

Digital Text in the Classroom

Guest Columnists: Skip Stahl and Mark Aronica, CAST

In most classrooms, printed books are the prevailing technology - a medium that provides little support for the teacher at the point of instruction or for the struggling student who is trying to acquire new skills or information. Although supports and adjustments can be provided using traditional, printed text, these adjustments are difficult to accomplish on more than an individual basis. For example, textbooks provided in standard print format present a barrier for students who are dyslexic or physically disabled, and are completely inaccessible to students who are blind.

There is a growing awareness among instructional personnel, parents, curriculum developers and policy makers that future curricular materials will be expected to meet the needs of all members of an increasingly diverse population, help all students achieve the highest standards, and effectively integrate computers and telecommunications into the classroom. In contrast to the rigidity of print, the inherent flexibility of digital text enables the provision of adjustments and supports on a class-wide basis. Technology-based curricula have the potential to greatly extend teachers' reaches, helping them to overcome the barriers to successful instruction imposed by limited time and resources.

Technology allows print textbooks to be made accessible to students with disabilities through conversion to digital form. The same material in digital form offers many options for students with disabilities. It can, for instance, be read aloud by a computer or screen reader, or printed on a Braille printer. The power of future curriculum will be in these alternative digital formats. Curriculum content, activities and related links will be able to be delivered to students in a manner that can be customized to fit their individual strengths, and while these adaptations may vary markedly depending on student needs, the flexibility of the digital materials will support all these transformations.

Measuring the success of students with special needs in the general education curriculum is a cornerstone of IDEA '97 and these students need flexible materials to

succeed. Postsecondary institutions are required, under Section 504 of the Rehabilitation Act and the ADA to provide equivalent access to learning opportunities. All of these efforts are further supported by a 1996 exception to the Copyright Act (Chaffee Amendment) that allows certain agencies to reproduce and distribute materials in accessible formats for individuals with visual disabilities and certain other disabilities ([17 U.S.C. §1211](#)). As a result, many K – 12 school districts, and almost all postsecondary institutions across the country currently digitize textbooks for students.

The National Center on Accessing the General Curriculum (www.cast.org/NCAC) is promoting policy to improve access to the general curriculum for students with disabilities. Simultaneously, and cooperatively, other advocacy groups, publishers and educators are joining together to establish a national agenda for the provision of accessible digital curriculum materials.

In March of 2002 the American Foundation for the Blind's Solutions Forum has been successful in introducing federal legislation, the Instructional Materials Accessibility Act of 2002, (IMAA) that would establish a national repository of digital textbooks and other curriculum materials (bill numbers HR 4582 and S.2246). This repository would provide states with just-in-time delivery of accessible learning materials and eliminate the current variation in state-by-state requirements for accessible materials for visually impaired students by authorizing a national file format.

While the IMAA specifically emphasizes accommodations for the approximately 96,000 visually impaired K-12 students, its passage would set a precedent upon which similar legislation could be built, and it would facilitate the provision of digital learning resources to the remaining six million identified students with special needs. The timing of the IMAA is more than fortuitous, since the formal re-authorization of the IDEA will begin in the Fall of 2002, and if the IMAA is passed, it will provide a foothold for

crafting identical legislation that unequivocally extends the same set of civil rights to all students with disabilities.

In addition, the federal government's commitment to accessible technology is increasingly evident as the requirements of Section 508 of the Rehabilitation Act (see www.section508.gov) are applied to all federal entities, and the extension of this set of requirements to all K-12 curriculum materials, by including them in IDEA re-authorization language, is a logical next step.

While the IMAA promises to reduce redundancy and increase the availability of curriculum materials for diverse learners, a number of states have moved to enact pre-emptive legislation, citing the 2 – 5 year implementation sequence of the IMAA as being too long to wait. California, New York, Kentucky, and Texas have recently enacted accessible textbook requirements or have indicated to curriculum publishers that they will give preference to materials provided in alternative digital formats. Other states also have similar legislation under consideration. These federal and state initiatives clearly indicate the emerging importance of digital curriculum content.

While these federal and state initiatives are moving forward, many educators are still faced with the immediate difficulty of providing students with accessible versions of curriculum materials. If a school or institution has the resources to apply to the process of digitizing textbooks (and they do so within the constraints of the Chaffee Amendment), there is a range of resources available.

Premier Programming at www.premier-programming.com offers *Scan & Read Lite*, an optical character recognition (OCR) software package that includes synthetic speech support, text highlighting, a dictionary and thesaurus for under \$100. *Omnipage Pro II* from ScanSoft (www.scansoft.com) is a more costly and full-featured OCR package with synthetic speech feedback.

