NIMAS

## NIMAS Development and Technical Assistance Centers

NIMAS

Accessible Textbooks in the K–12 Classroom

(2010 Revision)

An Educator's Guide to the Acquisition of Alternate Format Core Learning Materials for Pre-K–12 Students with Print Disabilities

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IDEAs that Work
U.S. Office of Special
Education Programs
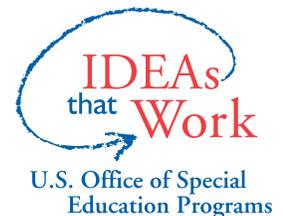
I.   Overview

This Guide, originally published in 2006, is designed to provide educators—administrators, teachers, and paraprofessionals—with effective strategies for acquiring and using accessible, alternate format versions of print instructional materials in the classroom. Beginning with three brief scenarios in the Reaching Every Student Section below, we describe typical challenges encountered by "print-disabled" students at the elementary, middle, and high school levels. The Guide explores solutions for obtaining alternate format materials in four categories: Braille, audio, e-text, and large print. As a result of the emergence of digital versions of textbooks and related materials, a vibrant commercial market for e-books and e-book players, and a growing array of open source instructional materials, the options for students who struggle to extract meaning from print has both simultaneously expanded and become more challenging.

Instructional materials need not to be simply accessible to all students, they need to be appropriate for increasing their academic achievement as well. Examples of materials that are both designed to be accessible and to include embedded supports for learning are reviewed in the Texts That Teach—Emerging Potential Section of the Guide. We are more firmly committed to the belief that these types of products will be essential for students with disabilities and preferable for a wide range of other students: English Language Learners, reluctant readers, and students who simply prefer flexible, media-rich, and interactive formats. This Guide is designed to support the acquisition of accessible instructional materials (AIM) both for students with print disabilities who qualify for NIMAS-derived materials and those who don't. States and local school districts are obligated by IDEA 2004 to ensure that the needs of both groups are met.

The Solutions for the Classroom Section of the Guide provides an updated overview of existing resources for acquiring AIM: Braille, audio, e-text, and large print—how to locate them, and where to turn for help. This section also explores emerging resources available during the 2010–2011 school year as a result of market shifts and increased awareness.

The fifth section of the Guide, Systems of Support, explores ways in which federal mandates and market exigencies are expected to expand the creation and distribution of Pre-K–12 instructional materials, and how state and local education agencies (SEAs and LEAs) can establish the coordination necessary to take full advantage of these requirements and opportunities.

The Systems of Support Section of the Guide also provides additional background information on the legal framework supporting and promoting the provision of accessible instructional materials. It reviews the impact of civil rights legislation (the Rehabilitation Act of 1974, the Americans with Disabilities Act), federal education law (No Child Left Behind and IDEA 2004), and copyright law (specifically Title 17, Section 121; the Chafee Amendment), and their relationship to the categorical designation of students unable to access print materials. Awareness of these obligations and constraints provide an important framework for understanding how alternate format materials may be, or, in some cases, must be, provided to print-disabled students.

Finally, the Resources Section of this Guide is designed to provide educators with additional information about locating and acquiring core curriculum materials in AIM formats.

Please keep in mind that solutions offered in this Guide are based on an awareness of both available and emerging technologies, and these are subject to rapid change. It is our hope that this Guide will be as up-to-date and accurate as it can be in order to prove useful to the educational community.

II.   Reaching Every Student

Third Grade Josie Baskin's class of 27 third graders has 6 students with Individualized Education Programs (IEPs), 1 with a Section 504 plan, and 8 English Language Learners. In her eight years teaching at the inner city Montrecht School, Josie has watched the school progress from a borderline chaotic to a structured and responsive environment. The school's recent performance report indicated that its students were making adequate yearly progress, despite the fact that the majority of Montrecht's 370 students came from families at or near the poverty level. Josie was particularly pleased with the school's fourth grade Reading and Math scores, since the steady achievement of Montrecht's fourth grade students reinforced her emphasis on firming up their basic skill development.

Josie is concerned that this year's class might present more of a challenge. One of her IEP students is blind, and Josie's class has a full-time paraprofessional, and regular consultation from a teacher of the visually impaired, who supports the student in learning Braille. Her 5 remaining students with IEPs have all been identified as having either Attention Deficit (ADD) or as having learning disabilities, or both; while her student with a Section 504 plan has mild Cerebral Palsy that affects his upper extremities, making it difficult for him to write manually, or to hold a book or even a sheet of paper.

Even though Josie is creative and uses a variety of media and resources for instruction, and her students have access to 5 Internet-equipped classroom computers, the core element of her reading instruction is a textbook and associated workbook, and this year's Math curriculum is predominantly textbook-based as well. She feels that her resources in Science and Social Studies are more flexible and varied, but she is still concerned that her print materials will be a barrier for nearly 25% of her class.

> How can Josie acquire Braille materials for her blind student and other appropriate accessible versions of core curriculum materials for her students eligible for special education or Section 504 supports?

Sixth Grade The 18 to 23 students in each of Frances Lincoln's four English Language Arts classes are grouped according to achievement. Even though the tracking system used by her school is not as rigid as it once was, it does classify students based on the pace of their acquisition of new skills, which, in turn, correlates with their achievement levels. The nearly 600 students at Jeffords Middle School come from a mix of lower-middle income families.The

majority of students' parents have been or are employed in the auto parts production factories that surround the town where Jeffords is located. While a number of Frances' students express a strong interest in attending college in the future, she knows that the majority of her students will enter either the military or the workforce after high school graduation.

This is the second year that Jeffords Middle School has made the district-wide list of "under-performing" schools. The academic achievement of a large number of students has been shown to decline from fourth to eighth to tenth grade, and the school's district has instituted summer tutorials for ninth and tenth grade students to help them pass the tenth-grade exit exam and receive diplomas.

The school's district has also standardized its Social Studies curriculum and has mandated project-based coordination with Jeffords' English Department from sixth through tenth grade—with an associated increase in the amount of reading and writing that the students will be required to do. Frances knows from experience that the students in her advanced class will do fine, while the students in the lower three classes will struggle; and that a number of students will fall farther behind. In addition, nearly one-third of the students in each of her three lower classes struggle with reading—most due to learning disabilities, but some due to vision or hearing difficulties. Frances is worried that the new plan to combine English Language Arts understanding and expression with Social Studies content will place a high premium on her students' ability to us their curriculum materials efficiently and accurately.

> What alternate format materials are available to help Frances' special education students gain access to the combined English Language Arts and Social Studies curriculum? How does she go about acquiring these materials?

Tenth Grade Rob Mackie coordinates the Special Education Resource Support Center at Dover Memorial High School (DMHS) in a large metropolitan area. The Center supports nearly 180 students with learning challenges ranging from sensory and physical disabilities to learning disabilities and AD to students with short-term medical needs requiring instructional accommodations. When the Center was first established in the early 1980's it functioned as a "resource room" where many students with special needs received the majority of their instruction. In the period of the mid-1990's the Center transitioned into an academic support hub as inclusion took hold, and added assistive technology (AT) support as such hardware and software became more prevalent.

Since 2002, the Center has been increasingly called upon to provide or acquire alternate format versions of core print textbooks. Center staff, who once tutored students, proctored exams, or trained other instructional staff on supported reading software are now occupied with digitizing textbooks and related instructional materials. The Center routinely retro-fits print materials into e-text, audio, and large print, and facilitates the acquisition of Braille files. As word of the Center's capabilities and its willingness to create alternate format versions spread, more DMHS faculty encouraged students who struggled with print to take advantage of the service.

While Rob readily acknowledges the need for accessible, alternate format materials for students with disabilities, he is frustrated by the growing shift in the Center's work. He is concerned that if other solutions don't arise to fill the gap, the Center will ultimately be transformed into a materials production facility, and that the remediation, organization, and scheduling support and co-teaching that he and his staff are trained for will significantly diminish.

> What resources exist to help the Special Education Resource Support Center at Dover Memorial High School return to its instructional focus while simultaneously assuring that students who need accessible, alternate format materials receive them in a timely manner?

III. Texts That Teach—A Promise for the Future

Remediation and Accommodation

During the past decade, the focus of Special Education has expanded to include both remediation and accomodation: the provision of alternate strategies, approaches, materials, and settings that help facilitate and sustain the academic achievement of students with learning needs, especially those with disabilities. Beginning in the 1970's, Special Education predominantly concentrated on diagnosis and remediation—identify the problem and correct it—but a number of practitioners and researchers expressed concern that some circumstances (blindness, for example) were not "correctable," regardless of how much remediation was available. That concern evolved into what was initially a subtle shift in Special Education—that the curriculum itself—its goals, standards, materials, and assessments—was too inflexible to meet the needs of diverse learners. With respect to instructional materials specifically, this modification in emphasis has resulted in a seismic shift in awareness. Beginning with a modest investment in 2000, the United States Department of Education now supports a multi-million dollar national initiative designed to ensure that high-quality AIM are provided to students with print disabilities in a timely manner. Current active endeavors include the National Center on AIM,[HL1] the NIMAS Center,[HL2] the NIMAC,[HL3] Recording for the Blind & Dyslexic[HL4] (RFB&D), and Bookshare.org.[HL5]

Universal Design

The significant increase in the Department of Education's investment in creating a national solution for the provision of AIM is an extension of the Universal Design movement. The NIMAS initiative is based on the concept that support for students who cannot see; easily read, hold, or otherwise effectively use textbooks should be built in to these products from the beginning. Even though NIMAS source files represent an alternative to print versions, they are created by content developers as a part of an overall product, and they represent a more efficient and accurate approach than having to retro-fit a print work at the classroom or school level. The push for content developers to create NIMAS filesets for all of their core, textbook-related K–12 curriculum materials has also prompted some publishers to create commercial products as an extension of their NIMAS file creation workflow, and these products are far more "universally designed" than their print counterparts (*see* Pearson's HTMLBooks,[HL6] for example). Finally, the language of IDEA 2004 allows state and local education agencies to meet their accessible instructional materials requirements by purchasing them directly from publishers—an option that should provide further incentive for the development of these products.

The emphasis of this system to "design in" accommodations for students who struggle with or cannot access print represents a significant step forward from a reliance on school personnel to retro-fit publisher products in order to make them usable. It also creates a framework for an entirely new generation of instructional materials—digital versions that are not only accessible to the broadest possible range of students but that also include embedded supports for learning. Ultimately, this "market model" solution is optimal since it makes accessible instructional materials available to all students: those who require them and those who prefer them.

Universal Design for Learning

Universal Design for Learning seeks to maintain high achievement expectations in all aspects of the traditional curriculum—goals, methods, materials, and assessment—through the application of multiple representations of information, multiple means of expression, and multiple means of engagement. While accessibility is an essential prerequisite of UDL-oriented curriculum materials, it is important to distinguish between access to information and access to learning. Accessible materials facilitate access to information, and UDL facilitates access to learning.

