Psychological Testing in Personnel Selection, Part III: The Resurgence of Personality Testing

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This article is the third in a three-part series examining the development of selection testing. Part I focused on the historical development of personnel selection testing from the late 19th century to the present, with particular attention given to personality testing. Attention was given to the efforts of early industrial psychologists that shaped and defined the role of testing in the scientific selection of employees. Part II examined the development of methods and standards in employment testing, with particular emphasis on selection validity and utility. We also explored the issues of selection fairness and discrimination in selection as they relate to psychological testing. Part III explores the development and application of personality testing with a particular emphasis on the development of the Big Five personality model and the utility of adding personality testing to the menu of choices for personnel selection methods. The transient nature of models of personality is noted, and current paradigms and the utility and fairness of personality testing for modern organizations is discussed.

In the first article in this series, which was published in the Spring 2008 issue of Public Personnel Management, we noted that while the utility of some selection instruments, particularly cognitive ability testing, has been widely accepted, the usefulness of personality testing in selection has not fared nearly as well. Logic dictates that personality should influence performance, and research has revealed that successful managers share a large number of personality traits regardless of time or organization. However, reviews of the research exploring the validity of personality testing has generally not supported the validity or utility of personality testing. Nevertheless, recent research in personality testing has been promising, and there seems to be considerably more optimism about the role of personality testing in selection. It is to these issues we now turn.

Contemporary Personality Testing in Employee Selection

In recent years, the use of personality testing as a human resource selection method has been heavily criticized because personality tests have historically had low criterion
validity, low predictive validity, high development and use costs, and considerable risks for adverse impact. When coupled with the risk personality tests present for invasion of privacy and their generally lack of acceptance by test takers, their application as selection instruments is sanctioned only with a fair amount of caution by staffing experts.\(^5\)

Certainly, however, all personality tests do not share either the same limitations nor strengths. Individual instruments are developed using methods, and each test assesses a unique set of psychometric properties. Also, each will have been validated for use in either quite narrow or broader populations. Certainly, the personality tests developed for discriminating between people with a mental disorder and people without a mental disorder have only very specific utility in highly specialized personnel selection activities. On the other hand, personality tests developed to assess test takers’ possession of certain traits or personality-related abilities may be useful for predicting employees’ behaviors and outcomes across a broad array of positions.\(^6\)

Despite a significant amount of research, there remains considerable disagreement about the value of personality testing in employee selection. While a majority of the selection research of the last 30 years has called the value of personality testing into question, the search for predictors of job performance that have less adverse impact than cognitive ability tests has renewed interest in personality testing.\(^7\) Some have suggested that using personality testing in conjunction with cognitive ability testing can enhance the validity of employee selection decisions while also reducing the adverse impact of the decision-making process.\(^8\) However, confusion over the definition of personality, how to measure personality, and what exactly personality tests measure has hampered such efforts and kept the controversy over personality testing alive.\(^9\) In part to answer critics, the focus in personnel psychology in recent years has been on developing theories of the psychological processes that underlie and determine job performance, and this work is opening new doors for the use of personality testing for selection purposes.\(^10\)

Proponents of general mental ability (GMA) as a solid predictor of job performance are aware that the core components of this predictor seem to relate to the acquisition of job knowledge: People with demonstrated high levels of GMA seem to acquire job knowledge with greater speed and depth, and this boosts job performance. At the same time, it is well known and well accepted by experienced psychologists that certain personality traits enhance a person’s ability to actuate intellectual capacity and that other personality traits dampen that ability.\(^11\) It is likely, then, that using efficient and valid tools to measure a person’s GMA and assessing his or her personality traits that influence receptiveness to information, interference of cognitive and affective states, and willingness to ally and interface with others would lead to better personnel selection decisions.

Although developing tools to fairly and thoroughly measure GMA and personality traits is the most complex approach to improving the selection process in terms of criterion validity and cost-effectiveness, it is also potentially the most fruitful. The field of personnel psychology has only recently become equipped to seriously undertake the development of meta and trait-oriented instruments for employee selection. The
reason for this is the natural maturation of the nearly 100-year-old science and related scientific methods, the advent of sophisticated and readily available computer support in most major organizations, and the success of the education system in training an army of managers, psychologists, business owners, investors, specialty consulting firms and staffs with advanced research skills.

