<td>ns</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>Emotional Stability x Autonomy</td>
<td>.01</td>
<td>ns</td>
<td>.04</td>
<td>.08</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>.00</td>
<td>ns</td>
<td>.05</td>
<td>.04</td>
</tr>
<tr>
<td>Openness to Experience x Autonomy</td>
<td>.00</td>
<td>ns</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.00</td>
<td>ns</td>
<td>.03</td>
<td>-.01</td>
</tr>
<tr>
<td>Agreeableness x Autonomy</td>
<td>.02</td>
<td>.05</td>
<td>.05</td>
<td>.16</td>
</tr>
</tbody>
</table>

Note. All tests are one-tailed.
Figure 1. Regression lines for three personality variables for three levels of autonomy (+1, 0, and -1 standard deviations from the mean).
conditions under which managers perform best. Managers who are responsible, persevering, dependable, and achievement oriented (Conscientious) and those who are sociable, outgoing, and assertive (Extraverted) perform better in jobs when given a great deal of discretion in selecting the appropriate work behaviors to be performed. Conversely, managers who are soft-hearted, courteous, forgiving, trusting, and cooperative (Agreeable) perform better in jobs that do not provide much discretion in the way the work behaviors are performed. One possible explanation for the latter finding is that managers high in Agreeableness may be more rule compliant and cooperative and therefore perform better when given a high degree of structure with little ambiguity in pursuing the objectives of the job. Another possible explanation is that in highly autonomous jobs, being too agreeable may be viewed negatively by supervisors in military settings. Overall our results indicate that autonomy is a moderator of the relation between personality and performance, but the direction of the relationship differs across personality constructs.

Generally speaking, our results are similar to those reported in other studies that have assessed the moderating influence of job autonomy (Lee et al., 1990; Peters, Fisher, & O'Connor, 1982). In these studies, the relationship between individual differences (in Type A behavior and cognitive ability, respectively) and important outcomes was higher when the job had high autonomy. Our findings also complement the work of personality theorists (Monson et al., 1982; Stagner, 1977; Weiss & Adler, 1984) who have argued that traits are most likely to be useful in those settings where situational pressures are weak (i.e., high autonomy). Overall, these results suggest that the degree of autonomy in different positions is an important moderator of the relationship between some personality characteristics and job performance.

When interpreting the results of this study, one must recognize that in many respects the sample studied provides a conservative test of whether autonomy moderates the predictive power of personality on job performance. All participants were managers, and nearly half were from a single job grade (45% from Grade 12). These factors may have artificially constrained the variability of the autonomy measure. In addition, when conducting the moderated multiple regression, we controlled for the influence of job levels and type of supervisor on performance ratings, which may also have reduced the degree of observed variance in autonomy. Nevertheless, the managerial jobs studied in this analysis did differ in their content and level of autonomy, and these differences were large enough to moderate the relationship of three of the Big Five with job performance.

As stated earlier, the degree of autonomy on the job may either inhibit (low autonomy) or permit (high autonomy) a broad range of behaviors to be expressed. Thus, it may be expected that the variability in job performance is less for managers in low-autonomy jobs compared with those in high-autonomy jobs. In order to test this, we divided our sample into five subgroups of approximately equal size, on the basis of autonomy scores. As expected, the results showed that, generally, as the amount of autonomy on the job increased, the amount of variability in job performance also increased ($M_s = 3.68, 4.48, 5.14, 5.71, and 6.42$, and $SD_s = 0.61, 0.84, 0.92, 1.21, and 1.10$, respectively, for the five groups). These results provided a manipulation check on the validity of the autonomy measure.

Such results, however, raise concerns about whether the assumption of homogeneity of residual variances for the predicted performance values is met. Examination of a plot of standardized residuals from this study indicated that there were increasing residuals associated with larger performance values. Although this inspection revealed heteroscedasticity or unequal residual variances, three recent studies (Alexander & DeShon, 1992; Dretzke, Levin, & Serlin, 1982; Stone & Anderson, 1991) have demonstrated that when the sample is fairly equal at various levels of the moderator variable, as indicated by the equal sample sizes for the five autonomy subgroups in this study, the $F$ test is robust to heteroscedasticity effects. In fact, when sampling is substantially equal over levels of the moderator variable in situations where the homoscedasticity of residual variances assumption is not met, the effect is a reduction in the power of the $F$ test. Therefore, the case can be made that the heteroscedasticity of residuals in this study actually results in a more conservative moderator test, and thereby, the significant results reported in this study are understated.

Note that the reduced variability in performance for low-autonomy jobs is not similar to range restriction in selection situations. In such situations the restriction in range on the predictor is an artificial result of the selection decision that occurs outside the job, whereas in the present case the reduced variability on the criterion is caused by the job itself; that is, the effect is due to the conditions under which the job is performed (degree of autonomy).

In future research it will be important to investigate the causal mechanism underlying the relationship between the level of autonomy, the nature of the personality construct, and job performance. It is possible that the moderating effect of autonomy on the personality variable is due to the continuous reciprocal influence that occurs between these two variables (Weiss & Adler, 1984). According to this view, the manager's personality characteristics (e.g., high levels of Conscientiousness and Extraversion) may produce an increase in the amount of autonomy the incumbent is allowed, which may then influence what the manager does next, which in turn can produce a further change in autonomy, and so on. Therefore, the use of longitudinal designs ought to further the understanding of the causal relationship between these variables.

In conclusion, the major finding of this study is that the degree of autonomy on the job moderates the validity of at least three dimensions of the Big Five (Conscientiousness, Extraversion, and Agreeableness). These findings help clarify the conditions under which personality constructs are likely to be related to job performance in management jobs. Future research must determine if the results reported in this study are generalizable to different jobs (e.g., sales, skilled or semiskilled, etc.) or organizational settings.

References


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