The three principles of UDL provide the foundational framework for the detail-oriented UDL Guidelines,[HL7] available from the National Center on Universal Design for Learning.[HL8] The Guidelines address the importance of accessible learning materials as an essential component of UDL. CAST has created two freely-available online products as examples of AIM with embedded supports for learning. UDL Editions (http://udleditions.cast.org) presents a collection of seven public domain texts supported by a text-to-speech toolbar and Google-enabled web resources, while Book Builder (http://bookbuilder.cast.org) is an authoring tool for creating accessible e-books with animated "agents" to help support a reader's understanding, a multimedia glossary, and other resources for creating, sharing, and publishing multimedia "books."

This Guide emphasizes how to identify, locate, and acquire accessible instructional materials for classroom use. It is an update of a document created in 2006 and references resources, projects, products, and policies that were either unavailable or not fully in place when the original document was created. It is not meant to be exhaustive, since the world of curriculum products, assistive technologies, and digital media is rapidly changing. It is meant to be comprehensive, however, and to accurately reflect services and supports available at the time of its writing.

The Importance of Digital Materials

Increasingly, the potential for assuring student access to flexible, portable, and appropriate learning materials resides in the capabilities of digital media. Its inherent pliability and the ease with which digital content (text, audio, video, images, tactile rendering, etc.) can be transformed from one media type to another makes it the preferred foundational format. While not all student-ready versions of print instructional materials referenced in this Guide are themselves digital, they are all created from a digital source. This is important to understand while reviewing solutions offered in the following sections.

IV. Solutions for the Classroom

The solutions presented in this section of the Guide comprise the essence of the Guide itself: an exploration of existing and emerging best practices designed to increase the availability of AIM in the classroom. Sub-parts of this section are categorized according to formats appropriate for students with print disabilities: Braille, audio, e-text, and large print. The purpose of this categorization is to facilitate the location of specific solutions based on immediate need, and these needs are often dictated by the necessity of seeking materials for one or more students with specific and challenging print disabilities.

Braille

The timely location and acquisition of Braille versions of print instructional materials continues to be one of the more significant challenges in addressing the needs of students with visual impairments who are Braille readers. Despite the existence of a network of local, regional, and national transcription organizations and repositories, locating high-quality Braille files and providing them to students at the same time that print versions of the same material are made available is still unpredictable and continues to be time-consuming and costly.

Existing Solutions

National Library Service (www.loc.gov/nls) In the 1930's, the Pratt/Smoot Act[1] directed the Library of Congress to work with regional and local libraries to catalog, maintain, and facilitate the distribution of books for the blind; this charge resulted in the National Library Service for the Blind and Physically Handicapped (NLS).[2] The inauguration of this service created the framework of a nationally-coordinated solution for the provision of alternate format materials. NLS functions as a clearinghouse for the subsidized distribution of Braille, recorded books and magazines, and playback equipment to 57 regional and 86 sub-regional libraries. The National Library Service Reference Directories[HL9] web page provides an extensive array of Braille-related resources.

 Membership The National Library Service provides Braille and audio versions of print works to visually impaired and physically disabled patrons who meet eligibility requirements.[HL10]

American Printing House for the Blind (www.aph.org) Since the late 1800's, the American Printing House for the Blind, or APH, has received funding from the federal government to provide Braille versions of print materials. In particular, APH is responsible for providing specialized materials free-of-charge to eligible students in educational settings with annual support from the Federal Quota Program.[HL11] The federal quota program divides an annual

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[1] Perl, E. S. (2002). *Federal and state legislation regarding accessible instructional materials.* Wakefield, MA: National Center on Accessing the General Curriculum (NCAC). Retrieved 7/25/06 from http://www.cast.org/publications/ncac/ncac_policy.html#report3.

[2] Library of Congress, National Library Service. (2006). *NLS: That all may read.* Retrieved 7/25/06 from http://www.loc.gov/nls/about_history.html.

appropriation from Congress by the number of qualified Blind/Low Vision students in educational settings and apportions those funds for the purchase of specialized-format materials. Although the mechanism by which each state provides accessible, alternate format materials (including Braille) varies and is dependent upon a number of factors,[3] the national network of Instructional Resource Centers for the Blind and Visually Impaired[HL12] provides a crucial arrangement of state, regional, and local expertise.

In addition to providing oversight of the Federal Quota Program, APH also manages the LOUIS database,[HL13] an online catalog of approximately 363,000 titles available in Braille, large print, e-text, and audio from nearly 200 contributing agencies. The purpose of LOUIS is to minimize duplication of effort and to facilitate the acquisition of specialized-format materials. One aspect of the LOUIS database to keep in mind is that many of its listings are for specialized-format materials produced by sources other than APH, and, as a consequence, these resources *may not* be eligible for purchase using federal quota funds.

For an annotated bibliography of research on the educational impact of contracted versus uncontracted Braille on student literacy, see the APH Annotated Research page at http://www.aph.org/edresearch/Braillebib.html.

Up-to-date information about Braille and other resources provide by the American Printing House for the Blind is available from the National Center on Accessible Instructional Materials as a result of its topical survey of the three national accessible media producers (AMPs). Information specific to APH is available at http://aim.cast.org/learn/practice/acquisitiondistribution/aph_faq, and a comparison table detailing its products & services is available at http://aim.cast.org/learn/practice/acquisitiondistribution/amp_survey.

 Membership Access to materials in Braille (and other formats) produced by the American Printing House for the Blind is limited to registered users.[HL14] Contact the Accessible Textbooks department (ATIC)[HL15] of APH for specific information on obtaining textbooks in Braille and other formats.

Other Braille Resources In addition to the services and materials available through APH and instructional resource centers, numerous not-for-profit organizations (National Braille Press,[HL16] Braille Institute of North America[HL17]) and for-profit organizations (gh,[HL18] TechAdapt[HL19]) provide transcription (Braille creation) services. For an extensive list of transcription agencies, see the Braille Transcription Resource List[HL20] published by the National Federation for the Blind (NFB). For an extensive list of agencies and organizations providing or producing Braille,

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[3] Nail-Chiwetalu, B. (2000)**.** *Guidelines for accessing alternative format educational materials.* Retrieved 7/25/06 from http://www.loc.gov/nls/guidelines.htm.

see the [Sources of Braille Children's Books and Magazines](#)[HL21] resource developed by the American Foundation for the Blind (AFB). APH also provides a searchable database of [Alternative Media Producers](#)[HL22] as a resource for locating producers of specialized-format materials.

How effective are these solutions? In 2000 and again in 2004 the American Foundation for the Blind completed a survey of states' use of both Braille and Large Print. The 2004 survey, [Trends in Braille and Large-Print Production in the United States: 2000–2004](#)[HL23] detailed progress—an increase in the use of electronic files for Braille, for example—but also continuing frustrations. From 2000 to 2004, requests for Braille increased by 26% and information from states indicated thatapproximately 20% of Braille versions of textbooks could be expected to arrive well after the start of school. Respondents expressed the same desire in 2004 as they had in 2000 for a more efficient and responsive system—including requests for a consistent file format, increased accuracy of source files, and centralized distribution.

In 2008, the DAISY Consortium completed a survey, [Braille in DAISY: A Survey of the State of the Art](#).[HL24] The focus of this effort was to ascertain the perceived effectiveness of generating Braille from DAISY-compliant source files created in XML (eXstensible Mark-up Language). While the scope of the survey was international (and therefore not specific to NIMAS or to the provision of K–12 textbooks in the United States), since NIMAS is a sub-set of the DAISY specification, it does provide relevant information. Survey results indicated that Braille production continued to rely on localized scanning efforts, that the use of XML source files was still limited but valued when available, that there was still a limited range of XML editing software available to Braille transcribers, and that Braille conversion software was only beginning to be able to process DAISY/NIMAS XML files. Clearly continued work needs to be done.

A related call for continued action exists in the 2009 report from the National Federation for the Blind (Word format): [The Braille Literacy Crisis in America: Facing the Truth, Reversing the Trend, Empowering the Blind](#).[HL25] This report details the drop in Braille literacy & Braille instruction across all individuals who are blind and the associated decline in certified teachers of the visually impaired, noting that, for students, Braille offers the only effective means of written communication available to them.

Emerging Solutions

During the past ten years, the movement to harness the flexible power of digital technology to support the rapid, accurate, and efficient creation of Braille has resulted in the inclusion of alternate format mandates for State Education Agencies (SEAs) and Local Education Agencies (LEAs) in the Individuals with Disabilities Education Improvement Act of 2004. The [National Instructional Materials Accessibility Standard (NIMAS)](#)[HL26] and the associated [National Instructional Materials Access Center (NIMAC)](#)[HL27] identify the structure and content of digital source files designed to facilitate the creation of accessible, student-ready versions (Braille, audio, e-text; large print) of instructional materials and establishes a national repository for the storage, cataloging, and distribution of those files. This initiative towards standardization and centralized distribution will significantly accelerate the creation and delivery of high-quality Braille materials to students and to schools.

There are two software developers who produce Braille translation software (for converting e-text into Braille code). Duxbury Systems, Inc[HL28] (producers of the Duxbury Braille Translator and MegaDots), offers a product called NimPro[HL29] which is a pre-processor for NIMAS-compliant XML files. Once processed through NimPro, the resulting files can be imported into the Duxbury Braille Translator (vers. 10.7) and/or Megadots (vers. 2.4).

Computer Applications Specialties Company[HL30] offers Braile2000[HL31] (v2) which can import NIMAS-conformant source files directly. Braille2000 v2 also can take advantage of structured mark-up contained in NIMAS XML files to offer transcribers the ability to use "summarization, navigation, and control" capabilities (Stepp, 2010) in order to speed up the efficiency and accuracy of the Braille transcription process (Stepp, R., Braille2000 Essentials: Introducing New Tool, CTEBVI 51st Annual Conference, Losa Angeles, CA, April, 2010).

For an overview of the Braille textbook creation process, visit the Production of Braille Textbooks[HL32] page created by the America Foundation for the Blind (AFB). This resource provides a clear and well-paced sequence of actions in the Braille textbook production process.

In addition, conversion agencies and companies that create Braille-format materials are also moving rapidly to incorporate compliance with the NIMAS. A list of these companies is available at the AIM web site's Conversion Services[HL33] page.

All 50 states have indicated their intention to coordinate with the NIMAC repository by 1) requiring curriculum publishers to submit NIMAS filesets to the NIMAC as part of their textbook procurement contract and 2) use these NIMAS filesets as the basis for the creation of student-ready versions of accessible materials. States have appointed one or more "authorized users" (AUs) to download NIMAS files from the NIMAC repository and have identified one or more "accessible media producers" (AMPs) to create and deliver student-ready versions (including Braille). Three national organizations that produce specialized-format versions from NIMAS source files are the American Printing House for the Blind (APH),[HL34] Bookshare.org,[HL35] and Recording for the Blind & Dyslexic (RFD&D).

