

Discussion, Caveats and Limitations

The job elements listed on the WRQ are taken directly from the PAQ. The basic assumption of the WRQ is that jobs can be described with acceptable validity with the PAQ, and this information can be used to infer which personal attributes may be most important for doing jobs. This information about job requirements and inferred attributes may help assure improved matches between jobs and people. The WRQ appears to be consistent with Dunnette and Borman's (1979) portrayal of an idealized counseling and job placement system (as such a system might be applicable to individuals with disabilities):

(a) Employers cooperate in describing all jobs with standard task checklists which are scorable according to previously derived behavioral and attribute categories. (b) 'Counselees'...use similar checklists to record previous work and nonwork experiences, preferences, and estimated capabilities. (c) Counselees' responses are scored according to the above job and attribute categories and the scores referred to a data bank for job matching; a preliminary listing of jobs appropriate for each counselee is provided. (d) Final steps in the process utilize additional assessment procedures (job samples, job knowledge tests, simulations, aptitude tests) to provide the individualized information necessary for joint decision making" (p. 485).

Internal Validity: Arguments for internal validity of the WRQ are based on the direct matching of WRQ items with job requirements that are stated on the same items. It assumes that WRQ items have been correctly understood, that WRQ ratings correctly reflect individual capabilities and tolerances and are made with the same frame of reference as PAQ ratings on jobs in the database.

WRQ results will vary according to ways in which items are rated and item limits are set. The appropriateness of the WRQ for identifying occupations appropriate for an individual with a disability is not based on specific (job-oriented) work experience, but rather on the similarities of the basic human behaviors rated on the WRQ and job elements described by the PAQ. It should be clear that these similarities do not reflect acquired, job-related knowledge, skills, abilities and other characteristics required to perform similar occupations. However, people who have performed, or could perform various generically-stated work activities presumably can be expected to learn to perform other jobs that involve these behaviors more readily than they could learn to perform jobs with other work activities that are not consistent with their capabilities and tolerances (E. J. McCormick, personal communication, May 10, 1985).

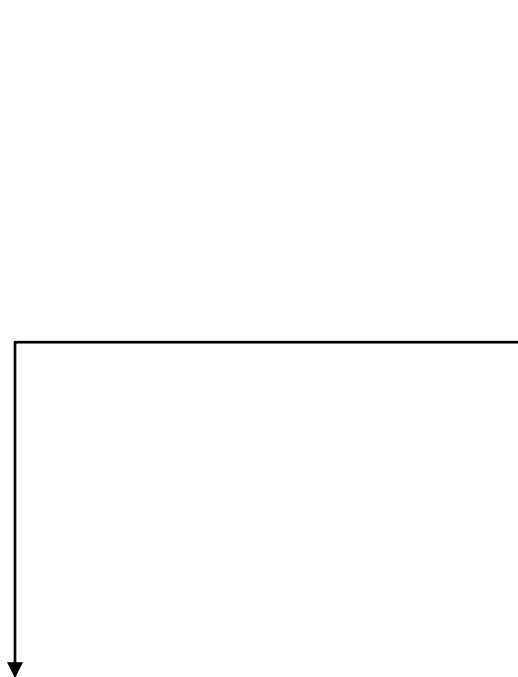
External Validity: Issues of external validity are meant to be addressed through future research. The ultimate criterion of the validity of the WRQ might be evaluated after a period of time by following up to determine

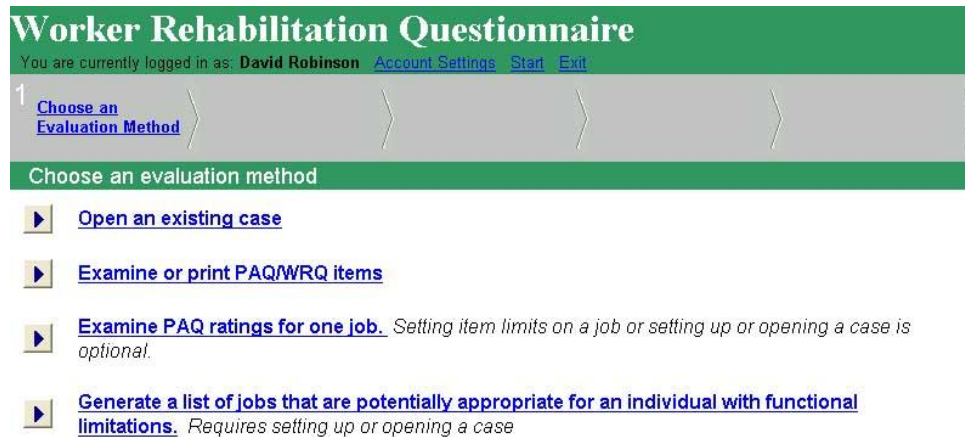
how well people have done who have gone into one of the closest-matching jobs listed on a WRQ output report, as contrasted with those who are not working or who have gone into other types of jobs. Such an effort would be

