

Practice Analysis

The Foundation of Examination Validity

A practice analysis is a critical first step in developing a psychometrically sound and legally defensible credentialing examination. The goal of the analysis is to construct a detailed description of current practice in a job or profession. Information from the practice analysis is used at all stages of examination development, including the creation of test specifications, item writing, and examination construction. The practice analysis provides the link between test content and real-world practice; it ensures that the examination is job related, and in this way provides the foundation for examination validity.

There is no definitive procedure for conducting a practice analysis. Methodologies vary depending on a number of factors, including the nature of the profession, the population of practitioners, and the particular program parameters. While all PES practice analyses are designed to adhere to testing industry standards, each individual study is tailored to the program's unique needs.

Our practice analysis procedures have in common several critical elements. We partner with content experts—recognized authorities in the field—who are carefully chosen to ensure a broad representation of the diversity of practice. We work with these content experts to construct and refine the detailed description of practice. The goal is to accurately reflect the full range of practice settings, as well as geographical variations in the techniques or technologies used by practitioners.

In the next stage, we survey a representative sample of current practitioners to validate the detailed description of practice. Survey respondents are asked to review the domain, task, and knowledge statements, and rate them using a set of validation scales. Validation scales address specific performance parameters such as frequency of task performance, importance of the task or knowledge to professional

competence, and point of knowledge acquisition. Respondents are also asked to comment on any domains, tasks, and areas of knowledge that may have been omitted or inadequately delineated. PES then analyzes the ratings to develop a detailed picture of current practice, and to identify any differences in practice related to professional or demographic variables. These ratings are used to establish the weightings for different task and knowledge areas in the test specifications.

Here, we describe the methodologies used by two PES clients to conduct a practice analysis for a new credential. The first is a more traditional type of practice analysis; the second was designed to capture the common elements of service provision across a diverse range of practitioners providing services to the same population.

American Petroleum Institute

The American Petroleum Institute (API) is the premier trade association of the natural oil and gas industry. API offers four certification programs for various categories of equipment inspectors, and recently began collaborating with PES on a Tank Entry Supervisor program to certify individuals responsible for overseeing entry to aboveground storage tanks. According to Tina Briskin, API's Manager of Individual Certification Programs, "Tank Entry is an operation routinely performed for cleaning or other purposes and it may be associated with various hazards. For example, an explosion can occur when tank vapors come into contact with air. The certification program is designed to ensure that individuals overseeing the process are knowledgeable about the procedures required to make a tank safe before providing entry to other personnel."

In March 2003, PES and API convened a meeting of a practice analysis task force (PATF) to begin delineating the domains, tasks, and knowledge of the job of tank entry supervisor. The PATF comprised engineers who were known to API for their expertise in the area of tank entry. The delineation was refined through several conference calls with the PATF and through a pilot survey of 25 API conference attendees, before being finalized for a validation survey.

E-mail with a link to an electronic validation survey was sent to a sample of approximately 500 engineers, inspectors, and independent contractors who are currently responsible for tank entry supervision. Survey recipients were asked to rate the domains, task, and knowledge statements on scales related to the frequency and criticality for tank entry supervision.

Using the Practice Analysis Results

Asked how API plans to use the practice analysis findings, Briskin comments, “The results of the practice analysis will determine how the examination should look. Without it we could not properly estimate the relevance and weight of various areas of activities of tank entry supervision.” API will work with PES to develop a set of test specifications based on the practice analysis findings. Commenting on the importance of the study, Briskin says, “We view the practice analysis as one of the critical steps in ensuring the validity and legal defensibility of the Tank Entry Supervisor examination.”

The Connecticut Birth to Three System

In 2001, PES began collaborating with the state of Connecticut’s Birth to Three System—established under the Federal Individuals with Disabilities Education Act—to conduct a practice analysis of the work of practitioners who intervene with at-risk children. These practitioners include occupational and physical therapists, speech/language pathologists, teachers, and others. The practice analysis will provide the foundation for both assessment and professional development activities related to a new state required Infant, Toddler, Family Specialist (ITFS) credential.

According to Deborah Resnick, Personnel and Training Coordinator for Connecticut’s Birth to Three System, “We felt confident in providers’ ability to deliver services in their discipline, but there are certain approaches and philosophies that we require, such as family-centered practice and providing services in the child and family’s natural

environment, that are not necessarily an essential part of the training of, say, an occupational therapist.” Resnick goes on, “We set about creating a list of such competencies but quickly realized that we needed help to make them measurable.” Resnick contacted PES, which worked with a 13-member task force to conduct a comprehensive analysis of the practice of early interventionists.

The task force included content experts representing the full range of practitioners providing service in the Birth to Three System. During a series of meetings, the PATF articulated 5 major domains of activity, 40 task statements, and 32 areas of knowledge. The task force also delineated 7 broad areas of competence critical to effective job performance, such as relationship building, col-laboration, and promoting independence, and self-determination. The delineation was further refined and finalized with input from four focus panels conducted by PES, with a total of 44 content experts, and independent reviews by another 25 content experts.

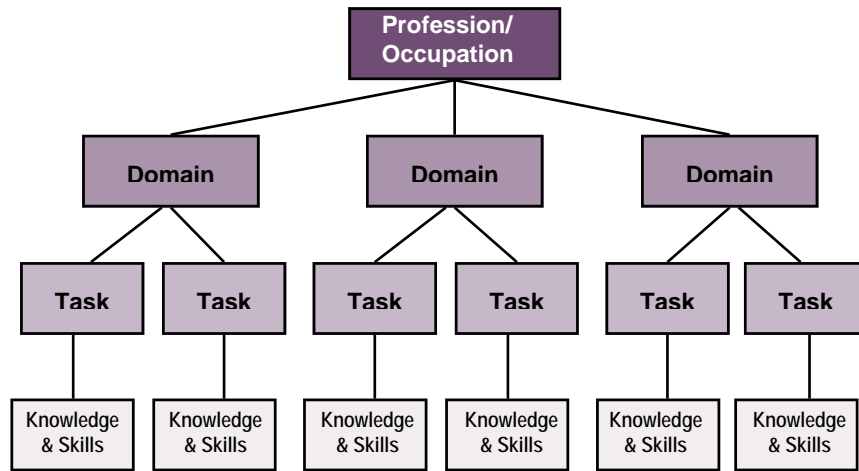
The delineation was then validated through a survey of the entire population of 754 direct service providers in the 39 agencies participating in Connecticut’s Birth to Three System. Providers were asked to rate the domains, tasks, and knowledge statements on scales related to the frequency and criticality of performance in their work. A special feature of this study was the inclusion of a validation scale addressing which of the range of service providers performed each task. The survey achieved a respectable response rate of 37 percent.

Study Findings

Resnick notes that there were some surprise findings in the results of the practice analysis. A few areas of knowledge did not receive high ratings for frequency and criticality by survey respondents. When the ratings indicated that the knowledge was not used, the particular knowledge statements were removed from the description of practice. When the ratings indicated that the knowledge was acquired on the job, greater emphasis was given to those particular areas of knowledge in professional development programs.

Commenting on the importance of the study, Resnick says, “We felt strongly that if the credential was going to be required it was essential

to develop a credentialing process that, if challenged, would be deemed defensible.”□



Typically, practice is analyzed at three main levels: the major performance domains, the key tasks within the domains, and the knowledge and skills required to perform the tasks. A task may map to several knowledge statements.