Both APH and Bookshare produce Braille. The Braille produced by Bookshare is readily available as a digital .brf (Braille-Ready Format) file and embossed copies may be ordered through Bookshare that are produced on demand by TechAdapt. See http://www.bookshare.org/_/help/faq/general for more detail. In particular, APH has an Accessible Textbooks Department (ATIC)[HL36] which offers both large print and high-quality Braille textbooks.

In order to address the continuing need for qualified Braille transcribers, the National Federation for the Blind (NFB) offers a Braille Certification Training Program[HL37] with transcribing and proofreading strands in literary, music, and math Braille; the American Foundation for the Blind (AFB) offers a free online course "Using Source Files"[HL38] and a Braille Textbook Transcriber Curriculum.[HL39] Additional transcriber courses are available through the National Braille Association[HL40] and the Reference Directory[HL41] at the National Library Service (NLS). Like every other aspect of the AIM initiative and the work with NIMAS XML files in particular, the

transcriber community is transitioning from its prior approaches to Braille creation to using the more highly-structured source files now available to them. This involves learning new tools, approaches, and procedures in order to maximize and embrace the efficiencies inherent in this change.

→ *How to Locate: Braille*

IEP team members, classroom teachers, and others who need to acquire Braille versions of print instructional materials should be aware of the following requirements and resources:

NOTE: IDEA '97 makes Braille the <u>expected</u> medium of instruction for blind students.

☐ Work with a Teacher of the Visually Impaired (TVI) or a representative from your state or regional <u>Instructional Resource Center</u>[HL42] to locate Braille versions of instructional materials.

☐ Contact your state's <u>NIMAS/NIMAC Coordinator</u>[HL43] for guidance related to local or regional resources and procedures.

☐ Consult the <u>LOUIS database</u>[HL44] to determine if a Braille version of the materials you need in an alternate format already exists.

☐ Consult the NIMAC database (<u>http://www.nimac.us/</u>). Opened in December, 2006, the NIMAC (National Instructional Materials Access Center) provides public information about the availability of NIMAS filesets for a specific publication or series, and information about accessible, alternate format, student-ready versions that may be available; where they are located, and how to obtain them.

Audio

Audio versions of print materials continue to evolve as digital audio recording and playback technology improves. The benefits of capturing and playing back the expressive qualities of the human voice, particularly for individuals with visual impairments, are immediately obvious. In the past ten years, analog audio recording (records, cassette tapes, etc.)—which are recorded as one extended file—have been supplanted by digital audio formats. Digital audio is a way to recreate analog sound waves in discreet, individual sound samples: the more samples that make up the digital rendition of the sound, the more accurate the recording. In addition, since the digital file is in effect made up of hundreds of little digital samples, the computer can use these divisions to support accurate navigation ("Go to page 153"), bookmarking, and other navigation features that are difficult if not impossible to achieve with analog files.

Digital audio files with embedded navigation supports are known as Digital Talking Books (DTBs) or <u>DAISY</u>[HL45] books. The NIMAS is a sub-set of the DAISY Standard and support for

both has been adopted by nearly all producers of specialized audio recordings for individuals with print disabilities, including the National Library Service, Recording for the Blind & Dyslexic, American Foundation for the Blind, National Federation for the Blind, Bookshare.org, and many other not-for-profit and for-profit producers.

Existing Solutions

National Library Service (www.loc.gov/nls) The history of "talking books" mirrors closely the evolution of Braille. Recorded audio books became technologically and legally feasible in the early 1930's, and most agencies and organizations involved in the creation of printed Braille materials for the blind simultaneously began work on audio formats. During the past few years, the National Library Service has transitioned their audio formats from analog to digital, using a proprietary version of DAISY 2—delivering the latter on CD-ROM and other fixed media. In 2009, NLS began offering its Braille and Audio Reading Download[HL46] or BARD service to all qualified members. The BARD service provides a direct download of both Braille and audio versions of books, periodicals, and magazines.

Membership	The National Library Service provides audio versions of print works to visually impaired and physically disabled patrons who meet eligibility requirements.[HL47]

Recording for the Blind and Dyslexic (www.rfbd.org) Recording for the Blind incorporated in 1951 to record textbooks for the blind and visually-impaired, and in 1995 added "and Dyslexic" to their name in acknowledgement of a broader awareness of "print disability." Today, RFB&D serves over 257,000 members, nearly 70% of whom have reading disabilities. RFB&D distributes DAISY Digital Talking Books (AudioPlus) on CD-ROM and via direct download[HL48] AudioPlus books are audio-only human voice recordings that conform to DAISY navigation requirements. These products require specialized PC hardware—desktop or portable "players"— or AudioPlus-compatible computer software for playback. RFB&D operates on both a fee-based institutional subscription basis and an individual membership basis and sells playback hardware and software as commercial products. For an extensive comparative overview of RFB&D, see Recording for the Blind & Dyslexic Frequently Asked Questions[HL49] at the National Center on AIM web site.

RFB&D creates high-quality recorded human audio versions of print instructional materials. The very nature of the recording process itself is time-consuming, however, and RFB&D's group of 5,400 volunteer readers work from a number of digital recording studios around the country to fulfill subscriber requests. The earlier these readers have access to a print work, the more rapidly AudioPlus versions can be created. In 2008 RFB&D expanded its audio book offerings to include three formats: WMA Downloadable (AudioAccess[SM]), DAISY CDs (AudioPlus[®]) or NIMAS files. AudioPlus[®] are DAISY-formatted, while AudioAccess[SM] are WMA files designed to be used with Microsoft Windows Media Player or a Windows-compatible portable media player.

RFB&D now also sponsors a feature-rich web site for K–12 educators. Learning through Listening[HL50] combines lesson plans, research, and the power of audio with Universal Design for Learning (UDL) in a topical and engaging format designed to support the use of rich audio resources in the classroom.

Membership
Recording for the Blind and Dyslexic offers both institutional and free individual memberships. Eligibility[HL51] is based on documentation of a disability which makes the use of standard print materials difficult or impossible.

American Foundation for the Blind, Talking Book Productions
(www.talkingbookproductions.com) This division of AFB produces audio books for the National Library Service and in partnership with commercial publishers. AFB uses its expertise in Digital Talking Book development primarily for production purposes. For more information, see http://www.afb.org/Section.asp?SectionID=37.

Membership
AFB's Talking Book Production Services[HL52] are designed for authors, publishers, and producers of audio books.

Other Sources of Audio Books In addition to the organizations listed above, the Blind Reader's Page contains an extensive resource list of Audio Books and Magazines[HL53] sources. One interesting general purpose audio book site is LibriVox (www.librivox.org), a collection of audio files and podcasts of public domain books. For books out of copyright (95+ years), this is a nice resource for audio versions of classic literature and primary source materials. Finally, the world of commercial audio books has expanded exponentially with the growth of the Internet and digital downloading. Audible (www.audible.com), Audio Editions (www.audioeditions.com/), and Books on Tape (www.booksontape.com)—which, contrary to what its name implies, also has audio books on CD and for download—are representative commercial companies offering audio books. Similarly, an increasing number of audio book titles are available from Amazon[HL54].

Hot Tip – When searching for audio versions of trade books (novels, non-fiction, etc.), search the commercial sites referenced above first. Since these books are not specifically designed for use in the classroom but for the general public (as opposed to textbooks), commercially-produced audio versions are generally available for sale.

Emerging Solutions

The growing prevalence of web-based MP3 audio available via either streaming (real-time feed) or direct download (podcasts, audio files, etc.) continues to increase. Audio book players are now available for most of these portable devices. Products like Ambling BookPlayer[HL55] (and its associated Ambling Books[HL56] Library) for Android-based mobile devices and Audiobook Player[HL57] and Bookmark[HL58] for iPod Touch, iPhone, and iPad offer efficient navigation,

bookmarking, and other support features to enhance the reading experience on these devices. iBook[HL59] for the iPad offers customizable synthetic speech support and will play recorded audio books with human narration. While MP3 continues to be the format of choice for audio books, DAISY players are also emerging for mobile devices. VOD is a DAISY 2 player for the iPod Touch and iPhone, while Daisy Reader[HL60] is an open source DAISY book reader for Android.

The combination of Internet access, inexpensive and efficient digital audio recording and playback has resulted in a significant increase in the number of audio books available online. Learn Out Loud[HL61] is an education-oriented site that aggregates content from a variety of web sources and offers both audio and video content, much of it free of charge.

Finally, a number of supported reading software[HL62] products, both commercial and freeware, offer the capability of saving etext as an MP3 synthetic speech file. This means that any etext can be automatically transformed into a synthetic speech audio book with pre-selected voice and reading rate. Freeware products like Balabolka[HL63] and DSpeech[HL64] offer the capacity to segment and store large text files as MP3 audio. The resulting audio files can be used on either a Mac or PC, or any portable media player that supports the MP3 format. Similarly, online text to synthetic speech conversion services like Read the Words[HL65] and Spoken Text[HL66] perform the same function.

The emergence of the ePUB format[HL67] as the defacto standard for commercial e-books holds promise since this XML specification incorporates the DAISY Standard. The challenge is that major publishers utilizing ePUB are not incorporating all of the DAISY elements[HL68] necessary to insure accessibility. The ePUB specification is currently under revision to address the growing need for an approach that includes rich media (layered images, audio, video) and increasing the practice of making all ePUB content, including text, accessible is high on the agenda. At the present time the support for audio exists within the ePUB specification, but goes widely unused. It is anticipated that the ePUB revision[HL69] will make the inclusion of audio in ePUB-formatted books more prevalent.

→ *How to Locate: Audio*

Educators, instructional specialists, and others who need digital audio (recorded human voice) editions of print instructional materials should be aware of the following references and resources:

NOTE: Audio versions of print instructional materials are considered "specialized formats" under section 121(d)(3) of title 17, United States Code (the "Chafee" exemption to copyright).

☐ For trade books, topical or recent, search commercial e-book web sites such as Audible.com, AudioEditions.com, or Amazon.com.

For books that may be in the public domain, search one of the many online sites. See Free Audio Books[HL70] for an up-to-date listing.

Search RFB&D's catalogue[HL71] to determine if an AudioPlus® or

AudioAccess^{SM} version of a book already exists.

☐ Consult the NIMAC database (http://www.nimac.us/) for public information about the availability of NIMAS filesets for a specific publication or series, and information about accessible, alternate format, student-ready versions that may be available; where they are located, and how to obtain them.