A number of meta-analyses have produced precise and generalizable estimates of the validity of different constructs for predicting job performance and made it possible to calculate correlations among the constructs. This work of identifying predictive personality traits, adapting statistical and psychometric methods, and dealing with workforces and hardware has been done against a backdrop of the rapid evolution of measurement techniques that score aspects of personality that are themselves amalgamations of subcomponent parts labeled by construction rather than absurdity. The research findings are only beginning to be applied to employee selection, so one should not be discouraged by the infancy of this approach and the current crudity of the tools the approach has yielded. A vast array of metapredictors and metautilities that could amplify the strong but comparatively simple utility of cognitive tests await discovery.

Hogan, Hogan, and Roberts have noted that since the early 1990s, personality has come to be understood as the enduring and stable reputational aspects of how a person wishes to be seen and behave in interpersonal relationships. Thus, when a person completes a personality questionnaire, the evaluator is getting a rough index of reputation. These authors believe that the link between personality scale scores and reputation is why well-constructed personality tests predict nontest behavior.

Since the early 1990s, estimates of the validity of personality measures have inched upward. This may be largely due to the resurgence of factorial approaches, which have consistently found what have come to be known as the Big-Five personality factors that seem to reoccur as core elements of personality across many studies. With the confusion about what represents personality beginning to clear, with the validity of personality as a personnel selection measure improving, and with personality factors beginning to demonstrate increasing stability within and across instruments, interest in the use of personality tests in selection has increased.

The Big-Five Personality Factors

We noted above that a person’s GMA is associated with his or her ability to acquire the job knowledge and job-related skills that result in improved individual and organizational performance. It is also reasonable to assume that, all other things being equal, the degree to which an employee possesses the personality trait of conscientiousness should be correlated with job performance. Schmidt and Hunter found this to be the case when analyzing findings from several studies of personality and job performance, writing that, “controlling for mental ability, employees who are higher in conscientiousness develop higher levels of job knowledge, probably because conscientious individuals exert greater efforts and spend more time ‘on task.’” These authors go on to point out that the central determining variables in job performance
appear to be GMA, job experience, and the personality trait of conscientiousness. From these conclusions, it is reasonable to surmise that a combination of intellectual ability and personality traits and attributes that potentiate focus, dedication, commitment, collaboration, readiness to learn, dependability, group orientation, and problem solving (i.e. some form of maturity or psychological uniqueness) is really what is being measured by tests of GMA.

The Big Five personality factors can be traced to the factor analytic studies of Louis Leon Thurstone in the 1930s. Thurstone was probably the first to describe five independent common factors that emerged in his factorial research. While he set aside these studies of the core of personality and never followed up on his findings, others took up the work. Raymond Cattell repeatedly talked of at least 12 core factors that emerged from his personality research, but when others later analyzed his variables, only five factors proved to be unique. A number of other investigators have found the five core factors.

The Big-Five factors have been labeled as follows:

- Factor 1: Extraversion, or surgency.
- Factor 2: Agreeableness.
- Factor III: Conscientiousness.
- Factor IV: Emotional Stability, or neuroticism.
- Factor V: Culture, or, more recently intellect or openness to experience.

Hogan, Hogan, and Roberts, and others, have pointed out that the basic personality factors can be organized hierarchically and that each factor can be broken down into hundreds, if not thousands, of traits. For example, talkativeness, assertiveness, and activity level traits such as silence and passivity are indicative of extraversion. Agreeableness is demonstrated through kindness, trust, and warmth and disagreeableness is demonstrated by hostility, selfishness, and distrust. Organization, thoroughness, and reliability are signs of conscientiousness, while carelessness, negligence, and unreliability are signs that an individual lacks this factor of their personality. Lack of emotional stability is manifested in nervousness, moodiness, and temperamentality, and negative culture traits are shallowness and imperceptiveness. As reflected in the newer terminology for Factor V—intellect or openness to experience—imagination, curiosity, and creativity are traits for people with a positive culture.

