Second Generation Occupational Value Profiles for the O*NET System: Summary

James Rounds
University of Illinois at Urbana-Champaign, Department of Educational Psychology and Psychology

Patrick I. Armstrong
Iowa State University, Department of Psychology

Hsin-Ya Liao
University of Illinois at Urbana-Champaign, Department of Psychology

David Rivkin & Phil Lewis
National Center for O*NET Development

Prepared for

U. S. Department of Labor
Employment and Training Administration
Office of Workforce Investment
Division of Workforce System Support
Washington, DC

Submitted by

The National Center for O*NET Development
June, 2008

www.onetcenter.org

Second Generation Occupational Value Profiles for the O*NET System: Summary

The Occupational Information Network (O*NET) is a comprehensive system for colleting, organizing, describing, and dissemination data on occupational characteristics and worker attributes developed by the U.S. Department of Labor's (USDOL). The O*NET System was developed as the replacement for the Dictionary of Occupational Titles (U.S. Department of Labor, 1991). By providing information online in a searchable database, the O*NET Program allows for easier access to data on occupations at different levels of detail, thereby facilitating its utility for a variety of consumers. Businesses and human resources professionals can use O*NET products and tools for a variety of purposes, including the development of job descriptions, expanding the pool of quality candidates for open positions, aligning organizational development with workplace needs, and refining recruitment and training goals. Job seekers can use O*NET information to identify jobs that fit with their interests, values, skills, and experience, explore growth career profiles using the latest available labor market data, make effective career-related decisions to maximize earning potential and job satisfaction and also develop their understanding of what it takes to be successful in their field and in related occupations. The O*NET Program also provides an invaluable resource for researchers who study issues related to the U.S. workplace and labor market.

The O*NET System includes the Content Model, a skills-based structure that serves as a framework for organizing information describing the world of work presented within the O*NET database (see Peterson, Mumford, Borman, Jeanneret, & Fleishman, 1999). As part of the Content Model, Occupational Value Profiles (OVPs) were developed based on the Theory of Work Adjustment (Dawis & Lofquist,1984) value-based classification of work environments. The OVPs provide an important link between the O*NET occupations and value-based assessments that are often used in career counseling and other applied settings. The present summary focuses on the effort to generate work-related values information included in the Worker Characteristics domain of the Content Model (i.e., identifying features of employment that O*NET users may value or view as personally important). Work importance (i.e., work values) information within the O*NET System provides an important data set for career guidance and research that can be used with Work Importance Profiler (U.S. Department of Labor, 2000b) or the Work Importance Locator (U.S. Department of Labor, 2000a). Users can link their results from the Profiler or Locator directly to the work values information, allowing individuals to explore careers individually, with a career counselor, or in a group.

The initial O*NET research on work values was completed in the late 1990s by McCloy, Waugh, Medsker, Wall, Rivkin, and Lewis (1999). This research project supported the use of the expert rating methodology for development of profiles of Occupational Reinforcer Patterns and work values for the 1,122 occupations in O*NET database. The Occupational Reinforcer Patterns and work values generated by the subject matter experts showed appreciable reliability, structural validity, and reasonable distribution across occupations.

In the time since the initial development of OVPs for the O*NET 98 Analyst Database there have been a number of important changes made to the database structure and content. The initial classification system for occupations based on the Occupational Employment Statistics (OES)

classification was converted to the new Standard Occupational Classification (SOC) system in version 3.0 of the database. Version 10.0 of the database was revised to reflect the O*NET-SOC 2006 Taxonomy (see Updating the O*NET-SOC Taxonomy). As part of these revisions, crosswalks were developed between the initial occupations that were rated on the work values and the current occupations. Although the crosswalk process is straightforward for many occupations, in some cases the need emerged for new work value ratings. The identification of new occupations in areas such as information technology, for example, when revising the SOC system also created a need for new work value ratings. Additionally, there have been nine revisions of the O*NET database (versions 5.0 through 13.0, consecutively) in which data on occupations from the initial Analyst Database has been replaced with data obtained primarily from job incumbents. Changes to the O*NET database across these updates includes the addition of Task Statement ratings, Work Context, Work Styles, Training and Work Experience, and Education data for 800+ occupations; updated Abilities, Work Activities, Knowledge, Skills, Job Zones, and Work Context data for 800+ occupations; the identification of Emerging Tasks for over 300 occupations; the addition of Detailed Work Activities for 800+ occupations; and the addition of Tools and Technology ratings for over 300 occupations. The issue of O*NET-SOC occupations without work value ratings due to changes in the occupational classification structure, combined with the substantial improvements in data available on occupations through the revisions of the O*NET database, led to the decision to develop new work value-based OVP data for all occupations in the O*NET database. Finally, the O*NET Program is identifying New and Emerging (N & E) Occupations related to High Growth Industries [see New and Emerging (N & E) Occupations Methodology Development] The approximately 100 identified N & E occupations also will need OVP information.