extremely difficult to carry out on a practical basis, but this is one model. Another method of assessing external validity might be to 1) use the PAQ to analyze a number of jobs currently being performed by members of any population of individuals with functional limitations, 2) administer the WRQ to a sample of these individuals, and 3) assess the number of times jobs listed by the WRQ were held by members of that sample. Our working hypothesis is that when the computer matches ratings on an individual with requirements of jobs, the closest matches represent better occupational possibilities than are likely arrived at on the basis of less information.

Time can be a factor in assessing the quality of the match between an individual and a potentially appropriate job. Assessment of the quality of the WRQ job-match could be made at the time a job is listed on an output report, at the time of job application or hiring for that job, upon completion of job training, at the end of a probationary period or after years of performing the job.

Limitations: Major limitations of the WRQ are its complexity and strong need for rater training. It requires evaluators to recognize the necessity for rating each item or setting each limit using PAQ database definitions and rating scale anchor points, which may make it difficult or impossible for individuals to [self-rate](#) or for family members or significant others to rate the person's capabilities and tolerances. Another limitation may be the length of time required to rate capabilities and tolerances. At the bottom left of each item definition is a **Save Evaluation** hotlink as shown on Item #75, Buyers, for example, on the next page.





Open an existing case in the **Choose an evaluation screen** above. Some people readily understand how to [rate their capabilities and tolerances](#) using rating scale anchor point information, and can be asked to do so. To the extent of their ability, they and family members or significant others should participate in the rating process. The more complete the information, the better the match against the database.

It should be clear that database ratings on any job, e.g., Plumber, may be different from ratings that can be made on a specific plumber's job. The database ratings for any given job should be regarded as a prototype for that job, and may not be fully applicable to other jobs with the same title. An occupational specialist must avoid over-interpreting WRQ results because they are statistical estimates. They should not be used in a rigid, formal, mechanistic way to classify individuals into occupational categories. WRQ results should be used in combination with medical, historical, labor market, and other information. The WRQ provides a structure for the collection of occupational data, including (or especially) quantitative data about a job, and is meant to be part of a multimethod assessment battery (Meyer, Finn, Eyde, Kay, Moreland, Dies, et al., 2001) that provides a standardized vocabulary and syntax for describing how disability affects an individual's ability to perform specific job elements.

Some of the jobs in the PAQ database are obsolete, such as Telegraphic Typewriter Operator. Among the tasks that still lie ahead is to pick through the 2,491 jobs to eliminate the jobs that do not produce results on [O*NET Crosswalks](#).

Still another limitation of the WRQ is that it may be subject to common method bias, i.e., use of PAQ/WRQ items and the PAQ database. This makes it necessary to consider non-PAQ information—knowledge, skills, abilities, interests or other competencies (KSAOs)—that might be available with respect to specific jobs in specific organizations.

Database Job-Matching Systems: Any system of job analysis with an occupational database consistent with Dunnette and Borman's (1979) idealized job counseling and placement system could use a [job-matching algorithm](#) similar to the WRQ. The problem with most non-PAQ/WRQ job analysis systems or methods, including the O*NET, is the lack of an extensive job database. Campion, Morgeson and Mayfield (1999) and Peterson, et al. (2001) have discussed the fact that development of the O*NET suffered from very limited response rates from employers and employees; for example, some key analyses are based on only 29 occupations. Standardized job information is a rare commodity, which is what makes the PAQ database so unique and statistically stable, constructed as it is from analysis of [more than 300,000 jobs](#).

