

Competency validation surveys

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A competency survey is a popular instrument for validating the skills, knowledge and behaviours included on your competency profile. It allows an organization (e.g., regulatory body, professional association) to reach numerous practitioners working in different practice settings and gather quantitative and qualitative data that lends itself to multiple methods of analysis and interpretation (Raymond, 2001).

Rating Scales

In a typical competency survey, stakeholders are presented with competencies, including behaviours and knowledge statements, and are asked to evaluate them on one or more scales. Even though the overarching goal of any competency survey is the same – to ensure the accuracy of the competency profile - different rating scales can be used for data collection.

The Importance and Frequency scales are the oft-used rating scales in credentialing contexts. The Importance scale requires respondents to rate the importance of a specific behaviour or knowledge area to safe and competent practice of members of a profession. The anchors on the rating scale may range from 1-“Not Important” to 5-“Essential.” The Frequency scale requires respondents to estimate how often members of the profession use a specific behaviour or knowledge on the job. The anchors on the rating scale may be general (e.g., 1-“Never” to 5 -“Always”) or specific expressions of time (e.g., 1-“A few times a year or less” and 5 -“Every day”).

Careful consideration should be made as to the way the Importance and Frequency questions are framed. For example, “How frequently do you perform this activity/behaviour?” will result in different responses than “How frequently is this activity performed by members of the profession?” The former question is probably more relevant to competency surveys where the survey targets practitioners in order to understand the various tasks and knowledge required to perform the job. The latter question is more relevant to a competency validation survey where input from, various stakeholders will be solicited, some of whom are not practitioners but may be educators or regulators who are knowledgeable about the profession.

If an organization wants to differentiate between entry-level and advanced competencies, it may ask respondents to rate the level of competence required for a particular behaviour at the time of entry into the profession. If a competency is “Very Important” or “Essential” for professional practice, but is NOT expected at the entry level (i.e., “None” on the Extent of Competence at Registration scale), it is deemed advanced. Such competency should be excluded from an entry-level competency profile.

Examples of the abovementioned rating scales below.

Relevance	Measure Attribute	Scale Anchors
Importance	How important is this behaviour [knowledge] for safe and competent practice of [insert a profession]?	<ol style="list-style-type: none"> 1. “Not Important” 2. “Somewhat Important” 3. “Important” 4. “Very Important” 5. “Essential”
Frequency	How often is this behaviour [knowledge] used on the job by [insert a profession]?	<ol style="list-style-type: none"> 1. “A Few Times a Year or Less” 2. “Monthly” 3. “Weekly” 4. “Once a Day” 5. “Continually”
Extent of Competence at Registration	What level of competence is required at the time of registration [entry into the profession]?	<ol style="list-style-type: none"> 1. “None” 2. “Some” 3. “Full”

Survey length

The key to designing a successful survey is keeping it short by using as few questions and rating scales as possible.

Experts recommend using only those rating scales that are important for accomplishing the survey purpose (Raymond, 2001). Sadly, due to the nature of the competency validation exercise, this principle is often violated in competency surveys. For survey data to be useful, it has to be detailed, which calls for rating each competency component (i.e., behaviour or knowledge area) separately!

What is good for a psychometrician may not be necessarily good for survey respondents. As the survey length increases, so does the early dropout rate of respondents. Many of them choose not finish the entire survey. The way around this problem is to split a long competency profile into two or three parts and administer these parts to separate samples (i.e., groups of respondents), which were matched in terms of their key demographic characteristics. The data will then need to be analyzed separately for each sample.

Data Analysis

Clean your data

Before performing statistical analyses on survey data, it is important to clean it by removing conspicuously incomplete data and outliers.

The summary statistics for individual respondents (e.g., the percentage of missing responses, minimum and maximum values, mean, and variance on each variable) should be computed to identify suspicious response patterns. Respondents with more than 75% of missing values, for example, should be removed from the dataset. This is a rule of thumb, and you can be more stringent, if necessary.

Methods of analysis

Data from Importance and Frequency scales can be analyzed in several ways.

One way is to compute average competency ratings for each scale and then apply the pre-determined cut-off values to these ratings. The cut-offs are typically values around the mid-point on a rating scale (e.g., 3.0 "Important") on a 5-point Importance scale). The competencies that meet the cut-off on each rating scale are considered for inclusion into the final competency profile.

For example, you have chosen the cut-off of 3.0 to apply to competency indicators rated on 5-point Importance and Frequency scales. If a competency indicator received the rating of 4.2 on the Importance scale and the rating of 3.0 on the Frequency scale, it should be included in the final competency profile. If the ratings are 2.9 on the Importance scale and 2.5 on Frequency scale, the indicator should be dropped from the competency profile.

The competency indicators with ratings that are above the cut-off on one scale but below the cut-off on the other scale constitute "borderline" cases that warrant discussion with the Exam Committee.

Another way to aggregate data from several rating scales is to create a statistical composite (i.e., a blend of number on several scales). The cut-off value will then be applied to composite ratings. There are no hard and fast rules for creating composites. Either additive or multiplicative models can be used. You may add up, average out, or multiply ratings on several scales to arrive at the so-called criticality rating.

The higher the criticality rating, the more important the competency indicator is.

If you assume that Importance and Frequency ratings are equally important, there is no need to weight the components of these arithmetic functions. Simple averaging of the two ratings will do. However, if you think that importance is more important than frequency, you have an option

of weighting it appropriately in the formula ((e.g., $2 \times \text{Importance} + \text{Frequency} = \text{Criticality}$). Note that weighting ratings is uncommon because it requires a solid rationale for determining the appropriate weight size. As you can imagine, it is difficult to come up with such rationale.

Conclusion

It is important to keep in mind that the results of survey analyses will be used by the Exam Committee to make decisions on the final copy of the competency profile. Whichever method of data analysis you choose, the results should be easily interpretable and useful for decision-making. Providing criticality ratings, for example, may speed up the decision-making because there is only one rating per indicator to consider. Yet, it may also obscure Importance and Frequency information. Personally, I am a proponent of reporting Importance and Frequency ratings separately. Using the cut-off value, I create four groups of competency indicators, such as High - High, High - Low, Low - High, and Low - Low groups. I accept High - High competency indicators, drop Low-Low ones, and present the rest to the Exam Committee for discussion.

References

Raymond, M. R. (2001). Job analysis and the specification of content for licensure and certification examinations. *Applied Measurement in Education*, 14, 369-415.

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