☐ Producers of digital audio resources for students with print disabilities (NLS, RFB&D, Talking Tapes, etc.) offer both institutional and individual memberships for obtaining their products.

1. In order to obtain resources from these organizations, a student must be "qualified" (*see* The Chafee Amendment *below*) by a competent authority as unable to read print as the result of a physically-based disability.

Contact your State's NIMAS/NIMAC Coordinator[HL72] for guidance related to local or regional resources and procedures.

e-text

Electronic text or e-text has become a preferred format for many students and an essential format for most students with print disabilities. Initially, the key characteristic of e-text that made its use so compelling was its transformability: e-text could be re-sized; highlighted; displayed in a variety of fonts, colors, and styles; easily rendered from one language to another; transformed into synthetic speech or attached as an equivalent to other digital media types (e-text descriptions of images, for example). The malleability of e-text was quickly recognized and exploited by early developers of assistive technologies, who saw the potential of this format to expand information access opportunities to a wide range of individuals for whom print was a barrier.

Increasingly, the development of e-text separates content from the way that content is presented. By "marking up" or "tagging" e-text—in a manner similar to the way an article of clothing is tagged for price, material of construction, size, cleaning instructions, etc.—tags can be applied to e-text source files and these tags greatly enhance that content's subsequent presentation and use. Text can be tagged for structure: for example, headings, body text, call-out boxes, page numbers, etc. can be identified, and these elements can then be accessed by software or hardware-based e-text "readers" to provide accurate and instantaneous navigation through the content. e-text can also be tagged for meaning: for example, key questions, glossary terms, summary information, etc. can be distinguished, and this level of tagging provides information about elements of content, helping to eliminate ambiguity and to increase understanding. In addition, e-text can be tagged for *learning*.

Based on the principles of Universal Design for Learning,[HL73] CAST and other organizations are exploring how the applications of tags specifically designed to increase representation, expression, and engagement can be embedded into e-text content. Using these learning tags,

subsequent presentation of curricular resources can be customized to meet the needs of struggling students. For an example of this type of content, please view the UDL Editions,[HL74] a series of seven examples of fiction, non-fiction, poetry, and biographical texts. UDL Editions were constructed by adding additional elements to a NIMAS source file.

Existing Solutions

At the present time, e-text versions of print instructional materials may be obtained from four primary sources: publishers, organizations producing e-text for print-disabled students, the Internet, or from a printed work via scanning.

Publisher & Commercial Sources The number of curriculum publishers offering accessible e-text versions of their print materials continues to be limited. Products like HTMLBooks[HL75] from Pearson Education and Thinking Reader[HL76] from Scholastic are now in the marketplace, and other examples are expected to follow. All stakeholders, publishers, disability advocates, the United States Department of Education, assistive technology vendors, and educators interested in the AIM initiative agree that the current situation, much of it predicated on determining to what extent a student does, or does not, qualify under existing copyright exemption, is untenable and inequitable. Alternatively, a 'market model' for accessible instructional materials would relieve those discrepancies. A future is envisioned where alternate-format curriculum materials are offered for sale alongside their print counterparts, and, in the majority of envisioned scenarios, these versions are e-text-based.

To respond to higher education inquiries, the Association of American Publishers and partners has created AccessText,[HL77] a one-stop web resource for locating etext versions of print textbooks or commercial products that may be accessible. While specifically targeted to the higher education community, this partnership of major curriculum publishers and college-level disability offices may offer a model for a similar solution for K-12 materials. The National Center on AIM[HL78] web site also offers a listing of mainstream sources of digital e-text.[HL79]

Open Source Materials

The past five years has seen a significant increase in the availability of "open source"—copyright free—instructional materials available for K–12 instruction. Resources such as CK–12 Flexbooks,[HL80] Curriki,[HL81] Agile Mind,[HL82] Wikibooks,[HL83] Free Reading[HL84] have emerged in response to the call by some states (notably California and Texas) for free, open source submissions to their respective state adoptions. Driven by financial rather than pedagogical exigencies, the products that have emerged from the open source sphere reflect the same short-sighted design that plagues many of their commercial counterparts. In order to preserve the look and feel of the printed page or harness the efficiencies of an automated product, nearly all of the open source materials are either patently inaccessible to students with print disabilities or not configured to work with existing assistive technologies. Where a major challenge with commercial products is encryption, the challenge with open source products is the lack of an accessible, interoperable file format that would let schools and students use the suite of tools available to them.

With respect to the California Free Digital Textbooks Initiative, The United States Department of Education has provide supplemental funding to Bookshare.org to create accessible DAISY versions of of these materials. The purpose of this funding is to support the Bookshare.org effort to establish a procedure for assessing and transforming open content materials into accessible format(s) to the benefit of all students, but especially those with print disabilities. For more information on this subject, see the Bookshare pres release at http://www.bookshare.org/_/aboutUs/2009/11/openContentTextbooks.

For an overview of the emerging world of open source materials, see *The Future of Digital Textbooks*[HL85] (PowerPoint format). For a student perspective on the benefits and limitations of digital materials, see Speak Up 2009 National Findings: Creating our Future: Students Speak Up about their Vision for 21st Century Learning[HL86] (PDF format), the results of a 2009 survey by Project Tomorrow.

Specialized Sources of e-text for Print-Disabled Students Organizations that operate within the constraints of the Chafee copyright exemption offer alternate-format e-text versions of instructional materials for qualifying students. Bookshare.org,[HL87] the Accessible Book Collection[HL88] and, more recently, the Internet Archive's Open Library[HL89] initiative offer e-text files. Bookshare.org has a much more extensive curriculum materials inventory (including textbooks) and makes student-ready versions available in DAISY DTB format. Bookshare.org receives support from the United States Department of Education and offers AIM to both K–12 and post-secondary students at no charge. For a more complete overview of Bookshare's services, see Bookshare Frequently Asked Questions.[HL90]

The Internet Archive's Open Library initiative, begun in 2010, acquires its materials from a variety of sources, with a majority via scanned text. According to their web site, the Open Library offers both "open" (anyone can access) DAISY versions and "protected" DAISY versions (access limited to users qualified under the Section 121 copyright exemption and registered with the Library of Congress:

> … two types of DAISYs on Open Library: *open* and *protected*. Open DAISYs can be read by anyone in the world on many different devices. Protected DAISYs can only be opened using a key issued by the Library of Congress NLS program.[HL91]

At the time of this writing, the Open Library creates DAISY3 versions of print content automatically from scanned text with no content-level quality assurance. Materials accessed from this source are therefore likely to contain some errors and should be used accordingly.

The Accessible Book Collection is also a private, not-for-profit initiative with an emphasis on providing accessible content of particular interest to school-aged readers. Digital text versions of print materials are provided in an HTML format and their use is also limited to those qualified under Section 121 copyright exemption. Whenever feasible, ABC lists both the grade level and the Flesch-Kincaid reading difficulty score of its materials as an aid in selection.

Membership E-text (DAISY books) are provided by Bookshare.org to [eligible students with print disabilities](#).[HL92] Both institutional and individual memberships are available.

Hot Tip The National Center on AIM maintains a resource page, [Acquisition and Distribution](#),[HL93] that lists an array of AIM sources. [The National Center for Supported E-Text](#)[HL94] maintains a [public page of e-text-related resources](#),[HL95] and WestEd's [Using Technology to Support Diverse Learners](#)[HL96] web site has a [comprehensive hand-out on sources of e-text](#)[HL97] (PDF format).

The University of Texas at Austin maintains an extensive listing of Internet e-text sites, [Electronic Books](#),[HL98] that is kept up-to-date and comprehensive. In general, most print publications emerge from copyright constraints after 95 years, and, as these books enter the public domain they are often digitized and posted online for download. While these are not likely sources for obtaining textbooks, they are appropriate for locating primary source materials.

E-Text Readers & Mobile Devices Amazon's launch of the [Kindle](#)[HL99] in early 2008 proved to be the accelerant that the nascent e-text market was waiting for. The combination of a sleek, lightweight mobile e-reader connected to the world's largest online bookstore proved to be too tempting for avid readers to ignore. The Kindle not only sparked an upsurge in interest in digital text, it spawned nearly immediate competition ([Nook](#),[HL100] [Aluratek Libre E-Book Reader Pro](#),[HL101] [Kobo Reader](#)[HL102]). It also created a rollercoaster ride of applause and condemnation from the print-disabled community. First Amazon announced that the Kindle would read all installed books aloud with its onboard text-to-speech capability; then it amended "all" to mean "only those publishers/authors who give permission for the activation of that function." Once the majority of trade book publishers withheld read-aloud permission, the print-disabled community complained loudly and, as it turns out, effectively. Establishing a national presence as the [Reading Rights Coalition](#),[HL103] this group first engaged in boycotts and then in litigation— supported by the National Federation of the Blind—forcing colleges that had adopted the Kindle as an instructional materials platform to re-think that selection.

On June 29, 2010, the Office of Civil Rights, United States Department of Education, sent a [joint letter to all United States college and university presidents](#).[HL104] In this letter, OCR attorneys affirmed that:

> *Requiring use of an emerging technology in a classroom environment when the technology is inaccessible to an entire population of individuals with disabilities— individuals with visual disabilities—is discrimination prohibited by the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 (Section 504) unless those individuals are provided accommodations or modifications that permit them to receive all the educational benefits provided by the technology in an equally effective and equally integrated manner (Office of Civil Rights, US Department of Education,(2010) Joint Letter, Washington, DC).*

This letter formally publicized the agreement reached between OCR, national organizations for the blind, and a small group of universities that had initiated the use of an inaccessible reading device ([Kindle DX](#)HL105) for classroom instruction. The letter was intended to raise national awareness regarding the importance of read-aloud functions of e-book reading devices and the challenges associated with print access, and reinforced the requirement to include alternate media representations of print in reading devices where 1) it was relatively easy to implement and 2) these devices might well find their way into instructional settings. In an interview with LRP Publications the chief attorney for the Office of Civil Rights noted that these requirements pertain to K–12 settings also:

> *"The principles are indeed the same," she said. "This* Dear Colleague *letter grew out of settlement negotiations, and [the allegations] in the complaints that they settled pertain to higher ed." Thus, the letter "reflects the four corners of those settlements, but the principles apply to K through 12."*

It is not unrealistic to assume that the mandate to provide equitable access to digital learning materials and activities, even though focused on mobile ebook reading devices in this instance, also extends to courseware, learning management systems, instructional software programs—in short, any and all digital curriculum resources required for use in publicly-funded educational institutions.

