Chapter XI

Accessibility of Computer-Based Testing for Individuals with Disabilities and English Language Learners within a Validity Framework

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Abstract

There is a great need for designers of computer-based tests and testing systems to build accessibility into their designs from the earliest stages, thereby overcoming barriers faced by individuals with disabilities and English language learners. Some important potential accessibility features include text-to-speech, font enlargement and screen magnification, online dictionaries, and extended testing time. Yet accessibility features can, under some circumstances, undermine the validity of test results. Evidence
centered assessment design (ECD) is offered as a conceptual framework—providing sharable terminology, concepts, and knowledge representations—for representing and anticipating the impact of accessibility features on validity, thus helping weigh the consequences of potential design alternatives for accessible computer-based tests and testing systems.

**Introduction**

Computer-based tests—including Web-based tests—are likely to become much more common in the future, and it is important that they be designed in a way to be as accessible as possible to individuals with disabilities or who are English language learners. Examples of features that might be considered for such systems include built-in text-to-speech (speech synthesis) with visual highlighting as text is read aloud, font enlargement, screen magnification, color and contrast modification, spelling and grammar checkers, dictionaries, extended testing time, and compatibility with external assistive technologies such as screen readers and refreshable braille displays. However, accessibility features that may be useful in overcoming accessibility barriers can, in some instances, invalidate the results of tests. For example, a person with a spelling disability (dysorthographia) could argue that his or her use of spell-checker software would help overcome an accessibility barrier on educational tests that involve writing. Yet, if a test is intended to measure spelling ability, then such an accommodation will tend to invalidate the test results by providing an unfair advantage for the person who uses that feature. As we will see, it is not always easy to identify the impact of an accessibility feature on the validity of test results. There is clearly a need for a conceptual framework for determining how accessibility features impact validity, thereby clarifying decisions about: which features to provide with computer-based testing systems, whether to build or buy those features, and how much control to allow to test takers in the use of those features.

**Purpose**

The purpose of this chapter is to sketch out a conceptual framework—a *validity framework* that can help clarify the relationships between accessibility features and validity, thereby clarifying possible strategies for increasing accessibility without undermining validity. The first sections of this chapter lay out key