The five personality factors have been shown to reliably predict supervisors' ratings of employees' job proficiency and training proficiency. In fact, when comparing the validity coefficients of measures of the personality factors of intellect and agreeableness and job performance with the validity coefficients of scores on well-accepted cognitive tests used for selection purposes and job performance, Hogan, Hogan, and Roberts indicated that the correlations approach each other. Certain instruments such as integrity tests, U.S. Army personnel selection tests, and customer service measures, which contain facets of the Big-Five personality factors have been found to have validity coefficients in the .33 to .50 range. This is certainly as respectable as the range of validity coefficients for GMA assessments and flies in the

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face of the old prevailing opinion that personality tests have low validities for personnel selection. Some psychology researchers are now modifying their stance with regard to the use of personality tests in personnel selection. Hogan, Hogan, and Roberts have clearly stated that those who label personality tests in employment selection as having low validities and limited utilities are simply wrong.

New instruments have begun to emerge. The NEO Personality Inventory (NEO-PI) is an adaptation of the Eysenck three-factor model that, through interactions with Hogan, Hogan, and Roberts, permits the assessment of agreeableness and conscientiousness. A prolific body of work on the NEO-PI scales has emerged that integrates a wider variety of other questionnaire scales, including those developed by Eysenck, Jackson, and Spielberger; the Minnesota Multiphasic Personality Inventory; and the Myers-Briggs Type Indicator. As a result, it is now possible to identify employees and job candidates who possess the personality factors and traits of good salesmen. These instruments allow a rallying point for the application and refinement of personality tests in personnel selection.

The debate about how many factors represent the useful core of personality continues, with critics such as Cattel, Hans Eysenck, and Susan Clonninger arguing for more or fewer components. However, psychology researchers and HR practitioners are increasingly becoming convinced that personality can be defined in quantifiable and measurable ways and that measures of personality have considerable proven utility in informing personnel selection decisions.

Evidence for the utility of personality assessment instruments is growing as researchers identify the job performance correlates of personality traits and the importance of these relationships for work organizations. The development of better conceptual frameworks for the study of personality and of meta-analytic methodologies has facilitated the examination of the effects of personality traits on attitudinal and behavioral variables of interest to organizations.

In one of the earliest meta-analyses of Big Five personality factors and job performance, Barrick and Mount found that conscientiousness was a significant predictor of job performance across each of the occupational groups studied. They also reported that extraversion was a significant predictor of success in managerial and sales positions. At approximately the same time, Tett, Jackson, and Rothstein reported moderate validities for using measures of the personality factors of agreeableness and openness to experience (i.e., culture) as predictors of job performance.

Following up their earlier analysis, Barrick and Mount examined the relationships between the Big Five personality factors and job proficiency and training proficiency. They reported in 1993 that conscientiousness was significantly related to both job proficiency and training proficiency and that extraversion was significantly related to job performance in managerial and sales positions. They also reported that openness to experience and agreeableness were valid predictors of training proficiency across all occupations studied.

In a more recent meta-analysis, Judge and Ilies examined the relationships between the Big Five factors and performance motivation. Their results indicate that neuroticism was moderately negatively correlated with performance motivation,
especially for goal-setting motivation. They also found conscientiousness to be a significant predictor of performance motivation across the three motivational perspectives of goal-setting, expectancy, and self-efficacy.

Research findings further suggest that personality is related to career success. Judge, Higgins, Thoresen, and Barrick studied the relationships between the Big Five factors and three indicators of career success—job satisfaction, income, and occupational status. Similar to other researchers, Judge et al. found that conscientiousness was a valid predictor of all three indicators of career success, while neuroticism negatively predicted income and occupational status.

Recent research has also indicated that personality may have a significant effect on the types of psychological contracts that employees form with their employers. Individuals who score highly on measures of neuroticism are more likely to form transactional psychological contracts, and individuals who score highly on measures of conscientiousness are more likely to form relational contracts. Relational contracts have been found to influence employee attitudes and behaviors positively, being related to higher levels of job satisfaction and affective organizational commitment and to fewer intentions to leave the organization. Individuals with high neuroticism and low conscientiousness are also more likely to perceive a breach of the psychological contract.