Concurrent with the introduction of the Kindle and other dedicated mobile e-book devices, Apple's iPhone and iPod Touch also included e-book reader applications ([Stanza](#),HL106 [eReader](#)HL107) a lead quickly followed by Android-based smartphones ([Aldiko](#),HL108 [Kobo](#),HL109 [FBReaderJ](#),HL110 and [many others](#)HL111). Few of the dedicated or app-based readers included text-to-speech functionality (see [E-Boook Reader Matrix](#)HL112 or [E-Book Reader Comparison Chart](#)HL113 for detail) and even fewer developers are working to address the challenge of print disabilities. Notable exceptions are the [Multi-reader project](#)HL114 for Android, [iBooks with Voiceover for iPad](#)HL115 and [Vbookz](#)HL116 for iPad (see [e-book and audio book software](#)HL117 for a comprehensive listing of Mac-based products).

A promising project still in development at the time of this writing is the Blio eReader. This collaborative effort by Kurzweil, the National Federation for the Blind, book distributor Baker and Taylor, and publishing software developer Quark promises a free cross-platform (PC, Mac, Android, etc.) e-book reader that will simultaneously preserve the right graphic layout of a print work while offering text-to-speech and other accessibility features. The goal of the Blio partnership is to create a universally-designed reading environment that will provide an equitable reading experience for the print-disabled and the general reading public.

Scanned e-text Economical, efficient, and accurate desktop computer technology has made scanners and optical character recognition (OCR) software commonplace in many of today's schools. Special education personnel often choose to retro-fit curriculum materials locally by scanning rather than incur a delay in providing appropriate materials to print-disabled students. While this approach is pragmatic and, in most cases, effective, it also results in extensive duplication of effort.

For those interested in exploring the in's and out's of scanning a book, John Adam's How to Scan a Book[HL118] or Book Scanning[HL119] from Wikipedia offer some very helpful insights and guidance. While scanning a book may be the most effective method of immediately providing accessible instructional materials to print-disabled students, this *ad hoc* approach generally only meets the needs of a single student and requires the allocation of educator time to retro-fitting publisher content.

A Note About E-Text Formats and Accessibility Bear in mind that simply because a text is available in a digital format does not ensure that it is accessible. A PDF document may indeed be digital but it may also be made up of image files of printed pages, which—for accessibility purposes—is no better than a printed page itself. Adobe has created an extensive online resource[HL120] relating to the creation and use of accessible PDF, but comparatively few PDF creators actually take the time to "tag" their PDF publications to ensure access; even more limit the accessibility of their PDF documents by applying Adobe encryption.

Microsoft Word or RTF (Rich Text Format) documents are often styled with the application of bolded, italicized, or underlined text, but they need to be structured in order to offer a baseline level of navigation support necessary for accessibility purposes. For a step-by-step overview of creating structured documents in Microsoft Word[HL121] and reasons for adding structure, consult Web Accessibility in Mind (WebAIM[HL122]) at Utah State University.

In general, in order for an e-text page to be read aloud via synthetic speech, text on a page must be selectable (i.e., text can be highlighted, copied, pasted). The majority of supported reading software uses a computer's copy/paste functionality to "read" text aloud. There are, however, a few notable exceptions to this rule.

For an extensive and up-to-date overview of current e-book formats and their comparative benefits (and limitations), see Comparison of E-Book Formats[HL123] at Wikipedia. This analysis is also available as a downloadable PDF at www.roundsmiller.com/e-book/20reader/20comparison.pdf.

DAISY Books Previously referenced in the section on audio, DAISY books or Digital Talking Books (DTBs) offer enormous potential for all students with print disabilities. As detailed on the DAISY web site,[HL124] DAISY-compliant DTBs are available in three flavors:

1. **Audio with NCX:**[HL125] **DTB with structure**. The NCX is the Navigation Control Center, a file containing all points in the book to which the user may navigate. The XML textual content file,[HL126] if present, contains the structure of the book and may contain links to features such as narrated footnotes, etc. Some DTBs of this type may also contain additional textual components, for example, index or glossary, supporting keyword searching.
2. **Audio and full text: DTB with structure and complete text and audio**. This form of a DTB is the most complete and provides the richest, multimedia reading experience and the greatest level of access. The XML textual content file contains the structure and the full text of the book. The audio and the text are synchronized.

3. **Text and no audio: DTB without audio**. The XML textual content file contains the structure and full text of the book. There are no audio files. This type of DAISY DTB may, for example, be rendered with synthetic speech or with a refreshable Braille display.

At the present time, Recording for the Blind and Dyslexic produces category 1 DTBs, while Bookshare.org creates category 3 DTBs. Other national resources (National Library Service, American Printing House for the Blind, American Foundation for the Blind) have also adopted variations of the DAISY/DTB format.

Hot Tip An important factor when considering the acquisition of DTBs is the availability of supported reading software that can read the DTB format. Make certain that the software available to the student supports the DAISY format. For a listing of supported reading software that supports the DAISY format, check the DAISY Consortium's Tools page[HL127] which lists both hardware and software playback tools.

Both Adobe Reader[HL128] (vers 9.3) and Microsoft Reader[HL129] (vers. 2.0) can read aloud (and otherwise manipulate) their respective proprietary file formats, yet the actual content itself may be "locked" and users may not be able to copy it. Adobe has also developed Adobe Digital Editions[HL130] (ADE) as dedicated e-book reader software for PCs and mobile devices. Unlike Adobe Reader, ADE has no synthetic speech support, and even though the accessibility options of Adobe Reader have continued to improve, Adobe eliminated support for e-book rendering in Adobe Reader vers. 7. E-books designed for ADE are therefore not an option if accessibility is a consideration. Microsoft has not extended development of Microsoft Reader beyond its 2005 version 2.0. MS Reader does support synthetic speech with synchronized text highlighting with its Text-to-Speech Package[HL131] and publishers continue to produce trade books in MS Reader's .lit format. MS Reader e-books can be created using a plug-in for MS Word 2002,[HL132] or by using ReaderWorks 2.0[HL133] (the Standard Edition is free) from Overdrive.

The key to accessible e-text versions of instructional materials is to obtain the content in the most flexible and accessible format possible. For example, HTML (web pages) can be read aloud by most supported reading software programs and can be displayed on almost any computer screen. Further, if the HTML content conforms to the Web Content Accessibility Guidelines or Section 508 standards (see "Side by Side WCAG vs. 508"[HL134] for more detail), the attention paid to meeting these standards significantly increases the accessibility of the content. The second most important consideration is to know what supported reading software the student will be using and to acquire file formats that can be read by that software. For a searchable database of software that offers assistive technology or other types of reading support, and their associated file formats, see the TechMatrix[HL135] from American Institutes for Research. The most comprehensive analysis of accessibility related to digital media is the Accesible Digital Media[HL136] compendium from the National Center on Accessible Media (NCAM).

Statutory Requirements

NIMAS/NIMAC The National Instructional Materials Accessibility Standard (NIMAS) and the associated National Instructional Materials Accessibility Center (NIMAC) represent an effort to systematize the source file format used to create specialized versions of print materials, including e-text versions.

All states have agreed to coordinate with the NIMAC for acquiring AIM for qualified students. This means that states (and local districts), in their curriculum materials procurement contracts with publishers, require publishers to provide NIMAS filesets of contracted print materials to the NIMAC. The NIMAC then makes these filesets available to Accessible Media Producers (AMPS) (Braille, audio, e-text, large print) designated by states. The NIMAS/NIMAC initiative is designed to increase the availability of content for the creation of e-text and helps to guarantee that the content itself will be accurate and of high quality.

Concurrent with the NIMAS/NIMAC initiative is the renewed expectation placed on state and local education systems to provide accessible instructional materials in a timely manner to <u>any</u> student served under IDEA who requires them. While some of these materials will come from the NIMAC, some of them will not, and for this reason Congress included in the IDEA 2004 re-authorization a section that indicates that states and local education agencies can meet accessible materials requirements of the law through the purchase of accessible instructional materials directly from publishers.

→ *How to Locate: e-text*

Educators, instructional specialists, and others who need e-text editions of print instructional materials should be aware of the following references and resources:

NOTE: e-text versions of print instructional materials are considered "specialized formats" under section 121(d)(3) of title 17, United States Code (the "Chafee" exemption to copyright).

☐ Check to see if your district/school has a membership to Bookshare.org or Recording for the Blind & Dyslexic. Specialized format materials from these organizations are free to qualifying K–12 students .

Accessible e-text versions of print instructional materials may be available for sale directly from a publisher. Check with a publisher's web site, sales representative, or contact designated to respond to instructional materials requests. The AccessText network has created a look-up service for post-secondary textbook publishers, and this might be a good place to start to find a representative responsible for K–12 permissions: http://www.publisherlookup.org/.

☐ Contact your state's NIMAS/NIMAC Coordinator (use the drop-down menu under "AIM in Your State" on the right sidebar at

http://aim.cast.org/) to determine which state or regional agencies or individuals have been identified as eligible to acquire NIMAS filesets from the NIMAC and to transform them into accessible, student-ready versions.

☐ Consult the NIMAC database (http://www.nimac.us/). Opened in December, 2006, the NIMAC (National Instructional Materials Access Center) provides public information about the availability of NIMAS filesets for a specific publication or series, and information about accessible, alternate-format, student-ready versions that may be available; where they are located; and how to obtain them.

Large Print

Prior to IDEA 2004, large print was not considered a "specialized format" under the Chafee copyright exemption. Within the NIMAS/NIMAC components of IDEA 2004, Part B, Congress amended the Chaffee exemption by adding:

> (B) with respect to print instructional materials, includes large print formats when such materials are distributed exclusively for use by blind or other persons with disabilities.

This addition means that large print is now considered a specialized format and may be created and distributed in the same manner as Braille, audio, and e-text.

Existing Solutions

National Library Service In 2005, NLS produced an extensive resource for parties interested in exploring large print as a reading resource or in obtaining large print materials. Individuals who qualify for materials provided by NLS also qualify for large print resources. Reading Materials in Large Print: A Resource Guide[HL137] offers an overview of the levels of large print most commonly available, resources for obtaining large print versions of print works, an extensive bibliography relating to large print research, and selected Internet resources.

American Printing House APH maintains the LOUIS database,[HL138] which lists large print resources from over 180 national agencies.

American Foundation for the Blind AFB's listing of the state and regional Instructional Resource Centers for the Blind and Visually Impaired[HL139] provides a comprehensive listing and contact information for local low-vision resources.

The Blind Reader's Page also offers a comprehensive listing of large print sources.[HL140]

Emerging Solutions

In much the same way that the NIMAS/NIMAC initiative will expand the timely availability of Braille, audio, and e-text resources, it will also increase both the quality and the quantity of large-print formats for print-disabled students. One important aspect of the NIMAS technical specification is the inclusion of images: graphical elements that exist in a print work must be included in that work's NIMAS fileset submitted by publishers to the NIMAC. This means that it is possible to create subsequent large print versions with images from these NIMAS files.