The purpose of the present work value project was to generate Occupational Value Profiles (OVPs) for the 909 occupations that are contained in O*NET-SOC classification. These 909 occupations come from the transition to the combined O*NET and SOC systems and from ongoing research on new and emerging occupations in high demand industries. OVPs are occupation specific profiles of scores on six work values that characterize the nature of the work and conditions of the work environments: Achievement, Autonomy, Recognition, Relationships, Support, and Working Conditions. OVPs are based on actual ratings of the extent that an occupation satisfies a particular work value. The OVPs can be used in conjunction with the work values measures, the Work- Importance Locator and the Work Importance Profiler. This summary focuses on the generation of the OVPs.

The present project followed closely the methodology used by McCoy et al. (1999) to generate occupational work values and Rounds et al. (1999) to generate occupational interests. The research design for generating OVPs involved obtaining work values score profiles from a Subject Matter Experts (SMEs). The project was composed of four phases: a) initial development of materials for rating the OVPs for the occupations, b) a pilot study to refine the materials and determine whether non-incumbent raters could provide reliable results, c) training the SMEs to use the rating materials in a reliable and accurate manner, and d) the main rating study in which OVPs for the 909 occupations in O*NET were created.

To develop the work value definitions in Phase One, the descriptions of the six work values from the Work Importance Profiler were reviewed and revised to fit the rating task. Rating scales developed by Rounds et al. (1999) were used to rate work values. The rating scales were anchored to indicate the extent (small, moderate, great) for reinforcing the value expressed in each of the six values descriptions. The SMEs were instructed to "Ask yourself, To what extent does this occupation satisfy this work value?" To develop materials containing data associated with the target occupation, the following O*NET information for an occupation was selected: Title and Description, Core Tasks, Skills, Generalized Work Activities, Work Context, Job Zone, Work Styles, Education, and Wages. The SMEs followed standardized procedures to review the information and make ratings.

In Phase Two and Three, raters were trained and a pilot study was conducted to see if the rating materials for the value statements were understandable and to determine if improvements were needed in the rating scales. For training purposes, occupations were selected that have not changed through the two major occupational classification revisions (that is, occupations that have not been rolled-up, or had a title or definition change). Six Counseling Psychology graduate students with extensive experience in the field of vocational psychology rated a representative sample of occupations. The resulting OVPs were compared to OVP profiles from the OVPs generated by McCloy et al. (1999). In general, a consensus was found across the two sets of OVPs. Interrater reliabilities were calculated to evaluate consistency among raters: raters were trained until reliabilities were greater than .75. Through the training, refinements were made in the materials presented to raters.

In the final phase (Phase Four), the raters rated the ONET-SOC occupations. The occupations were split in half with three raters rating 454 O*NET-SOC occupation and the other three raters rating 455 O*NET-SOC occupation on six work values. To assess the degree of interrater agreement, rater-by-rater cross-classification tables were constructed using the obtained raw ratings. For each pair of raters, a separate cross-classification table was constructed for each of the work value categories. Goodman-Kruskal's Gamma (Goodman & Kruskal, 1954) was computed to assess inter-rater agreement. The overall mean value for Gamma was .80, indicating a high degree of reliability for the ratings of the six occupational analysts and considerable consistency among raters across both the work values and occupations. Another important step in the evaluation of the OVPs was to examine the distribution of the work value ratings. It was important to assess the degree to which the obtained ratings show reasonable distribution across occupations. To do this, we examined work value distributions and high point codes and found that the overall pattern of results was consistent with previous efforts to generate work values for occupations.

In general, the work values project produced reliable OVPs. The data obtained from the present study supported the use of the SME ratings of work values scores for the occupations in the O*NET System. OVPs generated by the SMEs evidenced appreciable reliability and reasonable patterns of work values scores across occupations.

References

Goodman, L.A. & Kruskal, W.H. (1954). Measures of association for cross classifications. *Journal of the American Statistical Association, 49,* 732-764.

Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis, MN: University of Minnesota Press.

McCloy, R.A., Waugh, G., Medsker, G., Wall, J., Rivkin, D., & Lewis, P. (1999). *Determining the Occupational Reinforcer Patterns for O*NET occupational units* (Vols. I & II). Raleigh, NC: National Center for O*NET Development. http://www.onetcenter.org/reports/ORP.html

National Center for O*NET Development (2006). *New and emerging (N&E) occupations methodology development report http://www.onetcenter.org/reports/NewEmerging.html*

National Center for O*NET Development (2006). *Updating the O*NET-SOC taxonomy: Summary and implementation.*. http://www.onetcenter.org/reports/UpdatingTaxonomy.html

Peterson, N., Mumford, M., Borman, W., Jeanneret, P., & Fleishman, E. (1999). *An occupational information system for the 21st century: The development of O*NET*. Washington, DC: American Psychological Association.

Rounds, J., Smith, T., Hubert, L., Lewis, P., & Rivkin, D. (1999). *Development of Occupational Interest Profiles (OIPs) for the O*NET part 1: Report*. Raleigh, NC: National Center for O*NET Development. http://www.onetcenter.org/reports/OIP.html

U.S. Department of Labor. (1991). *Dictionary of occupational titles* (Rev.4th ed.). Washington, DC: U.S. Government Printing Office.

U.S. Department of Labor (2000a). *Work Importance Locator: User's guide*. Washington, D.C.: Employment and Training Administration.

U.S. Department of Labor (2000b). *Work Importance Profiler: User's guide*. Washington, D.C.: Employment and Training Administration.