The PAQ database can be understood as an opportunity sample or “catch-as-catch-can” sample of jobs that falls within the theoretical population of jobs in general but represents that population to an unknown degree. Thus, it is not appropriate to generalize from the PAQ database to all jobs or to represent that an individual whose limitation precludes him or her from performing any job in the database is precluded from performing any job at all (a requirement of Step 5 in the Social Security Administration's sequential evaluation process)(American Psychiatric Association, et al, undated). This is where statistical information leaves off and expert judgment weighs in. Scott and Wertheimer (1962) emphasized that, since most research samples are likely to be nonrepresentative, it behooves researchers to consider how nonrepresentativeness might limit the generality of their conclusions. In most cases this amounts to a matter of thoughtful judgment rather than empirical technique (Scott & Wertheimer, 1962). Scott and Wertheimer's advice to researchers seems equally applicable to practitioners.

Beyond Job Placement: Even though a job listed on a WRQ output report may appear to be appropriate for an individual, placement of the individual in an available job is not a sure-fire guarantee of success on the job. Characteristics of the organization in which the job exists are important. More research has been reported on the fit between persons and organizations than on the fit between persons and jobs, especially in recent years (Kristof, 1996). Research has found that individuals make job choice decisions that are consistent with their preferences, personality, self-esteem, locus of control, values, interests, and needs (Saks & Ashforth, 1997; Judge, Bono & Locke, 2000). Hogan, Hogan & Roberts (1996) related Big Five personality measures to employment decisions.

Vocational Interests: Holland (1992) and Tracey & Hopkins (2001) hold that vocational interests are major determinants of career selection and subsequent satisfaction. Gati (1991) acknowledged the importance of vocational interests in job choice, but offered a hierarchical model for the structure of vocational interests, in contrast to Holland's well-known circular-hexagonal model. Gati, Krausz & Osipow (1996) investigated this

hierarchical model further and tested taxonomy of 44 difficulties in career decision-making. Some of these difficulties may be relevant for individuals with disabilities who are forced into occupational change. Fouad and Bynner (2008) have discussed voluntary vs. involuntary work transitions in detail. Major categories of difficulties found by Gati, Krausz and Osipow (1996) include lack of readiness to make career decisions at the beginning of the process, lack of information about oneself or about occupations or about ways of obtaining additional information, inconsistent information pertaining to unreliable information, unwillingness to compromise, dislike to accessible career alternatives and external conflicts, such as disagreement with a significant other concerning career alternatives or other factors. Gati, Shehav & Givon (1993) found that readiness to compromise on occupational alternatives that are different from an ideal occupation is an important issue in failure to make occupational decision. Wanberg, Kanfer, & Rotundo (1999) investigated three broad classes of individual differences variables as predictors of job-search intensity among unemployed job seekers: job search motives (commitment to being employed and avoiding financial hardship), job-search competencies (job search self-efficacy, emotion control and motivation control) and job-search constraints (illness, child care and family responsibilities, and transportation restrictions). They found a positive association between job-search intensity with the probability or speed of obtaining employment. None of the research cited in this paragraph evaluated occupational impacts of disability or of being obliged to leave a job, especially one that generated various levels or types of satisfaction.

A critical aspect of employability assessment is weighing biopsychosocial, psychometric, and other job information to make the assessment job-related (Federal Register, 1991; Gael, 1988; AERA et al., 1999; SIOP, 2003) and to consider barriers that dramatically affect entry or reentry into the labor market after injury or illness. These include accommodation to disability income, resulting in no incentive to work; being involved in litigation and perceiving that getting better would have a negative influence on the amount of the final settlement; illness conviction; physical deactivation; length of time off work; anger at the system; unavailability of funds for rehabilitation and retraining; limited transferable skills; depression; anxiety; and a dozen more (Weinhouse, 1989). The number and range of psychological difficulties and barriers to job entry or reentry helps to illustrate the need to generate adequate and relevant biopsychosocial information in the evaluation of employability (Jette & Badley, 2000; Melia, Pledger & Wilson, 2003; Pledger, 2003).

References

(AERA) American Educational Research Association, American Psychological Association and National Council on Measurement in Education. (1999). *Standards for Educational and Psychological Testing*. Washington, DC: Author.