The NIMAS fileset requirements specify that image files are to be included as Scaled Vector Graphics[HL141] (SVG) images, Joint Photographic Experts Group[HL142] (JPG) images, or as Portable Network Graphic[HL143] (PNG) images, in that order of preference. If images are to be provided in JPEG or PNG format, they must be rendered at a minimum of 300 dpi (dots per inch) which will allow the image to be enlarged without significant loss of resolution.

→ *How to Locate: Large Print*

Educators, instructional specialists, and others who need large print editions of print instructional materials should be aware of the following references and resources:

NOTE: Large print versions of print instructional materials are considered "specialized formats" under the IDEA 2004 amendment to Section 121(d)(3) of title 17, United States Code (the "Chafee" exemption to copyright).

☐ Consult the NIMAC database (http://www.nimac.us/). Opened in December, 2006, the NIMAC (National Instructional Materials Access Center) provides public information about the availability of NIMAS file sets for a specific publication or series, and information about accessible, alternate format, student-ready versions that may be available; where they are located, and how to obtain them.

☐ Contact your state's NIMAS/NIMAC Coordinator (use the drop-down menu under "AIM in Your State" on the right sidebar at http://aim.cast.org/) to determine which state or regional agencies or individuals have been identified as eligible to acquire NIMAS filesets from the NIMAC and to transform them into accessible, student-ready versions.

V.   Systems of Support

State-Level Procedures

IDEA 2004 re-affirms the responsibility of State Education Agencies (SEAs) to provide accessible instructional materials to print-disabled students in a timely manner. Beyond special education law, however, precedent for the provision of accessible versions of instructional materials exists within the expectations of civil rights legislation: Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA).

The application of the civil rights "equal access" provisions to K–12 educational systems was clearly stated by the Office of Civil Rights (OCR), United States Department of Justice, in a letter to Los Rios Community College District, OCR Case No. 09932214, 1994:

> OCR has the responsibility under Section 504 of the Rehabilitation Act of 1973, and its implementing regulation at 34 C.F.R. Part 104, to ensure that a recipient of Federal financial assistance through the Department does not discriminate against persons participating in its programs and activities, such as students, on the basis of disability. OCR also has jurisdiction as a designated agency under Title II of the Americans with Disabilities Act of 1990, and its implementing regulation at 28 C.F.R. Part 35, over complaints of disability discrimination filed against public educational entities, including public elementary and secondary systems and institutions.

In that same letter, the OCR also detailed the responsibility of the educational agency to provide alternate format materials:

> "…the post-secondary public institution should be prepared to deliver in a reasonable and timely manner the printed materials relied upon in its educational program in all of the following mediums: auditory, tactile (Braille), and enlarged print.…

> "… It should be noted that if the student with the visual impairment prefers, and the public entity is willing to provide, access through "e-text" (electronic text in a digital format read by computer), such method may be used in lieu of access through another medium."

The following section provides an overview of suggested strategies that can be implemented by states to meet both the NIMAS mandate included in IDEA 2004 and to craft strategies for meeting the needs of print-disabled students who may not qualify for NIMAS/NIMAC-derived materials.

Coordination of Agencies

Special Education Because the accessible instructional materials mandates (including the NIMAS/NIMAC initiative) exist as a component of IDEA 2004, the primary responsibility for ensuring compliance rests with a state department or agency responsible for special education services. In order to facilitate this leadership role, the NIMAS Technical Assistance Center has created a planning document, State Director of Special Education Suggested Responsibilities Regarding NIMAS & NIMAC.[HL144] In 17 sequential steps, the NIMAS TA Center document combines items that are required by statute with voluntary steps that can be taken to ensure that statutory requirements are met.

Similarly, the American Foundation for the Blind (AFB) has created the NIMAS Guidelines Checklist: A Self-Study Tool[HL145] to assist states and local education agencies in meeting the NIMAS mandate in IDEA 2004.

Included in the NIMAS/NIMAC section of IDEA 2004 is the expectation that state education agencies will coordinate with other state agencies responsible for assistive technology.

Assistive Technology As a part of the Assistive Technology Act of 1998 (as amended [P.L. 108-364]), agencies in each of the 50 states receive a modest level of funding to facilitate the dissemination of assistive technology research, resources, and referrals. In some states, the state education agency (SEA) itself funds assistive technology programs, while other states rely on a combination of state and federal funding. The National Assistive Technology Technical Assistance Partnership (NATTAP) provides a State Contact List[HL146] of member state agencies, as does the Association of Assistive Technology Act Programs[HL147] (ATAP). Both of these

organizations seek to provide state leadership activities, technical assistance, and up-to-date information regarding assistive technology. In addition, the [Assistive Technology Industry Association](#) (ATIA)[HL148] is the trade organization for assistive technology producers and vendors, and is actively engaged in facilitating the ongoing development of assistive technologies that will access and optimize accessible instructional materials. ATIA is also a resource for directing inquiries related to the availability of software and products designed to take advantage of alternate format materials.

Curriculum & Instruction Another critical component of state-level accessible materials coordination is the inclusion of state agencies or departments involved in the recommendation, selection, or authorization of use/purchase of textbooks and related instructional materials.

Textbook Adoption States Twenty states employ state adoption procedures that involve state-level textbook adoption committees. For a complete listing of these states, refer to the [National Association of State Textbook Administrators](#) (NASTA)[HL149] or consult the resource provided by the Association of American Publishers, School Division: [Instructional Materials Adoption](#).[HL150] In textbook adoption states, a State Textbook Administrator and a State Textbook Adoption Committee provide an immediately identifiable and logical point of coordination for the state's Special Education Department and the state's assistive technology agency.

Open Territory States Thirty states are referred to as open territory states, locales where the state plays little if any regulatory role in the selection or procurement of textbooks. In these states, textbook purchases are left to regional- or district-level curriculum committees and/or local school boards.

In both textbook adoption and open territory states, a state's Department of Special Education can play a crucial and supportive role by suggesting language in textbook adoption contracts that supports the acquisition of accessible, alternate format instructional materials for print-disabled students who qualify for NIMAS/NIMAC-derived materials and for those who do not. Suggested contract language for states and local education agencies (LEAs) who are coordinating with the National Instructional Materials Access Center (NIMAC) is available on the AIM web site: [Sample Language for Adoption Contracts and LEA Purchase Orders](#)[HL151] (at bottom of page).

District-Level Procedures

Part B, Section 613 of IDEA 2004 also requires that each local education agency (LEA) provide assurances to the Secretary of Education regarding the timely provision of accessible, alternate format materials for students with identified print disabilities. With the exception of encouraging coordination with the state agency for assistive technology, the obligations for LEAs are identical to those required by states.

Coordination of Effort

Special Education Since the mandate for accessible instructional materials originates in Special Education Law, the Special Education Department at the LEA level has primary responsibility for coordinating NIMAS compliance efforts. In most LEAs, however, the Special Education Department is often not involved in the procurement of core instructional materials such as

textbooks. In that circumstance, the Special Education Department should initiate communication with the local coordinator of curriculum and instruction or any department heads or administrators who oversee textbook purchasing. In addition, any local or regional agency that provides assistive technology support should also be involved.

A document prepared by the NIMAS centers for state directors of special education, State Director of Special Education Suggested Responsibilities Regarding NIMAS & NIMAC,[HL152] should provide resources for local directors as well. In particular, the 'Sample Language for Adoption Contracts and LEA Purchase Orders' section at the bottom of the posting's web page provides useful guidance for including NIMAS-related language in contracts with curriculum publishers.

In addition to the mentioned suggested contractual language[HL153] section, local special education departments are encouraged to consider adding language to IEPs to address students' needs for accessible, alternate format materials. The NIMAS centers have published a page which addresses this suggestion: Accessible Instructional Materials and the IEP.[HL154] By including a consideration for alternate format materials in a student's IEP, a local education agency effectively empowers an IEP team with decision-making authority. This is felt to be appropriate and recommended since the IEP team is responsible for determining and implementing a student's educational plan.

Curriculum & Instruction Local departments of curriculum and instruction or other administrative personnel and department heads have not traditionally been involved in the provision of instructional materials for special education students. While the new IDEA 2004 requirements do not mandate the active participation of these customary textbook purchasers, implementing necessary assurances would be difficult if not impossible without their active involvement.

Further, LEA personnel need to be made aware of the civil rights expectations of Section 504 of the Rehabilitation Act and of the Americans with Disabilities Act (*see* Section 5, State-Level Procedures) with respect to accessible instructional materials. Finally, the Adequate Yearly Progress measurements of No Child Left Behind (NCLB) also require that the academic progress of students with disabilities be included in a school's and district's achievement statistics. For all these reasons, the purchase of core instructional materials must now take into account the needs of print-disabled students.

Assistive Technology Local departments or regional agencies that provide and support assistive technology services and equipment to schools also need to participate in the curriculum materials acquisition process. These are the personnel with the most expert knowledge of the software and hardware available to, and currently in use in, a district's schools. While these specialists may not need to be active participants in contractual negotiations with publishers, they do need to lend their expertise to the subsequent determination of how actual student-ready versions of these materials will be obtained. Will an LEA rely on national organizations like RFB&D, Bookshare.org, or the American Printing House for the Blind for audio, e-text, and Braille versions? Who will coordinate with the regional Instructional Materials Center or any other

agency identified by a state as a coordinating user of the NIMAC? Will the formats available from these sources work effectively with a school's existing hardware and software? In most instances, it will be the assistive technology personnel who will be able to answer these and other related questions.

The Copyright Conundrum

The existing discrepancy between the expectations of civil rights legislation and current exemptions to copyright law are spotlighted by the needs of students with print disabilities in the nation's Pre-K–12 classrooms. Legal opinions from the Office of Civil Rights places responsibility for the provision of accessible, alternate format core instructional materials squarely on the shoulders of education institutions. The new provisions in special education law re-affirm that obligation, and, while they require the adoption of a standardized format (NIMAS) for the delivery of publisher-produced files to a central repository (NIMAC), materials created from this format may only be distributed to students whose qualifications meet existing copyright law. Students eligible for specialized-format materials produced via the NIMAS/NIMAC initiative are only a sub-set of those students who may be print-disabled; nevertheless, SEAs and LEAs are still responsible for providing materials to *all* print-disabled students. For a more extensive review of the challenge presented by this civil rights/copyright challenge, consult [The Promise of Accessible Textbooks: Increased Achievement for All Students][HL155] and the fact sheets produced by the Library of Congress, National Library Service: [Copyright Law Amendment (1996)][HL156] and [Talking Books and Reading Disabilities (1997)][HL157].

