
O*NET: Some Insights on Early Development of the Content Model

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Workshop on Improving the O*NET
National Academy of Sciences
April 17, 2009

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Official Role

- Director of the DOT Review Project
- Executive Director of the Advisory Panel on the Dictionary of Occupational Titles (APDOT)
- Contractor for Aguirre International (now Aguirre Division, JBS International)
- Author of Mid-Term and Final Reports for DOT Review (Proposing O*NET development)

Unofficial Role

- Offered pragmatic perspective on APDOT deliberations and development of Final Report/Recommendations
- Helped produce operational recommendations -- not just theoretical ideas
- Presented recommendations in DOL context

Historical Context Early 90's

- Calls for US to be more competitive in world markets
- Increased demands on workers to improve productivity
- Massive structural change in workplace due to globalization
- Businesses collapsing occupational categories/ reducing number of distinct jobs
- Fluidity of skills and occupational boundaries predicted the “end of the job as we know it”
- Future of work: self-directed work teams and quality circles
- Entire industries in decline: aerospace, computers, and defense
- Transferable skills essential to help highly skilled, dislocated workers to find employment

O*NET's Development Followed National Academy of Science (NAS) Report on the DOT

- DOT great invention for its time and many years after
- Nature of work, workers and the workplace changed
- Expectations of what constituted valid and reliable research changed

1980 - National Research Council report: Work, Jobs and Occupations: A Critical Review of the Dictionary of Occupational Titles (DOT)

- Strongly criticized DOT based on extensive research and evaluation of data collection, content validity, and reliability
- Some changes subsequently made by DOL: didn't address technological and methodological concerns (outmoded scales and concepts from another era)
- Criticism of DOT continued largely unabated

APDOT Charter

Secretary of Labor asked APDOT to develop recommendations to fix the DOT's problems. She specifically requested the panel to:

- Recommend the type and scope of coverage as well as the level of detail that should be collected on occupations to produce a DOT;
- Advise on the appropriateness of methodologies of occupational analysis used to identify, classify, define and describe jobs in the DOT;
- Advise on new or alternative approaches to the production, publication and dissemination of the DOT; and
- Recommend options for the implementation of improvements.

Starting Assumption

APDOT's Task:

- Not to decide if DOT's data collection methods, analysis, and dissemination needed to be modified or changed
- Rather to identify practical ways to make the changes
- DOL and APDOT expected to continue and maintain the DOT as the most comprehensive, national, resource for occupational information

APDOT research identified the need for a new conceptual framework


Key Decisions and Recommendations

Tool should be customer/user driven

- Users and uses put at the center of the project
- Important to understand what information was needed and how it would be used

DOT Review conducted:

- Internal survey of offices within DOL
- Random sample customer survey by Westat
- Focus groups and discussion sessions with expert users
- Findings: users had different purposes and relied on different kinds of information; frequently did not use the same parts of the DOT

 *Recommendation: consider partnerships with other government agencies and public or private sources of data for additional financial/in-kind support*

Key Decisions and Recommendations (con't)

Data should be comprehensive; inclusive for all occupations

- Didn't want to limit usability
- Data and collection methods must be valid, reliable, and consistent with latest research and analysis
- Collection methods must be practical and cost effective
- Tool must be accessible and flexible enough to enable timely updates.
- Government most obvious resource to collect and maintain data


 *Recommendation: continue comprehensiveness as critical to tool's success*

Key Decisions and Recommendations (con't)

New Methods for Data Collection Required

New ways to collect occupational information needed


- Observation-interview cost prohibitive
- Not best job analysis method for highly cognitive jobs
- Sampling with incumbents less expensive but quality data collection method
- Sampling techniques ensure representativeness of the occupations; and accuracy, consistency of information
- After additional research, O*NET switched to use of analysts (rather than incumbents) for rating skills and abilities
- Today: rigorous sampling, high response rates, strong business participation

 *Recommendation: look again at alternative data collection strategies such as Data mining; Feasibility of using vocational rehabilitation experts; and Scraping of Web sites to help with updates*

Key Decisions and Recommendations (con't)

Classification of Labor Market Information should be Coordinated with Occupational Information


- US Government information “technically and conceptually” compatible
- Encouraged APDOT to keep O*NET’s taxonomy within the hierarchical structure of the SOC and able to link to other information resources

 *Recommendation: maintain hierarchical relationship and develop tools enabling easier access and use*

Key Decisions and Recommendations (con't)

