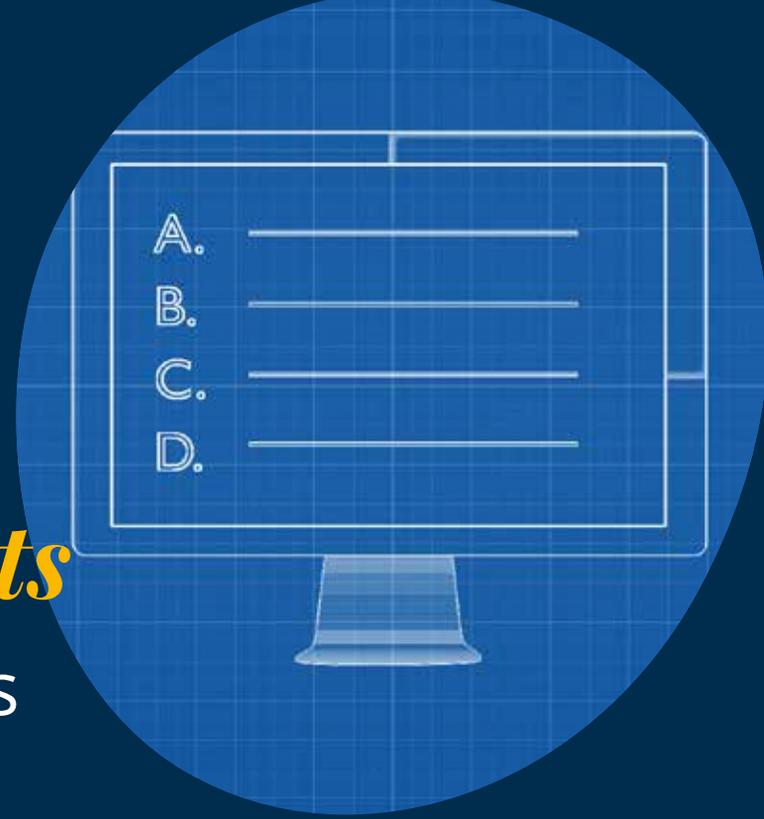


Creating test blueprints through job analysis



The test blueprint forms the basis for many of the subsequent actions and decisions undertaken during the examination process. The stakeholders who use them include the test takers, educational or training programs, and subject matter experts (SMEs) involved in the test development process. Test blueprints guide item writers by providing them with specifications for test form assembly and inventories of the question pool.

In its simplest form, the test blueprint contains the content areas for the exam and the distribution of test items across the content areas. This distribution may be reflected as the number (or percentage) of items within each content area. A more detailed test blueprint, also called the test plan or test specifications, typically includes:

- Descriptions of the test's purpose and target audience
- The content or performance areas it will cover
- The types of items and number to be written for each content or performance area, along with their scoring, and other characteristics
- The test administration method
- Desired psychometric characteristics of the items

Test blueprints as validity evidence

Validity refers to the extent to which the available evidence and theory suggests the interpretation of the test scores are appropriate for a particular use.

The test blueprint – and the method used to derive it – are key pieces of validity evidence for a high-stakes examination. Standard 11.2 of the Standards for Educational and Psychological Testing developed jointly by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education stipulates that “Evidence of validity based on test content requires a thorough and explicit definition of the content domain of interest” (2014, p.178). Similarly, the International Test Commission’s International Guidelines for Test Use (2013) require that the knowledge and skills that the test is intended to measure are relevant to the behaviors necessary for the context in which inferences from the test will be drawn.

Having a sound process for developing a test blueprint is vital to establishing the content and construct validity of your exam. The test blueprint and the process used to create it provide evidence that the exam is testing content that is directly relevant to the specific purpose for which your examination has been developed.

Because test blueprints have so many audiences and uses, it is imperative that they are developed carefully, based upon input from experts in the field. The starting point for developing a test blueprint depends upon a number of factors, including the type of test, existing materials, and how the test results are used. Three methods for developing a test blueprint are discussed below.