The Chafee Amendment As has been extensively referenced in other publications, the Chafee exemption to copyright was created as a "relief valve" in order to provide specialized-format conversion organizations and governmental agencies with the ability to create alternate versions of instructional materials for individuals with disabilities without the need to obtain prior permission from the copyright holder. It was not envisioned as the foundation of a large-scale, national file creation effort; although it now serves that function. Inadvertently, and, some might say, ironically, the very legislation that was devised to decrease discrimination against individuals who cannot effectively access or use print-based materials is now itself the basis for continuing discrimination. Under current NIMAS/NIMAC intellectual property constraints, some students with print disabilities will qualify and some students with print disabilities will not.

The Broader Challenge Under existing copyright law, students unable to read print due to physical limitations—those with visual impairments, physical disabilities, and some with learning/reading disabilities—(once qualified by a physician) will be provided with access to NIMAS-derived materials. Many students with learning, attentional, hearing, or other cognitive disabilities; and those receiving accommodation under Section 504 of the Rehabilitation Act, but not services under IDEA, will not qualify for these materials, yet it is still the responsibility of SEAs and LEAs to provide them. Given this challenge, and the presently limited range of available solutions, the following options are likely to be considered:

Option 1: Give preference to publishers who offer accessible alternate-format instructional materials directly for sale to SEAs and LEAs. For an example of language promoting this approach, see a reference to New York State's [Chapter 377 statute][HL158] at the AIM Center web

site. This option aligns with NIMAS/NIMAC provisions in IDEA 2004. Under Part B Section 612 and 613 an SEA or LEA—

> …as part of any print instructional materials adoption process, procurement contract, or other practice or instrument used for purchase of print instructional materials, shall enter into a written contract with the publisher of the print instructional materials to—
> > (ii) purchase instructional materials from the publisher that are produced in, or may be rendered in, specialized formats.

This option promises the best opportunity for SEAs and LEAs to acquire high-quality, alternate format materials. It supports compensation for materials producers and rights holders, and builds a foundation for universally-designed materials for *all* students who struggle with the limitations of print. It is anticipated that this option will, however, take some time to implement; but its potential for expanding educational access for all students makes it worth the wait.

Option 2: Qualify students under existing Chafee exemption guidelines. The Final Regulations for IDEA 2004[HL159] (PDF format) refer to the Library of Congress regulations (36 CFR 701.6(b)(1)) related to the Act to Provide Books for the Adult Blind (approved March 3, 1931, 2 U.S.C. 135a). *Blind persons or other persons with disabilities* includes—

> (i) Blind persons whose visual acuity, as determined by competent authority, is 20/200 or less in the better eye with correcting glasses, or whose widest diameter if visual field subtends an angular distance no greater than 20 degrees.
> (ii) Persons whose visual disability, with correction and regardless of optical measurement, is certified by competent authority as preventing the reading of standard printed material.
> (iii) Persons certified by competent authority as unable to read or unable to use standard printed material as a result of physical limitations.
> (iv) Persons certified by competent authority as having a reading disability resulting from organic dysfunction and of sufficient severity to prevent their reading printed material in a normal manner.

The referenced statutes also define 'competent authority' as—

> (i) In cases of blindness, visual disability, or physical limitations ''competent authority'' is defined to include doctors of medicine, doctors of osteopathy, ophthalmologists, optometrists, registered nurses, therapists, professional staff of hospitals, institutions, and public or welfare agencies (e.g., social workers, case workers, counselors, rehabilitation teachers, and superintendents).
> (ii) In the case of a reading disability from organic dysfunction, competent authority is defined as doctors of medicine who may consult with colleagues in associated disciplines.

Both Bookshare.org[HL160] and Recording for the Blind and Dyslexic[HL161] accept the documentation of students with print disabilities from any of the 'competent authorities' listed under (i) above.

Option 3: Localized solutions—scanning text. This option, while pragmatic in that it can generate alternate format materials in a timely manner, generally addresses only the needs of some print-disabled students (those who can benefit from e-text), perpetuates the status quo, and continues to place education personnel in the position of retro-fitting publisher materials. Nevertheless, in the absence of other alternatives, scanning does allow an LEA to meet the accessible instructional materials mandates of IDEA 2004 and the equal access expectations of Section 504 of the Rehabilitation Act and of the Americans with Disabilities Act.

VI.   Additional Resources

The following collection of resources is provided for those educators who wish to further explore the location, creation, distribution, or use of specialized-format materials.

Braille

Texas School for the Blind and Visually Impaired
Braille Instruction Resources
http://www.tsbvi.edu/Education/brl-resources.htm

Washington Assistive Technology Alliance
Technology for Low Vision/Blindness
http://wata.org/resource/vision/index.htm

Mayer, A., National Public Radio
Nuances of Graphics, in Braille
http://www.npr.org/templates/story/story.php?storyId=3877885

New York Institute for Special Education
Blindness Resource Center
http://www.nyise.org/blind.htm

Audio

Audio Textbook—Sources and Resources
http://audioforbooks.com/2010/06/audio-textbook-sources-and-resources/

Accessible Books, Cooper, H., Texas School for the Blind and Visually Impaired
http://www.tsbvi.edu/Outreach/seehear/summer02/books.htm

Digital Talking Book Projects, Mid-Illinois Talking Book Center
http://www.alliancelibrarysystem.com/indexmitbc.cfm

OverDrive Media Console, OverDrive, Inc.
http://www.overdrive.com/software/omc/

Audible.com
http://www.audible.com

e-text

Finding e-books on the Internet, Second Edition (E-BOOK), Dresner, A. National Braille Press
http://www.nbp.org/ic/nbp/E-BOOK.html.

Accessible E-books, E-texts and Textbooks, Blind Bookworm
http://www.panix.com/~kestrell/sources.html#Braille.

Design Guidelines for Electronic Publications, Multimedia and the Web; Guideline D: Access to Digital Publications, National Center for Accessible Media
http://ncam.wgbh.org/invent_build/web_multimedia/accessible-digital-media-guide.

E-Text and Alternate Media Production, Access Technologists in Higher Education Network (ATHEN), E-Journal Issue #1
http://athenpro.org/node/34.

Large Print

Reading Materials in Large Print: A Resource Guide, National Library Service
http://www.loc.gov/nls/reference/circulars/largeprint.html.

Huge Print Press
http://www.hugeprint.com/.

Best Place to Look for Large Print Books and Low Vision Aids? American Foundation for the Blind, AFB Message Board
http://www.afb.org/message_board_replies.asp?TopicID=1305&FolderID=8.

Large Print Books and Magazines
http://blindreaders.info/lpbooks.html.

VII.   Embedded Hyperlinks

HL1.   National Center on AIM
        http://aim.cast.org/
HL2.   NIMAS Center
        http://aim.cast.org/collaborate/NIMASCtr
HL3.   NIMAC
        http://www.nimac.us/
HL4.   Recording for the Blind & Dyslexic (RFB&D)
        http://www.rfbd.org/
HL5.   Bookshare.org
        http://www.bookshare.org/

HL6.   Pearson's HTMLBooks
       http://www.pearsonschool.com/index.cfm?locator=PSZ16d&PMDbSiteId=2781&PMD
       bSolutionId=6724&PMDbSubSolutionId=&PMDbCategoryId=806&PMDbSubCategor
       yId=&PMDbSubjectAreaId=&PMDbProgramId=67381
HL7.   UDL Guidelines
       http://www.udlcenter.org/aboutudl/udlguidelines
HL8.   National Center on Universal Design for Learning
       http://www.udlcenter.org/
HL9.   National Library Service Reference Directories
       http://www.loc.gov/nls/reference/directories/sources.html
HL10. eligibility requirements
       http://www.loc.gov/nls/signup.html
HL11. Federal Quota Program
       http://www.aph.org/fedquotpgm/quickfed.htm
HL12. Instructional Resource Centers for the Blind and Visually Impaired
       http://www.afb.org/Section.asp?SectionID=58&TopicID=255&DocumentID=2964
HL13. LOUIS database
       http://www.aph.org/louis/switch.html
HL14. registered users
       http://www.aph.org/louis/reposagree.html
HL15. Accessible Textbooks department (ATIC)
       http://www.aph.org/louis/reposagree.html
HL16. National Braille Press
       http://www.nbp.org/
HL17. Braille Institute of North America
       http://www.Brailleinstitute.org/
HL18. gh
       http://www.ghBraille.com/
HL19. TechAdapt
       http://www.techadapt.com/
HL20. Braille Transcription Resources List
       http://www.nfb.org/nfb/Braille_transcription.asp?SnID=671186215
HL21. Sources of Braille Children's Books and Magazines
       http://www.afb.org/Section.asp?SectionID=6&DocumentID=1249
HL22. Alternative Media Producers
       http://www.aph.org/ampdb.htm
HL23. Trends in Braille and Large-Print Production in the United States: 2000–2004
       http://www.afb.org/store/product.asp?sku=jvib000303&mscssid=U93XAN
HL24. Braille in DAISY: A Survey of the State of the Art
       http://www.daisy.org/projects/braille/braille_in_daisy_state_of_the_art_survey.html
HL25. The Braille Literacy Crisis in America: Facing the Truth, Reversing the Trend,
       Empowering the Blind
       http://www.marchforindependence.org/site/R?i=RP3iVhM3WJfE_zdtfAB_IQ
HL26. National Instructional Materials Accessibility Standard (NIMAS)
       http://aim.cast.org/experience/technologies/spec-v1_1
HL27. National Instructional Materials Access Center (NIMAC)
       http://www.nimac.us/

HL28.   Duxbury Systems, Inc.
http://www.duxburysystems.com/dbt.asp

HL29.   NimPro
http://www.duxburysystems.com/nimpro.asp

HL30.   Computer Applications Specialties Company
http://www.Braille2000.com/

HL31.   Braile2000
http://www.braille2000.com/brl2000/V2/index.htm

HL32.   Production of Braille Textbooks
http://www.afb.org/section.asp?SectionID=44&TopicID=192&DocumentID=1286

HL33.   Conversion Services
http://aim.cast.org/learn/practice/production/conversion_services

HL34.   American Printing House for the Blind
http://www.aph.org/

HL35.   Bookshare.org
http://www.bookshare.org/

HL36.   Accessible Textbooks Department (ATIC)
http://www.aph.org/atic/

HL37.   Braille Certification Training Program
http://www.nfb.org/nfb/Braille_Certification.asp

HL38.   Using Source Files
http://www.afb.org/learn/course.asp?eid=1317

HL39.   Braille Textbook Transcriber Curriculum
http://www.afb.org/Section.asp?SectionID=44&TopicID=192&SubTopicID=75

HL40.   National Braille Association
http://www.nationalbraille.org/

HL41.   Reference Directory
http://www.loc.gov/nls/reference/directories/sources.html

HL42.   Instructional Resource Center
http://www.afb.org/Section.asp?SectionID=58&TopicID=255&DocumentID=2964