- American Psychiatric Association, American Psychological Association & Social Security Administration Office of Disability Programs (n.d). *Understanding Social Security's Disability Programs: Mental Impairments*. Social Security Administration Office of Disability Programs. SSA Publication No. 64-086.
- Campion, M.A., Morgeson, F.R. & Mayfield, M.S. (1999). The O*NET's theoretical contributions to job analysis research. In N.G. Peterson, M.D. Mumford, W.C. Borman, P.R. Jeanneret, & E.A. Fleishman: *An occupational information system for the 21st century: The development of the O*NET* (pp. 297-304). Washington, DC: The American Psychological Association.
- Dunnette, M. D. & Borman, W. C. (1979). Personnel selection and classification systems. *Annual Review of Psychology*, 30, 477-525.
- Federal Register*. (Friday, July 26, 1991). Part V, Equal Employment Opportunity Commission, 29 CFR Part 1630, Equal Employment Opportunity For Individuals With Disabilities; Final Rule.
- Fouad N. A. & Bynner, J. (2008). Work transitions, *American Psychologist*, 63, 211-225.
- Gael, S. (Ed.) (1988). *The Job Analysis Handbook for Business, Industry and Government*. Vol. I and Vol. II. New York: John Wiley & Sons.
- Gati, I. (1991). The structure of vocational interests. *Psychological Bulletin*, 109, 309-324.
- Gati, I., Krausz, M. & Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counseling Psychology*, 43, 510-526.
- Gati, I., Shenhav, M. & Givon, M. (1993). Processes involved in career preferences Hayes, W. L. (1963). *Statistics for Psychologists*. New York: Holt, Rinehart & Winston, p. 213.
- Hogan, R., Hogan, J. & Roberts, B. W. (1996). Personality measurement and employment decisions: Questions and answers. *American Psychologist*, 51, 469-477.
- Holland, J. L. (1992). *Making Vocational Choices: A Theory of Vocational Personalities and Work Environments* (2nd ed.). Odessa, FL: Psychological Assessment Resources, Inc.
- Jette, A. M. & Badley, E. (2000). Conceptual issues in the measurement of work disability. In N. Mathiowetz & G.S. Wunderlich (Eds.), *Survey Measurement of Work Disability: Summary of a Workshop* (pp. 4-27). Institute of Medicine and National Research Council, Washington DC: National Academy Press. Retrieved February 10, 2004 from http://books.nap.edu/html/work_disability/ch2.html
- Judge, T. A., Bono, J. E. & Locke, E.A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology*, 85, 237-249.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49, 1-50.
- Melia, R. P., Pledger, C. & Wilson, R. (2003). Disability and rehabilitation research: Opportunities for participation, collaboration, and extramural funding for psychologists. *American Psychologist*, 58, 285-288.

- Meyer, G. J., Finn, S. E., Eyde, L. D., Kay, G. G., Kubiszyn, T. W., Moreland, K. L., et al. (1998). Benefits and Costs of Psychological Assessment in Healthcare Delivery. Report of the Board of Professional Affairs, Psychological Assessment Work Group, Part I. Practice Directorate, American Psychological Association, Washington, D.C
- Peterson, N.G., Mumford, M.D., Borman, W.C., Jeanneret, P.R., Fleishman, E.A., Levin, K.Y., et al. (2001). Understanding work using the Occupational Information Network (O*NET). *Personnel Psychology*, 54, 451-492.
- Pledger, C. (2003). Discourse on disability and rehabilitation issues: Opportunities for psychology. *American Psychologist*, 58, 279-284.
- Saks, A. M. & Ashforth, B. E. (1997). A longitudinal investigation of the relationships between job information sources, applicant perceptions of fit and work outcomes. *Personnel Psychology*, 50, 395-426.
- Scott, W. A. & Wertheimer, M. (1962). *Introduction to Psychological Research*. New York: John Wiley & Sons, Inc.
- Shrout, P. E. & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86, 420-428.
- (SIOP) Society for Industrial and Organizational Psychology, Inc. (2003). *Principles for the Validation and Use of Personnel Selection Procedures* (4th ed.). Bowling Green, OH (Author).
- Tracey, T. J. G. & Hopkins, N. (2001). Correspondence of interests and abilities with occupational choice. *Journal of Counseling Psychology*, 48, 178-189.
- Wanberg, C. R., Kanfer, R. & Rotundo, M. (1999). Unemployed individuals: Motives, job-search competencies, and job-search constraints as predictors of job seeking and reemployment. *Journal of Applied Psychology*, 84, 897-910.
- Weinhouse, S. (1989). Vocational issues in the rehabilitation of pain patients: The role of the rehabilitation counselor. In J.D. Loeser & K.J. Egan (Eds.), *Managing the Chronic Pain Patient* (pp. 152-156). New York: Raven Press.