Decisions on Aggregation


- Consensus on not collecting information at the job level within companies
- No consensus on aggregation level
- Occupational level of aggregation balanced differentiation and consistency with BLS longitudinal studies
- Clear recognition users would want to differentiate levels within O*NET.
- Aggregation review: suggested not as huge a gap in numbers of occupations in DOT and SOC, as generally believed
- Suggested DOT content probably much closer to 5,000 or 6,000 occupations rather than 12,000

 *Recommendation: conduct additional research on occupational categories to reexamine aggregation levels*

Key Decisions and Recommendations (con't)

Use of Technology


- Customer/ user feedback concerned with capturing and housing information
- APDOT advocated uses of automated technology to facilitate quality control, and achieve currency and accuracy in a cost effective manner

 *Recommendation: research current and potential uses of O*NET data through a system of internet links with other departments and agencies*

Key Decisions and Recommendations (con't)

Identification of Transferable Skills - a Priority

- DOL and the public wanted to see skills across occupations and industries for multiple purposes
- This priority ensured O*NET data would be collected broadly across industries at the cost of differentiation within occupations themselves
- No national tool available to do it
- Initial skills application based on SCANS skills as a career exploration tool - algorithm produced wide variety of related occupations

 *Recommendation: maintain transferable skills as a priority and develop more sophisticated algorithms to facilitate labor exchange*

Key Decisions and Recommendations (con't)

Must Meet the Needs of the Multiple Users

- Customer/ user feedback concerned with capturing and housing information
- Some occupational information important to all users
- Other types important only for specific purposes

APDOT had to conceptualize and organize incredible amounts of information.

The Content Model, with its separate windows into the world of work, was a solution

★ *Recommendation: continue research to add new and improved descriptors like Tools & Technology, Detailed Work Activities, and Lay Job Titles to increase O*NET's usefulness*

Key Decisions and Recommendations (con't)

Must Meet the Needs of the Multiple Users (con't)

Each window reflects a set of descriptors associated with an applied use such as:

- Validating competency certifications
- Identifying potential occupations and accommodations needed for people with disabilities (Vocational Rehabilitation)
- Providing career information delivery systems, both public and private
- Conducting economic wage and employment studies
- Developing career tools such as the Occupational Outlook Handbook (OOH)
- Determining Foreign Labor Certification
- Designing education or training objectives for curricula development
- DOL users and uses judged to be priority because DOL sole funder of O*NET effort

NRC Response

- Offered recommendations along with descriptions of how and why many of the original Content Model decisions were made
- Believe industrial /organizational psychologists and other experts best equipped to provide answers to some of these technical questions
- However, I have a few things to say about future directions

Future Directions

Picture a future that uses further O*NET research and development to help address some of today's most critical workforce issues

If you believe that employment is critical for most people:

- Financially, to support themselves,
- Socially, to engage with others in meaningful activities
- Psychologically, to give people a sense of dignity, self worth

Future Directions (con't)

*Then you may visualize how O*NET can provide a common framework and foundation to help:*

- Improve employment, re-employment and counseling outcomes
- Increase high school retention rates
- Open new job opportunities for at risk populations
- Help disabled veterans and other people with disabilities to secure and maintain employment

Future Directions (con't)

Federal IT Possibilities

A Federal IT system that includes O*NET could deliver expert occupational information to multiple agencies engaged in education, training and employment services. O*NET enables people to:

- Use transferable skills and assessments to better match people and jobs
- Counsel job seekers and students about specific training and education

O*NET also:

- Enables Career and Technical Education teachers and community college faculty to develop curricula that match employer needs & offer certification opportunities
- Assists secondary teachers to develop modules for learning in context

Future Directions (con't)

Vocational Rehabilitation and Disability

Vocational rehabilitation and disability communities helped to clarify the roles that accommodation and job restructuring can play in employing the nation's people with disabilities, including veterans.

Today we understand that many people with disabilities have knowledge, skills and abilities that need to be recognized and that simple accommodations can often make the difference in people's ability to work.

O*NET could:

- *Link into IT health profile systems enabling doctors to make better decisions about a patient's capacity to work*
- *Help vocational rehabilitation specialists and career counselors identify accommodation needed to facilitate return to work*

Future Directions (con't)

O*NET could also be linked with and assist other employment or training efforts throughout government agencies

- *SAMHSA professionals could use it to help ex drug abusers gain employment*
- *Professionals in the Juvenile Justice System can use it to help young people understand and learn the skills that can keep them fully employed*