

Personnel Selection and Assessment

By Warren Bobrow, PhD

Let's say there are five people applying for one job. Are all five equally qualified? Of course not. What is it about one applicant that makes this person more likely to perform at a higher level on the job than the other four? Personnel selection and assessment applies the measurement of individual differences to the hiring of people into jobs where they are likely to succeed. Industrial and Organizational (IO) psychologists who practice in this area use information about the job and the candidates to help a company determine which candidate is most qualified for the job.

What we now consider IO Psychology, began during early twentieth century. Both psychologists (Hugo Münsterberg) and management philosophers (Frederick Taylor) were interested in selecting the right people for jobs, and how this would affect productivity. The field flourished during World War II, as large scale aptitude batteries (*Army General Classification Test*) and leadership assessment techniques (Office of Strategic Services assessment centers) were developed. This led to a wide acceptance of using structured techniques to select people for jobs. IO psychology moved away from clinical judgment, and toward predictions based on more reliable and valid selection techniques.

A concern about fairness in selection procedures arose during the Civil Rights era. Through a series of court cases, particularly *Griggs vs. Duke Power* (401 U.S. 424, 1971), standards for the validation and use of pre-employment tests were established. In 1978, *The Uniform Guidelines on Employee Selection Procedures* were adopted. Much of the case law and material in the Guidelines were later codified in the Civil Rights Act of 1991.

Based on sound practices and legal precedents there is a general framework for the development and use of psychological tests for employee selection, as discussed below.

Job Analysis

This is the process of determining the knowledge, skills, abilities and personal characteristics (*KSAPs*) required for a given job. This is normally accomplished by surveying and/or interviewing job incumbents and their supervisors.

Selection System Development

Based on the results of the job analysis, IO psychologists choose selection methods which are most likely to be correlated with performance for the specific job. Multiple assessment methods are normally used in a selection system, because one technique rarely covers all the KSAPs for a job. The selection system also needs to be integrated into the company's entire hiring process (e.g., recruiting, selection, and training) in order to be effective. While there can be great variance across jobs, meta-analyses have been performed on different selection instruments across different jobs which provide valuable information for IO psychologists choosing tests and assessments. This large body of research is summarized below in Table 1.

Table 1

Meta-Analytic Correlations Between Selection Tools and Job Performance (Schmidt & Hunter, 1998)

Selection Tool	Validity
Cognitive Ability	.51
Work Sample Tests	.54
Interviews (structured)	.51
Peer Ratings	.49
Job Knowledge Tests	.48

Job Tryout Procedures	.44
Interviews (unstructured)	.38
Biographical Data	.35
Conscientiousness Tests	.31
Reference Checks	.26
Job Experience (years)	.18
Education (years)	.10
Interests	.10
Graphology (handwriting)	.02
Age	-.01

Note. Validity coefficients (*rho*) include corrections for sampling error and unreliability.

As can be seen, cognitive ability and work sample tests are better predictors of job performance than measures of personality. However, it should be noted that the advent of the *Big 5* factor model (Barrick and Mount, 1991) and the development of non-clinical personality instruments, has led to a renaissance of the use of personality measures in selection. The construct of *emotional intelligence* has yet to show consistent links with job performance in meta-analytic studies, probably because it lacks construct validity (Davies, Stankow, and Roberts, 1998).

Validation

A hallmark of IO psychology is the measurement of the validity of an assessment process. While there are three strategies for determining if a selection procedure is valid (construct, content and criterion-related), the latter two are most commonly used. Criterion-related studies are done on tests for jobs where there are many incumbents and tests are being used to measure personality and/or ability. Meta-analyses may be used to apply criterion-related studies to jobs where sufficient data is not available for a local criterion-related study. Content valid tests are ones that directly measure skills and abilities related to the job. This strategy is often used for work sample and job knowledge tests, particularly when there are not enough job incumbents to have adequate statistical power for a criterion-related study.

Fairness

The concept of a *fair* test is complex. However, the *Uniform Guidelines* have operationally defined it. The **4/5ths Rule** was developed to provide a guideline as to whether a selection procedure unfairly discriminates against racial minorities, women, or those ages 40 and older. If the passing rate for one of these groups is .80 or greater than the passing rate of the highest scoring group (assumed to be whites, or males or those under age 40), the procedure is considered fair. If the procedure does not satisfy the 4/5ths rule, it is then incumbent on the employer to demonstrate that the procedure was professionally developed and valid. Because the 4/5ths rule is so clear and there are established professional guidelines for validating and using tests, large class-action claims against tests are now rare. Recent challenges to tests have involved invasion of privacy (see *Saroka v. Dayton Hudson*, 235 Cal. App. 3d 654, 1991). The *Americans With Disabilities Act* (ADA) turned out to be somewhat of a red-herring for testing complaints in that there was great concern leading up to it, but very few people have used the law to challenge selection procedures.

As in other areas of psychology, the use of computers and the internet have significantly impacted IO psychology. Using computers for aptitude and personality tests reduces costs, lessens error rates and speeds the scoring of responses. Mead and Drasgow (1993) found that the reliability and validity of paper-and-pencil tests and computer administered tests are equivalent.

Another frontier is using computers to model live simulation exercises, where the computer provides a

variety of stimuli depending on the response from the participant. There is some data that shows equivalence in validity between live and computer-based simulations (Bobrow and Strachan, 2003). As with paper-and-pencil tests, the ability to administer valid, complex simulations via a computer represents a huge cost savings to organizations, and would make these types of tools available to more companies.

One of the ways psychologists should bring their expertise to the workplace is to ensure that proper selection procedures are used. However, as shown above, selection work is a specialty that requires competence based on education, training and experience. *APA Ethics Code Standard 2.01, Boundaries of Competence* (American Psychological Association, 2002) requires non-IO psychologists to either seek supervision, or refer clients when asked to assess candidates for hiring and/or promotion.

References

American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, 57, 1060-1073.

Barrick, M.R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1-26.

Bobrow, W.S., & Strachan, A. (2003). *Innovative methods of selecting employees: Simulations and in-baskets*. Presented at the 56th Annual California Psychological Association Convention, San Jose, California.

Davies, M, Stankov, L., & Roberts, R.D. (1998). Emotional intelligence: In search of an elusive construct. *Journal of Personality and Social Psychology*, 75, 989-1015.

Equal Employment Opportunity Commission, U. S. Civil Service Commission, U. S. Department of Labor, & U. S. Department of Justice. (1978, August 25). Uniform guidelines on employment selection procedures. *Federal Register*, 43, 38290-38309.

Mead, A.D., & F. Drasgow. (1993). Equivalence of computerized and paper-and-pencil cognitive ability tests: A meta-analysis. *Psychological Bulletin*, 114, 449-458.

Schmidt, F.L., & Hunter, J.E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124, 262-274.

Warren Bobrow, PhD is a licensed psychologist and principal with *The Context Group* (www.contextgroup.com/hr.htm) in Los Angeles. He specializes in personnel selection, assessment, and surveys. Many of his recent assignments have included manager assessment centers and the design of computer-based selection systems. Dr. Bobrow received his PhD in Industrial and Organizational Psychology from the University of Tennessee.