

The error component of any actual score, or set of scores, represents unreliability of measurement. Unfortunately, unreliability is a fact of life for the types of measures used in staffing. To help understand why this is the case, the various types or sources of error that can occur in a staffing context must be explored. These errors may be grouped under the categories of deficiency error and contamination error.¹⁰

Deficiency Error. Deficiency error occurs when there is failure to measure some portion or aspect of the attribute assessed. For example, if knowledge of programming languages should involve Java and our test does not have any items (or an insufficient number of items) covering this aspect, the test is deficient. As another example, if an attribute of job performance is "planning and setting work priorities" and the raters fail to rate people on that dimension during their performance appraisal, the performance measure is deficient.

Deficiency error can occur in several related ways. First, the attribute may have been inadequately defined in the first place. Thus, the test of knowledge of programming languages may fail to address Java because multiparadigm languages were never included in the initial definition of programming knowledge. Alternatively, the performance measure may fail to require raters to rate their employees on "planning and setting work priorities" because this attribute was never considered an important dimension of their work.

A second way that deficiency error occurs is in the construction of measures used to assess the attribute. Here, the attribute may be well defined and understood, but there is a failure to construct a measure that adequately gets at the totality of the attribute. This is akin to poor measurement by oversight, which happens when measures are constructed in a hurried, ad hoc fashion.

Deficiency error also occurs when the organization opts to use whatever measures are available because of ease, cost considerations, sales pitches and promotional claims, and so forth. The measures so chosen may turn out to be deficient.

Contamination Error. Contamination error represents the occurrence of unwanted or undesirable influence on the measure and on individuals for whom the measure is being used. These influences muddy the scores and make them difficult to interpret.

Sources of contamination abound, as do examples of them. Several of these sources and examples are shown in Exhibit 7.7, along with some suggestions for how they might be controlled. These examples show that contamination error is multifaceted, making it difficult to minimize and control.

Calculation of Reliability Estimates

Numerous procedures are available for calculating actual estimates of the degree of reliability of measurement.¹¹ The first two of these (coefficient alpha and interrater agreement) assess reliability within a single time period. The other two proce-