Applying principles of universal design to test delivery: The effect of computer-based read-aloud on test performance of high school students with learning disabilities

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ABSTRACT Standards-based reform efforts are highly dependent on accurate assessment of all students, including those with disabilities. The accuracy of current large-scale assessments is undermined by construct-irrelevant factors including access barriers, a particular problem for students with disabilities. Testing accommodations such as the read-aloud have led to improvement, but research findings suggest the need for a more flexible, individualized approach to accommodations. The current pilot study applies principles of Universal Design for Learning to the creation of a prototype computer-based test delivery tool that provides students with a flexible, customizable testing environment with the option for read-aloud of test content. Two contrasting methods were used to deliver two equivalent forms of a National Assessment of Educational Progress United States history and civics test to ten high school students with learning disabilities. In a counterbalanced design, students were administered one form via traditional paper-and-pencil (PPT) and the other via a computer-based system with optional text-to-speech (CBT-TTS). Test scores were calculated, and student surveys, structured interviews, field observations, and usage tracking were conducted to derive information about student preferences and patterns of use. Results indicate a significant increase in scores on the CBT-TTS versus PPT administration for questions with reading passages greater than 100 words in length. Qualitative findings also support the effectiveness of CBT-TTS, which students generally preferred over PPT. The results of this pilot study provide preliminary support for the potential benefits and usability of digital technologies in creating universally designed assessments that more fairly and accurately test students with disabilities.