By Gayl Bowser and Joy Smiley Zabala

AIM for Digital Equity

Ensure that your instructional materials are universally designed to be flexible, accessible, and usable for students with and without disabilities.

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Do you still use textbooks in your classroom? How about paper lesson plans and teacher guides? If so, you should know that it's only a matter of time before digital content will largely replace the printed word in education.

In a 2011 segment on *CNN Headline News*, Doug Levin, CEO of the State Educational Technology Director's Association, asserted that the shift to Common Core State Standards, the prevalence of open content, and the rapid increase in the availability of mobile technology will soon make paper textbooks a thing of the past in U.S. schools. He predicts that within the next 10 years, school districts will be providing most textbooks and core instructional materials in electronic formats on mobile devices.

If Levin's predictions are correct, the shift from print to digital text has the potential to offer greater access to information for a wide range of students who are unable to use traditional printed instructional materials effectively. Struggling readers and students with disabilities could see enormous benefits from the use of malleable and flexible digital materials. With appropriate delivery systems (hardware and/or software), students who either need or prefer alternatives to static printed materials could choose to hear some or all text read aloud. They could change the size, font, or color of the text and get immediate assistance from digital resources to help them understand words that are beyond their current vocabulary or background knowledge.

There is, however, a danger with a shift from one format to another. If the haste to produce marketable digital materials results in little or no attention to broad usability, it is possible that the move to digital materials will create new barriers to access, participation, and achievement for these students. If content developers and manufacturers design and develop digital content and electronic learning tools in ways that prohibit the use of reading software and hardware and assistive devices, then they will create new barriers just as they dismantle older ones.

Resources for Access to Printed Text

To increase equity for struggling readers and students with print-related disabilities, it's important that educators know the options for acquiring instructional materials in a variety of formats. We refer to these materials as accessible instructional materials (AIM). This knowledge enables them not only to meet the needs and preferences of their students but also to prepare students to succeed in digital learning environments.

Just about every classroom has students with and without identified disabilities who have difficulty reading. For these students, the print-based materials intended to support learning actually create barriers to learning. This is a huge challenge for educators with the responsibility to move students forward in the curriculum. The following is an example of how accessible instructional materials can support struggling readers.

For the first three months of middle school, Dylan V. struggled because of his poor reading skills. Even his math teacher was concerned. Although Dylan was skilled in math computation, he had difficulty reading the directions and other text in the math book. During a parent conference, Dylan's dad reported that Dylan spent at least two hours every night on math homework and asked the math teacher if anything could be done.

Because she had been involved in

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the school's curriculum adoption committee, the math teacher knew that the publisher of the math textbook had an online resource with a speaker icon on each page that read the content aloud. She showed everyone in her sixth grade classes, including Dylan, how to use the publisher's online resources. After that, Dylan completed his math homework by reading along with highlighted text and listening to recordings of the questions he was to answer before he did the calculations. For Dylan, using the online version of the textbook, which let him see and hear the content simultaneously, reduced the amount of time he spent on homework from two hours to a more reasonable 30 minutes.

For Dylan and many students like him, a technology-rich educational environment can be of enormous benefit. Flexible digital materials provide unparalleled opportunities to gain the information students need to achieve curricular goals. When given the support they need to develop knowledge and skills in the use of digital materials, technology-savvy teachers can integrate digital text and other accessible formats into classroom routines and activities in ways that generally do not require major shifts in their instructional practices.

AIM for Students with Disabilities

Provisions in the Individuals with Disabilities Education Act (IDEA), the U.S. special education law, require state and local education agencies to ensure timely provision of specialized formats (braille, large print, audio, and digital text) of printed materials to elementary and secondary students with disabilities who need them.

Students who use AIM must meet the same high-stakes content standards as their peers and need the same information that teachers present in print materials they use across the curriculum. The content in the specialized format is the same as the content in the printed material; the only difference is the format in which AIM materials present the information. In other words, students using AIM have access to exactly the same content as others in the class but use different strategies for acquiring the information. This is in contrast to alternative materials, which address the same topic but have been modified to increase usability by students who have difficulty understanding the content presented in the materials that the rest of the class uses.

As educators think through these requirements, they become increasingly aware that if a student needs specialized formats of published textbooks, it is highly likely that they also require specialized formats of other printed materials used for instruction.

Resources are available to assist state education agencies and school districts with this IDEA mandate. For example, the National Center on Accessible Instructional Materials (AIM Center) is a rich resource for information, technical assistance, and interactive tools for educators, families, and publishers. The National Instructional Materials Access Center (NIMAC) is a library of electronic source files developed in compliance with the National Instructional Accessibility Standard (NIMAS). Accessible media producers, such as Bookshare, Learning Ally, and the American Printing House for the Blind, use the files from the NIMAC and other means to produce materials in specialized formats and provide them to students who meet the criteria for their services.

