



**CEL F5**  
Clinical Evaluation of Language Fundamentals

Elisabeth H. Wiig, PhD, Eleanor Semel, EdD & Wayne A. Secord, PhD

# Sensitivity & Specificity

Evidence of test validity refers to the degree to which specific data, research, or theory support that a test measures the concepts it purports to measure and is applicable to the intended population (AERA, APA, & NCME, in press). There are multiple sources of information required in the process of test validation. Although different sources of evidence may represent different aspects of validity, these sources do not represent distinct types of validity.

The validity of a test is demonstrated by providing evidence to support the test's interpretations and uses. Evidence of validity provided in the CELF®-5 Technical manual includes evidence based on test content, evidence based on response processes, evidence based on internal structure, evidence based on relationships with the prior version of the test and other tests that measure the same constructs, and evidence based on special group studies.

Sensitivity and Specificity are diagnostic validity statistics that describe how a test performs. Sensitivity tells us the probability that someone who has the condition will test positive for it. Specificity tells us the probability that someone who does not have the condition will test negative. Sensitivity and specificity provide overall summary statistics of how well the test can classify, although this overall summary can be misleading for specific base rates. For example, a test might have both high sensitivity and specificity, yet still have a large false positive rate.

The table below provides the classification table for children with a language disorder based on cut scores of 1, 1.33, 1.5, and 2 SDs below the mean for the Core Language Score or the Receptive or Expressive Language Index Scores. The table also reports diagnostic validity statistics and adjusted PPPs based on different base rates. The results indicate very good to excellent sensitivity and specificity at -1, -1.33, and -1.5 SD, depending on the cut scores for the combination of either the Core Language Score or the Receptive or Expressive Language Index scores. As reported below, for the three CELF-5 scores, the cut score of 80 at -1.33 SD from the mean results in the best balance between the sensitivity and specificity measures—the 'optimal cut score.' Using this cut point for each of these composite scores resulted in a sensitivity of 97% (0.97) and specificity of 97% (0.97). In other words, using the cut score of 80, only 3% of children with language disorders were missed and 3% of children without language disorders were misidentified as having language disorders.

Core Language, Receptive Language, or Expressive Language index score	Standard Cut Score	Sensitivity	Specificity
-1 SD	85	1.0	.91
-1.33 SD	80	.97	.97
-1.5 SD	77	.85	.99
-2 SD	70	.57	1.0

For detailed information about evidence of validity for CELF-5 and this study, see the CELF-5 Technical Manual.

**For more information about CELF-5, please visit  
PearsonClinical.ca or call 1-866-335-8418.**

1-866-335-8418 |  PsychCorp | PearsonClinical.ca