For schools that already have the software necessary to digitize text using a scanner, CAST's *eReader* (www.cast.org/ereader) not only offers extensive reading support with multiple options for synthetic speech and synchronous text highlighting, but it will read web pages as well on either a Macintosh or Windows platform. Other high-end commercial products are available from TextHelp (www.texthelp.com) and Freedom Scientific (www.freedomscientific.com) as are low-cost packages like *TextAloud MP3* from www.nextuptech.com or *ReadPlease2002* from www.readplease.com.

For materials that are out-of-copyright and in the public domain, the Web is the best place to search. One resource for locating digital text is the CAST e-text Spider at <http://www.cast.org/udl/index.cfm?i=1300>. The Spider will perform a rapid author, title, or subject search through three major digital repositories selected for content that correlates well to instructional needs. For a broader, Web-wide search, www.searchebooks.com will find any instance of a title or author on any web page, while www.searchedu.com will search only university & college repositories.

All of the search options referenced will return indexed information based on the search parameters provided (i.e., author, title). Determining the relative appropriateness of a found item is left to the searcher. For educators who find pre-categorized or catalogued information more useful, the Children's Literature Web Guide at www.ucalgary.ca/~dkbrown is a comprehensive portal to hundreds of literature-related Web repositories. Content listed at this site is appropriate for the full K-12 range.

Since the passage of the Chaffee Amendment in 1997 a number of disability-specific repositories have been created by educational or non-profit organizations. The Texas Text Exchange at <http://tte.tamu.edu/> offers a collection of over 400 digital postsecondary textbooks to authorized users. Members of TTE can contribute materials they have digitized and add to this ever-growing resource. The Accessible Book Collection (www.accessiblebookcollection.org) offers a more eclectic array of digital

books, while BookShare (www.bookshare.org) provides a large assortment of accessible versions of popular fiction, non-fiction and other trade books.

All of these Chaffee repositories restrict access to individuals who qualify for alternative formats under the Chaffee Amendment. In most cases, the process of qualifying a users means submitting proof of a visual impairment or other print disability, signing an agreement that the materials will only be used by the qualified user, and acknowledging the copyright constraints. For a more extensive overview of this requirement, see the Library of Congress' National Library Service Factsheet at <http://www.loc.gov/nls/reference/factsheets/copyright.html>.

CAST has initiated a national project, the Universal Learning Center (ULC) to provide a searchable directory of digital versions of traditional curriculum textbooks, for use with students who have a wide range of learning needs. Users will be able to link to listed items located in the ULC's repository and either download content directly or receive content on a custom CD. The ULC is designed to offer a central resource for obtaining digital content and will serve as an instructional hub for information, best practices and tools related to the innovative and effective use of digital content in the classroom, following the precepts of *Universal Design for Learning*.

The goal of the ULC is to enable teachers and specialists to locate and acquire accessible digital versions of curricular materials in customizable formats that can be tailored to support students with a wide range of learning needs. The ULC will also help build the capacity of teachers to use materials to individualize instruction. CAST will transform and distribute existing print textbooks following the provisions of the Chaffee Amendment to the Copyright Act. The use of these materials will be limited to students with documented disabilities who qualify to receive alternate or specialized formats.

Educators using the ULC will be required to commit to proper use of curricular materials as part of the registration process and at the time of document download.

David Rose Associate Editor Column

Further, the ULC provides the required copyright notices with each document as part of the ULC service.

This effort will be informed and supported in part through the National Center on Accessing the General Curriculum (NCAC, a collaborative effort with the U.S. Department of Education's Office of Special Programs (OSEP) of which CAST is the host and lead agency, by the Emily Hall Tremain Foundation, and by additional funding provided by Verizon Online, Mitsubishi Electric America Foundation, the Oak Foundation, and the Barr Family Foundation.

Beginning in September 2002, The ULC will begin providing accessible digital learning materials in a “Leadership States” partnership with two key states, with the intent of extending the availability of ULC content and support to additional states during the 2002 – 2003 school year. For additional information, please visit www.ulc.cast.org.

The confluence of emerging federal and state legislation, the growing availability of high-speed Internet connectivity, the declining cost and increasing processing power of desktop and laptop systems, handheld and wireless devices promises a future where all students can learn using flexible and responsive materials. As has been referenced in previous publications* accommodations created for those with disabilities often lead the way for all learners, and in the process of creating, transforming and providing digital curriculum resources this paradigm hold true, and creates better alternatives for all teachers and all students.

N.B.

Chaffee Amendment, Excerpt from Pub.L. 104-197, Fiscal year 1997, Legislative Branch Appropriations Act. Section 316. Limitation on Exclusive Copyrights for Literary Works in Specialized Format for the Blind and Disabled.

The Future is in the Margins: The Role of Technology and Disability in Educational Reform, David Rose and Anne Meyer at http://www.air-dc.org/forum/AbRose_Meyer.htm).