Standard Error of Measurement

Psychometrics Knowledge · https://psyasia.com/kb/standard-error-of-measurement/

No method of assessment is 100% reliable - this applies to psychometrics just as it applies to interviews or reference checks and so forth. Psychometrics as a science is more likely however to apply statistical correction techniques to account for such error.

When consulting test manuals, a user may come across the SEm figure. This refers to the test or scale's Standard Error of Measurement. If we were to hypothetically test a candidate time and time again, ignoring practice effects, we know that their score would vary over time due to certain factors within the test. These factors impact upon test reliability (test-retest) and thus Standard Error of Measurement.

A candidate's true score is to be found somewhere within their hypothetical distribution of scores, but the score that we observe when we test them is not their true score, rather their true score + error. To calculate the error associated with a test or scale (and thus know the range within which a candidate's true score lies), we need to know the Standard Deviation of test scores and the test-retest reliability of the test or scale (as cited in the manual):

> SEM = {So x Sqroot(1-r)}
>
> ...where So is the Observed Standard Deviation of scores and r is the Test-retest reliability of the assessment.