The research cited above suggests that personality is directly or indirectly related to cognitive, attitudinal, and behavioral variables that organizations value. This evidence, along with the availability of more construct valid measures of personality and better methods for assessing personality, has made the use of personality tests in personnel selection and development more common.

**Personality Testing, Adverse Impact, and Incremental Validity**

Some evidence exists for the utility of using personality tests in combination with cognitive ability tests to reduce adverse impact and increase the validity of the organization's selection methods. The assumptions underlying this argument are that there are predictors of job performance other than cognitive ability and that measuring those “other” predictors will allow employers to make more-informed, fairer personnel decisions.

However, recent research has shown that adding assessments of people’s characteristics that differ less consistently across groups (i.e., personality) to an assessment of a characteristic that can vary across groups (i.e., basic cognitive ability) does not reduce the potential for adverse impact to the degree that is often expected. Schmitt et al. demonstrated this using an example of the addition of a predictor that demonstrated no group differences \( d = .00 \) to a predictor that demonstrated a large group difference \( d = 1.00 \) to form a predictor composite. It is often believed in such cases that the effect size of the composite predictor will be .50. Actually, the effect size only decreases to .71. The chance of obtaining a smaller than expected reduction in
effect size increases if the predictors are uncorrelated and share little common variance with the criterion variable.

Studies indicate that the addition of alternative predictors such as biodata and performance on personality tests and in interviews to measures of cognitive ability in a selection battery reduced, but did not remove, the potential for significant adverse impact. The reduction in adverse impact appears to only occur with the addition of two or three predictors. Beyond the addition of two or three predictors, there is little gain in the reduction of potential for adverse impact. Furthermore, not only did the potential for adverse impact exist when the alternative predictors were used in combination with cognitive ability, but substantial potential remained even when the alternative predictors were used alone without cognitive ability, and effect sizes were as low as .20.

Although the use of personality tests in conjunction with cognitive ability tests may not have the desired effects on reducing adverse impact, it appears that the using composite predictors results in significant incremental improvements in predictive validity. The smallest group differences were created when the alternative predictors were used without cognitive ability, produced low group differences, had validities of at least .30, and had high levels of intercorrelations (.50 and above) among themselves.

These findings create a conflict for organizations that want optimal prediction in selection processes but also want to avoid the negative effects that optimal prediction might have on protected groups. For optimal prediction, it is best to create a composite predictor that includes a measure of cognitive ability and an additional measure such as a personality if those constructs are valid predictors of job performance. Incremental validity and prediction will be enhanced to the degree that the composite predictors are uncorrelated and account for unique variance in the criterion variable. Under such conditions, however, the potential for group differences in performance on the assessment instruments and adverse impact increase. For maximum reductions in group differences, a composite predictor is needed that excludes cognitive ability and ensures high correlations among the alternative predictors. This should result in minimum potential for adverse impact, but it will also result in decreased predictive and incremental validity due the increased common variance among predictors and the common variance that the predictors share with the criterion variable.

Research supports the use of personality tests in addition to cognitive ability measures where both are valid predictors of job performance. However, organizations must be aware that the inclusion of a personality test will probably not reduce group differences to the degree that they might expect. Therefore, organizations will need to make their own decisions regarding the use of these predictors, validity maximization, and potential adverse effects based on their own values, needs, and strategy. Since using personality tests alone can result in adverse impact, some have argued that it would be better to use them in combination with cognitive ability in order to ensure maximum predictive validity and be more defensible in court, if necessary.
Conclusion

The rich history of the application of scientific methods and testing in personnel selection and management traces an evolution from crude measures to quite refined and valid ones. Clearly, personality testing in employee selection has passed through a similar development and may be emerging as one of the exciting and promising areas that will provide managers with needed tools in the 21st century. As the measurement and correlates of personality in work organizations continue to receive attention from researchers, we can no longer doubt that personality measures will be refined to the point that they will someday play a vital role in employee selection.

Notes


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