HL43.   NIMAS/NIMAC Coordinator
http://aim.cast.org/learn/policy/state/nimas_nimac_contacts

HL44.   LOUIS database
http://www.aph.org/louis/switch.html

HL45.   DAISY
http://www.daisy.org/about_us/dtbooks.asp

HL46.   Braille and Audio Reading Download
https://nlsbard.loc.gov/instructions.html

HL47.   eligibility requirements
http://www.loc.gov/nls/signup.html

HL48.   via direct download
http://www.rfbd.org/AudioPlus-Downloadable/167/

HL49.   Recording for the Blind & Dyslexic Frequently Asked Questions
http://aim.cast.org/learn/practice/acquisitiondistribution/rfbd_faq

HL50.   Learning through Listening
http://www.learningthroughlistening.org/

HL51. Eligibility
http://www.rfbd.org/membership.htm
HL52. Talking Book Production Services
http://www.talkingbookproductions.com/services.asp
HL53. Audio Books and Magazine
http://blindreaders.info/audiobks.html
HL54. Amazon
http://www.amazon.com/
HL55. Ambling BookPlayer
http://amblingbookplayer.com/index.html
HL56. Ambling Books
http://amblingbooks.com/
HL57. Audiobook Player
http://itunes.apple.com/app/audiobook-player-2300-free/id315163423?mt=8
HL58. Bookmark
http://itunes.apple.com/WebObjects/MZStore.woa/wa/viewSoftware?id=326290323&mt=8&ign-mpt=uo%3D6
HL59. iBook
http://www.apple.com/support/ibook/
HL60. DAISY Reader
http://www.ohloh.net/p/android-daisy-epub-reader
HL61. Learn Out Loud
http://www.learnoutloud.com/Free-Audio-Video#directory
HL62. supported reading software
http://aim.cast.org/experience/training/tutorials
HL63. Balabolka
http://www.cross-plus-a.com/balabolka.htm
HL64. DSpeech
http://dimio.altervista.org/eng/
HL65. Read the Words
http://dimio.altervista.org/eng/
HL66. Spoken Text
http://www.spokentext.net/
HL67. ePUB format
http://www.idpf.org/
HL68. not incorporating all of the DAISY elements
http://www.altformat.org/index.asp?id=5&pid=383
HL69. ePUB revision
http://www.idpf.org/idpf_groups/IDPF-EPUB-WG-Charter-4-6-2010.html
HL70. Free Audio Books
http://websearch.about.com/od/howtofindanything/a/free-audiobooks.htm
HL71. catalogue
https://custhub.rfbd.org/SearchCatalog.asp
HL72. NIMAS/NIMAC Coordinator
http://aim.cast.org/learn/policy/state/nimas_nimac_contacts
HL73. Universal Design for Learning
http://www.cast.org/research/udl/index.html

HL74. UDL Editions
http://udleditions.cast.org/
HL75. HTMLBooks
http://www.pearsonschool.com/index.cfm?locator=PSZ16d&PMDbSiteId=2781&PMDbSolutionId=6724&PMDbSubSolutionId=&PMDbCategoryId=806&PMDbSubCategoryId=&PMDbSubjectAreaId=&PMDbProgramId=67381
HL76. Thinking Reader
http://www.tomsnyder.com/products/product.asp?sku=THITHI
HL77. AccessText
http://www.accesstext.org/
HL78. National Center on AIM
http://aim.cast.org/
HL79. mainstream sources of digital e-text
http://aim.cast.org/learn/practice/acquisitiondistribution
HL80. CK–12 Flexbooks
http://www.ck12.org/flexr/
HL81. Curriki
http://www.curriki.org/xwiki/bin/view/Main/WebHome
HL82. Agile Mind
http://www.agilemind.com/
HL83. Wikibooks
http://en.wikibooks.org/wiki/Main_Page
HL84. Free Reading
http://www.freereading.net/
HL85. The Future of Digital Textbooks
http://assets.en.oreilly.com/1/event/33/The%20Future%20of%20Digital%20Textbooks%20Presentation.ppt
HL86. Speak Up 2009 National Findings: Creating Our Future: Students Speak Up about their Vision for 21st Century Learning
http://www.tomorrow.org/speakup/pdfs/SU09NationalFindingsStudents&Parents.pdf
HL87. Bookshare.org
http://www.bookshare.org/
HL88. Accessible Book Collection
http://www.accessiblebookcollection.org/
HL89. Internet Archive's Open Library
http://openlibrary.org/subjects/accessible_book
HL90. Bookshare Frequently Asked Questions
http://aim.cast.org/learn/practice/acquisitiondistribution/bookshare_faq
HL91. Library of Congress NLS program
http://www.loc.gov/nls/
HL92. eligible students with print disabilities
http://www.bookshare.org/web/AboutMembership.html
HL93. Acquisition and Distribution
http://aim.cast.org/learn/practice/acquisitiondistribution
HL94. The National Center for Supported E-Text
http://ncset.uoregon.edu/
HL95. public page of e-text-related resources
http://delicious.com/Supported_etext

HL96. Using Technology to Support Diverse Learners
http://www.wested.org/cs/tdl/print/docs/tdl/home.htm
HL97. comprehensive hand-out on sources of e-text
http://www.wested.org/cs/tdl/download/lib/2527
HL98. Electronic Books
http://www.lib.utexas.edu/books/etext.html
HL99. Kindle
http://www.amazon.com/Kindle-Wireless-Reading-Display-Generation/dp/B0015T963C
HL100. Nook
http://www.barnesandnoble.com/nook/index.asp
HL101. Aluratek Libre E-Book Reader Pro
http://blogs.zdnet.com/mobile-gadgeteer/?p=3083
HL102. Kobo Reader
http://blogs.zdnet.com/mobile-gadgeteer/?p=3035
HL103. Reading Rights Coalition
http://www.readingrights.org/
HL104. joint letter to all United States college and university presidents
http://www.ada.gov/kindle_ltr_eddoj.htm
HL105. Kindle DX
http://www.amazon.com/Kindle-Wireless-Reading-Display-Generation/dp/B0015TG12Q
HL106. Stanza
http://www.lexcycle.com/
HL107. eReader
http://www.ereader.com/ereader/software/browse.htm
HL108. Aldiko
http://www.aldiko.com/
HL109. Kobo
http://www.kobobooks.com/
HL110. FBReader
http://www.fbreader.org/FBReaderJ/
HL111. many others
http://www.mobileread.com/forums/showthread.php?t=70921
HL112. E-Boook Reader Matrix
http://wiki.mobileread.com/wiki/E-book_Reader_Matrix
HL113. E-book Reader Comparison Chart
http://www.wireless-reading-device.net/ebook-reader-comparison-chart
HL114. Multi-reader project
http://www.multireader.org/
HL115. iBooks with Voiceover for iPad
http://www.apple.com/ipad/features/ibooks.html
HL116. Vbookz
http://vbookz.com/v1/Home.html
HL117. e-book and audio book software
http://www.pure-mac.com/ebook.html

HL118. How to Scan a Book
    http://www.proportionalreading.com/scan.html
HL119. Book Scanning
    http://en.wikipedia.org/wiki/Book_scanning
HL120. an extensive online resource
    http://www.adobe.com/accessibility/
HL121. creating structured documents in Microsoft Word
    http://www.webaim.org/techniques/word/#create
HL122. WebAIM
    http://www.webaim.org/
HL123. Comparison of E-Book Formats
    http://en.wikipedia.org/wiki/Comparison_of_e-book_formats
HL124. DAISY web site
    http://www.daisy.org/about_us/dtbooks.asp
HL125. NCX
    http://www.daisy.org/glossary/12#term449
HL126. XML textual content file
    http://www.daisy.org/glossary/12#term330
HL127. DAISY Consortium's Tools page
    http://www.daisy.org/tools/
HL128. Adobe Reader
    http://www.adobe.com/products/acrobat/readstep2.html
HL129. Microsoft Reader
    http://www.microsoft.com/reader
HL130. Adobe Digital Editions
    http://www.adobe.com/products/digitaleditions/
HL131. Text-to-speech Package
    http://www.microsoft.com/reader/developers/downloads/tts.aspx
HL132. plug-in for MS Word 2002
    http://www.microsoft.com/reader/developers/downloads/rmr.aspx
HL133. ReaderWorks 2.0
    http://www.overdrive.com/readerworks/
HL134. Side by Side WCAG vs. 508
    http://jimthatcher.com/sidebyside.htm
HL135. TechMatrix
    http://www.techmatrix.org/
HL136. Accesible Digital Media
    http://ncam.wgbh.org/invent_build/web_multimedia/accessible-digital-media-guide
HL137. Reading Materials in Large Print: A Resource Guide
    http://www.loc.gov/nls/reference/circulars/largeprint.html#two
HL138. LOUIS database
    http://www.aph.org/louis.htm
HL139. Instructional Resource Centers for the Blind and Visually Impaired
    http://www.afb.org/Section.asp?SectionID=58&TopicID=255&DocumentID=2964
HL140. comprehensive listing of large print sources
    http://blindreaders.info/lpbooks.html
HL141. Scaled Vector Graphics
    http://www.techterms.org/definition/vectorgraphic

HL142. Joint Photographic Experts Group
http://www.techterms.org/definition/jpeg
HL143. Portable Network Graphic
http://www.techterms.org/definition/png
HL144. State Director of Special Education Suggested Responsibilities Regarding NIMAS & NIMAC
http://nimas.cast.org/about/resources/sea_sped.html
HL145. NIMAS Guidelines Checklist: A Self-Study Tool
http://www.afb.org/Section.asp?SectionID=58&TopicID=255&DocumentID=2944
HL146. State Contact List
http://www.resna.org/taproject/at/statecontacts.html
HL147. Association of Assistive Technology Act Programs
http://www.resnaprojects.org/nattap/at/statecontacts.html
HL148. Assistive Technology Industry Association
http://www.atia.org/
HL149. National Association of State Textbook Administrators
http://www.nasta.org/
HL150. Instructional Materials Adoption
http://www.aapschool.org/vp_adoption.html
HL151. Sample Language for Adoption Contracts and LEA Purchase Orders
http://aim.cast.org/learn/policy/local
HL152. State Director of Special Education Suggested Responsibilities Regarding NIMAS & NIMAC
http://aim.cast.org/learn/policy/stateresources/sea_sped
HL153. suggested contractual language
http://aim.cast.org/learn/policy/local
HL154. Accessible Instructional Materials and the IEP
http://aim.cast.org/learn/policy/local/accessible_iep
HL155. The Promise of Accessible Textbooks: Increased Achievement for All Students
http://www.cast.org/publications/ncac/ncac_accessible.html
HL156. Copyright Law Amendment (1996)
http://www.loc.gov/nls/reference/factsheets/copyright.html
HL157. Talking Books and Reading Disabilities (1997)
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