Theme Editors' Introduction

Technology and Dyslexia—Part 2

by David H. Rose, Sam Catherine Johnston, and Amy E. Vanden Boogart

This issue of *Perspectives on Language and Literacy* is the second in a two-part series on technology in education, specifically about where dyslexia and technology intersect. The focus of the first issue (Fall 2013: Volume 39, No. 4) was the integration of assistive technology into traditional learning environments. In this issue, technology moves to the center of the learning environment with articles about how to make technology-mediated learning environments healthy for learners with dyslexia.

The issue begins with "Applying Principles of Text Complexity to Online Learning Environments" by authors Greer, Rice, and Deshler, a discussion of text complexity and why it should factor into evaluating the effectiveness of online courses for all learners. The authors offer strategies that stakeholders can use to assess the linguistic characteristics—structure, readability, and coherence—that make an online course more or less difficult to comprehend. They also explain how to use the Coh Metrix indices, a tool that provides information about five elements of cohesion that can be quantified as "high" or "low" and can help the reader determine if the text contains linguistic elements that provide cohesion. An analysis of cohesive properties of English/language Arts (ELA) text in online courses by three large vendors of online learning revealed a need to make several changes to ensure that learners with reading difficulties could comprehend text.

In their article "Maximizing Student Success in Online Virtual Schools" authors Coy and Hirschmann pose some specific challenges associated with students with dyslexia attending virtual schools and offer solutions for helping these students to succeed in the virtual schooling environment. The authors begin by explaining the benefits of a virtual school environment for children with dyslexia. For instance, online schools can minimize the challenges that students must often overcome to be successful in traditional face-to-face schools. The authors emphasize, however, that virtual schools also come with challenges, particularly related to the increased role that parents (who are often not trained as teachers) must play in the education of their children in a virtual environment.

Coy and Hirschmann identify several ways to address these challenges of educating children with disabilities online, offering ideas for how virtual schools can construct support teams for each child consisting of the child's at-home Learning Coach (often a parent or grandparent) as well as the general and special education teachers. By maximizing partnerships between all members of the student's support system and providing appropriate professional development for both teachers and parents the authors conclude that virtual schools can be an effective option for educating students with dyslexia and other learning disabilities.

Authors Christensen, Shyyan, and Johnstone focus on the field of assessment in their article "Universal Design Considerations for Technology-Based, Large-Scale, Next-Generation Assessments." The principles of Universal Design for Assessment, or UDA, suggest that assessments should be designed to be as accessible as possible from the outset to reduce the need for testing accommodations for students with dyslexia or other disabilities. The authors argue that it is particularly important to adhere to the principles of UDA in this time of transition to the new technology-centered national assessments designed by the Smarter Balanced Assessment Consortium (Smarter Balanced) and Partnership for Assessment of Readiness for College and Careers (PARCC). A focus on UDA helps to ensure that assessments measure only construct relevant knowledge and skills. The authors remind us that as with using the principles of UDL to design instruction, adhering to UDA when designing assessments benefits all students—not just those with print disabilities.

"Ensuring that Students with Text-Related Disabilities Have Access to Digital Learning Materials: A Policy Discussion" by Karger and Lazar addresses the challenges that arise as schools increase their use of digital content for instruction. The authors discuss the policy and legal context relating to equal and timely access for all learners to digital learning materials and highlight specific issues related to students with dyslexia. The authors illustrate how addressing the needs of students with print disabilities fits into international technical standards for accessibility. They also offer practical suggestions in three areas to help educators ensure that all students can use digital learning materials:

1. The authors provide recommendations for making content flexible enough that it can be adapted to meet the needs of individual learners, for example, the ability to resize text and adjust color contrast.

2. The authors provide recommendations about the use of assistive technologies, such as screen readers and speech recognition software, to ensure that these technologies are effective for all students that need them.

3. The authors provide guidance for educators, families, and others purchasing digital material, on how to buy materials that are accessible in terms of content and the technology delivery system.

In the afterword, "Canaries in the Mine: Reading and Its Disabilities in a Post-Gutenberg World," Rose, Johnston, and Vanden Boogart, the editors of these special issues, use the articles as a foundation for imagining the future landscape where technology and dyslexia intersect. Rather than focus on

individual learners and how they must adapt to new environments, the afterword focuses on the future of print, technology, reading, and education, and the disabilities present in each of these areas. The editors conclude with a look at how Universal Design for Learning can help ensure that the benefits of new technology and media rich environments are accessible to all learners.

We hope that both this and the preceding special issue of *Perspectives on Language and Literacy* on technology have helped education professionals and other readers overcome the challenges posed by the new media and technology so that they may understand how to maximize the benefits of this ever-changing landscape.

David H. Rose, Ed.D., is a developmental neuropsychologist and educator whose primary focus is on the development of new technologies for learning. In 1984, Dr. Rose co-founded CAST, a not-for-profit research and development organization whose mission is to improve education, for all learners, through innovative uses of modern multimedia technology and contemporary research in the cognitive neurosciences. That work has grown into the field called Universal Design for Learning which now influences educational policy and practice throughout the United States and beyond. Dr. Rose also teaches at Harvard's Graduate School of Education where he has been on the faculty for almost 30 years. Dr. Rose is the co-author of several scholarly books, numerous award-winning educational technologies, and dozens of chapters and research journal articles. He has been the principal investigator on large grants from the National Science Foundation, the U.S. Department of Education, and many national foundations. In the policy arena, he was one of the authors of the recent National Educational Technology Plan, has testified before the U.S. Senate, and helped to lead the development of the National Instructional Materials Accessibility Standard. Dr. Rose has won many awards, including recently being honored at the White House as a "Champion of Change." Dr. Rose holds a B.A. in psychology from Harvard College, a master's in teaching from Reed College, and a doctorate from the Harvard Graduate School of Education.

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