
Occupational Interest Profiles for New and Emerging Occupations in the O*NET System: Summary

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Introduction

The purpose of this report is to summarize the effort to populate Occupational Interest Profiles (OIPs) for 83 O*NET-SOC occupations recently included within the O*NET-SOC 2010 Taxonomy (National Center for O*NET Development, 2010).

The Occupational Information Network (O*NET) is a comprehensive system for collecting, organizing, describing, and disseminating data on occupational characteristics and worker attributes. The U.S. Department of Labor (USDOL) developed the O*NET System 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 easy access to occupational data 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 career profiles using the latest available labor market data, make effective career-related decisions to maximize earning potential and job satisfaction, and 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.

O*NET data are organized around the Content Model, a framework for specifying the taxonomy of 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 Interest Profiles (OIPs) were developed based on Holland's (1997) interest-based classification of six work environments—Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). The OIPs provide an important link between the O*NET System and interest-based assessments that are often used in career counseling and other applied settings.

History

The initial O*NET research on vocational interests and occupational environments was completed in the late 1990s by Rounds, Smith, Hubert, Lewis, and Rivkin (1999). The Occupational Interest Profiles (OIPs) were developed using a straightforward and easily understood theory-based and empirically supported model of the world of work. Counseling Psychology graduate students with expertise in vocational interest research generated ratings for 1,122 occupations based on the most recent occupational data in the O*NET database. Each OIP consists of six numerical scores in an invariant order (R-I-A-S-E-C) indicating how descriptive and characteristic the occupation is for these

six types of work environments. The development of OIPs is unique in vocational assessment and classification research, being the first effort to create full, numerical profiles for occupations, with ratings on all six RIASEC environments. The OIPs generated by the subject matter experts showed appreciable reliability, structural validity, and reasonable distribution across occupations supporting the use of Subject Matter Expert (SME) rating methodology for development of OIPs using RIASEC interests.

After the initial development of OIPs for the O*NET 98 Analyst Database, several important changes were made to the database structure and content. Most importantly, 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. In addition, the O*NET program identified approximately 100 New and Emerging (N & E) Occupations related to High Growth Industries that needed OIP information. These changes led to the decision to develop new RIASEC-based OIP data for all occupations in the O*NET database. The same methodology used for the initial development of OIPs (Rounds et al., 1999) was applied, leading to the second generation of OIPs for 900+ occupations (Rounds, Armstrong, Liao, Lewis, & Rivkin, 2008). The overall mean value for Goodman-Kruskal's Gamma (Goodman & Kruskal, 1954) was .76, indicating a high degree of reliability for the ratings across the occupational analysts. Structural validity evidence for the OIP ratings showed that the overall pattern of results was consistent with Holland's theoretical model.

Present OIP Ratings

The goal of the present project is to populate OIP information for 83 O*NET-SOC occupations identified after the Rounds et al. (2008) project described above. These occupations are either N & E occupations (National Center for O*NET Development, 2006; 2009) or occupations identified within the 2010 Standard Occupational Classification (SOC; Office of Management and Budget, 2010; National Center for O*NET Development, 2010). The present project followed the methodology used by Rounds et al. (1999) to generate RIASEC interest profiles for occupations. The research design for generating OIPs involved obtaining RIASEC score profiles using SMEs. The study was composed of three phases: a) initial development of materials for rating the OIPs for the occupations, b) training the SMEs to use the rating materials in a reliable and accurate manner, and c) the main rating study in which OIPs for the 83 O*NET occupations were created. See Appendix A for these 83 occupations. To obtain data for these occupations, please visit the O*NET Resource Center's Developer's Corner and download the [O*NET Database](#).

To develop materials containing data associated with the 83 occupations, we selected the following O*NET information for each occupation: Title, Description, and Core Tasks. The SMEs followed standardized procedures to review this information and

make OIP ratings. In the next phase, raters were trained. 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). The project leader (James Rounds) and two advanced graduate students in Psychology who were involved in the Rounds et al. (2008) OIP project rated a representative sample of occupations. The resulting OIPs were compared to the RIASEC profiles generated by Rounds et al. (1999) and Rounds et al. (2008). In general, consensus was found across the three sets of OIPs. Inter-rater reliabilities for 80 training occupations were calculated to evaluate consistency among raters. Raters were trained until reliabilities were greater than .80.

In the final phase, the raters rated the 83 occupations. To assess the degree of inter-rater agreement, rater-by-rater cross-classification tables were constructed using the obtained raw score ratings for each of the RIASEC categories. For each pair of raters, a separate cross-classification table was constructed. Goodman-Kruskal's Gamma (Goodman & Kruskal, 1954) was computed to assess inter-rater agreement. The overall mean value for Gamma was .86, indicating a high degree of reliability among ratings of the three occupational analysts and considerable consistency among raters across both the RIASEC categories and occupations.