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AIM for All Students

While the sources mentioned above go far to help students with disabilities who meet the criteria for their use, materials from those sources are not available to all students. Educators can turn to three additional resources to acquire materials not only for students with disabilities but also for struggling students, like Dylan, and for students who simply prefer digital materials for some reading tasks. They include:

- Purchased materials
- Free materials
- Teacher-created materials

Purchased Materials

Many more students need AIM than statutory requirements suggest, and publishers are working to develop flexible instructional materials for those students. Although what is available for purchase may not address the needs of all students, publishers are beginning to develop digital materials alongside their printed materials. Some publishers (e.g., Houghton Mifflin Harcourt, McGraw-Hill, Pearson, Prentice Hall) include online or CD-based digital editions of printed textbooks that include options, such as audio support. However, some of these products are not currently accessible, and some do not match the printed content exactly. Some companies offer licenses for digital versions of their textbooks at the same or lower prices than printed texts.

When digital materials are designed in a flexible way and used with feature-rich delivery systems, students can listen to the text either with or without the visual component. Be sure that the appropriate delivery system is available and that it contains the same content as the printed textbooks.

Free Materials

Although published textbooks are not free, the landscape is changing with the rapid increase in the availability of digital open source instructional materials. In addition, there are numerous free digital sources—typically online—for content such as classic novels and other instructional materials. When looking for free materials, it is important to compare resources from several sources to get the most usable, accurate, and aesthetically pleasing options.

Create Your Own

Finally, when no other source is available, schools may need to create accessible formats by whatever means are available and appropriate, such as scanning printed materials to create a digital file, recording lectures to create an audio file, or enlarging on a copy machine. Teachers will certainly need this method for unpublished materials, such as teacher-made handouts and tests.

When published materials are involved, respect copyright. This means that the resulting AIM can be used only by students who meet copyright criteria for using specialized formats or under the "fair use" provision. Use local production only when no other source is available.

Call to Action

As we move toward a world in which instructional materials are primarily digital, we must give serious thought to the actions necessary to meet students' needs now and to prepare for the shift. We should ensure that manufacturers have universally designed materials that are flexible, accessible, and usable across the broadest range of student variability. There are many things that we can do to ensure that instructional materials—present and future—do not present unacceptable barriers to the participation and achievement of struggling students and students with disabilities. Here are just a few:

Increase awareness of current resources. Many of the electronic resources that textbook companies provide go unused because educators are not aware of them, do not know how to get access to them, or do not ask for them. Technology leaders and innovators can help teachers become aware of and use the accessible formats that are already available.

Provide professional development about AIM for struggling students. Instructional technology is based on the idea that educators must have technologi-

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cal, pedagogical, and content knowledge (TPACK) to provide instruction with digital tools. Professional development about instruction using AIM should ensure that teachers know how to adjust and adapt the display of specialized formats to meet the needs of students with print-related disabilities and students who struggle with reading. Teachers should know the particular challenges of using each format and what they can and should expect of students using them.

Increase collaboration. Providing and using instructional materials in specialized formats requires that we learn more about and from each other. Collaboration in all phases of decision making enhances the likelihood of compatibility, usability, and accessibility. It begins with those responsible for selecting curriculum resources and technology tools. Curriculum committees can work with publishers to seek out and obtain universally designed instructional materials. Instructional technologists and coaches can address issues of technological compatibility, bandwidth, and network restrictions. Special educators can ensure their schools' equipment is compatible with specialized formats and assistive technology when making decisions about materials and technology for general use.

If Doug Levin is correct—and there are strong signs that he is—students who struggle with print will soon have unprecedented access to curricula that were once out of their reach. By ensuring that electronic formats and technology devices are accessible, well-informed, and collaborative, leaders can move toward digital equity to enhance educational opportunities and outcomes for all students.

Resources

American Printing House for the Blind: www.aph.org
Bookshare: www.bookshare.org
Doug Levin interview: http://blogs.edweek.org/edweek/DigitalEducation/2011/12/setdas_levin_classrooms_digita.html?print=1
IDEA regulations: www.ideapartnership.org/index.php?option=com_content&view=article&id=849&oseppage=1
Learning Ally: www.learningally.org
National Center on Accessible Instructional Materials: http://aim.cast.org
National Instructional Materials Access Center (NIMAC): http://nimac.us
Where Are AIM Acquired?: http://aim.cast.org/learn/accessiblemedia/allaboutaim/where

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