1 Creating a blueprint from a learning syllabus

When an examination is connected to a training program, the examination functions as an exit criterion used to assess whether an individual has satisfactorily completed the program and, therefore, should be awarded a certificate or qualification. The content outline for the examination is the learning syllabus associated with the training program. The remaining components of the test blueprint, including the distribution of items across the content areas of the learning syllabus, can be determined through the use of a committee or focus group of subject matter experts.

2 Creating a blueprint through job task analysis

A job task analysis is a formal and structured means of examining competencies required to perform professional tasks and job roles. It is typically the means of determining a test blueprint for a licensure or certification examination in which successful completion of the examination process allows individuals to gain entry into a profession.

Conducting a job analysis study typically involves the following steps:

1. Review of existing materials related to the scope of practice and competency framework for the profession. This may include the current test blueprint, if one already exists. SMEs should be involved in this review, and it results in a list of the major domains, task statements and knowledge areas needed to perform the job.
2. A task inventory, job analysis, or questionnaire is developed from the list created in step 1. The questionnaire includes rating scales by which the respondents are asked to rate the tasks. Typical rating scales include:
 - Importance - how important the task is to the practice of the profession
 - Frequency - how often the task is performed
 - Criticality - to what degree would the inability to perform duties in each major domain be seen as causing harm to the stakeholders
3. The questionnaire is sent to a jurisdiction-wide sample of individuals practicing the profession. The sampling method used to distribute the questionnaire should elicit responses from all applicable practice areas and roles.
4. The questionnaire results are analyzed and draft content weightings are determined based upon the analysis.
5. SMEs review the questionnaire results and draft content weightings, and finalise the test blueprint.

Glossary of terms

Certification

A credentialing process by which individuals are recognized for having achieved a particular and well-defined level of knowledge or skill.

Credentialing

A general term used to denote the award of a license, certificate, diploma, or other credential that indicates attainment of an acceptable level of performance in a particular domain.

3 Creating a blueprint using the Delphi Method

Depending upon the circumstances of the examination program, such as the type and purpose of the test, blueprint development may also be performed through other means of eliciting SME input. One of these methods is the Delphi technique. In the Delphi Method, SMEs are gathered to review and revise a list of the major domains, task statements and knowledge areas needed for the job. This list is then used to create a task inventory, or job analysis questionnaire, which is sent to another group of 15 – 30 SMEs.

The Delphi Method incorporates the Delphi survey, a structured communication technique, where experts answer the survey in two or more rounds. After each round, the survey results are anonymously summarized and sent to the group along with any comments from the members. Thus, experts are encouraged to revise their answers in consideration of the responses from other group members. This process is based on the idea that successive iterations of responding to the survey will lead to converging results. The process continues until a pre-defined stop criterion, such as number of rounds or convergence in results, has been reached. The mean scores of the final round are used to develop the test blueprint.

How Pearson VUE can help

Pearson VUE has years of experience assisting clients from across the globe with developing test blueprints. We can assist you in determining which method of creating a blueprint is best based upon your specific needs and the circumstances of your examination program.

Should you require a formal job task analysis, we can oversee the development and administration of the job analysis questionnaire. Pearson VUE's psychometricians can analyze ratings data gathered from the job analysis process, and can use that data to create a draft test blueprint with appropriate content weights.

We will provide documentation on the process used to create the test blueprint to support its defensibility as a link between the purpose of the test and the interpretation of the test results. We will work with you to determine the level of detail needed to adequately document this defensibility.

Creating a test blueprint is a crucial step in the development of a high-stakes computer-based test. Working in partnership with you, Pearson VUE, as the world leader in computer-based testing, can assist you in developing a test blueprint that reflects the purpose of your test and guides the rest of the test development process.

Job task analysis (JTA)

A systematic study to determine the competencies required to perform a particular task or job, often involving interviews, surveys, and focus groups with subject matter experts. JTA may also be referred to as a role delineation study or practice analysis depending on the purpose or focus of the study.

Licensing

A mandatory process typically required and sponsored by a government agency that grants permission for an individual meeting the requirements to engage in a particular profession or occupation.

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Test Development Guide