To develop RIASEC high-point codes for an occupation, the rules laid out in Rounds et al. (1999) were followed. Rational reviews were conducted when there are ties between ratings on two or more RIASEC categories to determine the first letter code, and subsequently, second and third letter codes for occupations. Ordering information of the RIASEC model was also considered in deciding the second and third letter codes. A cutoff value of .17 was applied to the OIP proportions as recommended by Rounds et al. (1999, p. 20). Applying these procedures resulted in two- and three-letter RIASEC profiles for the 83 N & E occupations.

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Appendix A: O*NET Occupations

The following table includes a list of the 83 occupations for which OIPs were created.

O*NET-SOC Code	Title
11-1011.03	Chief Sustainability Officers
11-2011.01	Green Marketers
11-3051.02	Geothermal Production Managers
11-3051.03	Biofuels Production Managers
11-3051.04	Biomass Power Plant Managers
11-3051.05	Methane/Landfill Gas Collection System Operators
11-3051.06	Hydroelectric Production Managers
11-9013.02	Farm and Ranch Managers
11-9039.01	Distance Learning Coordinators
11-9039.02	Fitness and Wellness Coordinators
11-9041.01	Biofuels/Biodiesel Technology and Product Development Managers
11-9061.00	Funeral Service Managers
11-9121.02	Water Resource Specialists
11-9199.07	Security Managers
11-9199.09	Wind Energy Operations Managers
11-9199.10	Wind Energy Project Managers
11-9199.11	Brownfield Redevelopment Specialists and Site Managers
13-1071.00	Human Resources Specialists
13-1075.00	Labor Relations Specialists
13-1131.00	Fundraisers
13-1199.04	Business Continuity Planners
13-1199.05	Sustainability Specialists
13-2071.00	Credit Counselors
15-1143.00	Computer Network Architects
15-1143.01	Telecommunications Engineering Specialists
15-1152.00	Computer Network Support Specialists
15-1199.06	Database Architects
15-1199.07	Data Warehousing Specialists
15-1199.08	Business Intelligence Analysts
15-1199.09	Information Technology Project Managers
15-1199.10	Search Marketing Strategists
15-1199.11	Video Game Designers
15-1199.12	Document Management Specialists
17-2081.01	Water/Wastewater Engineers
17-2112.01	Human Factors Engineers and Ergonomists
17-2141.01	Fuel Cell Engineers
17-2141.02	Automotive Engineers
17-2199.09	Nanosystems Engineers
17-2199.10	Wind Energy Engineers
17-2199.11	Solar Energy Systems Engineers
17-3027.01	Automotive Engineering Technicians
17-3029.10	Fuel Cell Technicians
17-3029.11	Nanotechnology Engineering Technologists

O*NET-SOC Code	Title
17-3029.12	Nanotechnology Engineering Technicians
19-2041.01	Climate Change Analysts
19-2041.02	Environmental Restoration Planners
19-2041.03	Industrial Ecologists
19-3011.01	Environmental Economists
21-1094.00	Community Health Workers
23-1012.00	Judicial Law Clerks
25-2051.00	Special Education Teachers, Preschool
25-2052.00	Special Education Teachers, Kindergarten and Elementary School
25-2059.01	Adapted Physical Education Specialists
25-3099.02	Tutors
25-9031.01	Instructional Designers and Technologists
29-1125.01	Art Therapists
29-1125.02	Music Therapists
29-1128.00	Exercise Physiologists
29-2035.00	Magnetic Resonance Imaging Technologists
29-2057.00	Ophthalmic Medical Technicians
29-2099.05	Ophthalmic Medical Technologists
29-2099.07	Surgical Assistants
31-1014.00	Nursing Assistants
31-1015.00	Orderlies
31-9097.00	Phlebotomists
33-3021.06	Intelligence Analysts
41-4011.07	Solar Sales Representatives and Assessors
47-1011.03	Solar Energy Installation Managers
47-2231.00	Solar Photovoltaic Installers
47-4099.02	Solar Thermal Installers and Technicians
47-4099.03	Weatherization Installers and Technicians
49-2021.00	Radio, Cellular, and Tower Equipment Installers and Repairers
49-9081.00	Wind Turbine Service Technicians
49-9099.01	Geothermal Technicians
51-5112.00	Printing Press Operators
51-5113.00	Print Binding and Finishing Workers
51-8099.01	Biofuels Processing Technicians
51-8099.02	Methane/Landfill Gas Generation System Technicians
51-8099.03	Biomass Plant Technicians
51-8099.04	Hydroelectric Plant Technicians
51-9151.00	Photographic Process Workers and Processing Machine Operators
51-9199.01	Recycling and Reclamation Workers
53-1021.01	Recycling Coordinators