

Libraries: Take AIM!

Accessible Instructional Materials and Higher Education

March 2017

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1. Executive Summary

The population of students with disabilities has grown substantially in the past few decades. Given that most institutions of higher education (IHEs) in the United States will have 10% or more of their students registering for accessibility accommodations, it is inefficient and inadequate for schools to remain simply reactive when new accommodation needs arise. This white paper describes the problem of accessible course materials, analyzes the factors contributing to the problem, and identifies the steps individual IHEs can take to collaborate on solutions. The need for proactive action extends to the library, among other campus units. Libraries, in fact, have particular skills, processes, equipment, and resources that make it vital for them to be a part of the institution's strategy for addressing accessibility.

It is often said that no student graduates from a library but no student graduates without one. The library collections—print and electronic—as well as numerous services and teaching programs are designed to enhance, enable, and support any school's curriculum. Rarely, however, is the library a leading provider of accessible content for students with disabilities. This is particularly true for content and materials required for classes. Most often, disability resources and services will bear the responsibility of providing and/or creating accessible course content.

Institutions needing to provide learning materials for students with print disabilities navigate a variety of sources to see if digital formats already exist. They also request electronic copies directly from publishers, or through a mediated service. Some publishers are relatively responsive to requests, but others are not. Response rates range from one day to two weeks or more and there is no obligation for timeliness. As a last resort, a school may need to scan a work from print. Regardless of original source, a digital file will then need to undergo significant reformatting before delivery to the student. Numerous institutions may be seeking the same texts at any given time, but they have no mechanism for sharing. The work that goes into a single file may represent many hours of labor and the quality of the results may vary depending on the school's resources. As these electronic files are created and provided to the specified students, the disability resources and services department must wrestle with a significant file management problem. The files need to be secured for the sake of copyrights, but most courses are taught multiple times with some re-use of common texts. The ability to securely store, describe, and reuse these reformatted materials is necessary on every college campus.

With support from the Institute of Museum and Library Services, the authors pursued a single hypothesis: repository services would be an effective way to assist IHEs with providing accessible instructional materials to students with disabilities. The simple answer is confirmation. We are hardly the first to propose file sharing. Various groups and organizations have attempted this approach previously. However, we find that as the population grows, the technology improves, and the legal environment shifts, it is now an excellent time to implement a repository service for sharing.

What follows is a call to action for libraries. With notable exceptions, U.S. libraries are doing very little to address disability concerns on campus. The majority of efforts are reactions to specific barriers for specific individuals. The federal government has promoted the definition of accessibility as ensuring the individual student is "afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated

manner, with substantially equivalent ease of use.”¹ Implicit in such a definition is the timeliness of the services and uses. When our institutions are purely reacting to requests, providing equivalent experiences is exceedingly difficult, if not impossible.

In addition to our analysis of the environment, this white paper includes a set of recommendations directed toward libraries, university/college administration, and publishers. Any development of repository services is simply one tool or system in a complex environment—a system which wouldn’t be necessary if publishers were able to provide more accessible versions of their content at the outset. We call on libraries to take seriously the information needs of students with disabilities. By analyzing the local environment at a single institution, the library can create a set of priorities for action which will best assist their community. Libraries cannot solve these problems alone, but are a necessary piece of the community puzzle. As a result, we have also identified specific actions that other university actors and publishers can take.

We intend to move forward in the development of repository services. As a result of our investigation, we assert that:

1. The challenges faced by DRS staff in delivering accessible instructional materials are real, systemic, and costly;
2. As DRS staff accomplish their mission of accommodations for students, they are isolated by institution, which results in the duplication of effort across higher education and the creation of significant caches of digital content that are relatively unmanaged and insufficiently leveraged;
3. Academic librarians are well equipped to support the work of DRS through collaboration on digitization, metadata, standards development, and storage;
4. Students with disabilities are on all of our campuses, their number is increasing, and they need proactive attention from many areas of the university, certainly including the library.

We hope others will join the cause and accelerate their awareness of and attention to the needs of people with disabilities. Proactive, collaborative, and persistent work is desperately needed.

“So, yeah, if you guys can get this up and running, we’ll love you forever.” (Focus group participant at the 2015 AHEAD Conference)

2. Introduction: Nature of the Problem

When a student requests accommodation for a disability, schools are legally obligated to provide it if the student qualifies. At most institutions, there is an established method for students to document their disabilities and register for services and accommodations. The voluntary process is based on state and federal regulations, as well as university policy. Schools may have little time to prepare for a student’s needs and little awareness of how many students may need support in any given year. Semester by semester, the courses and instructors involved in accommodations vary. A critical factor in the support of

¹ Office of Civil Rights. Resolution Agreement South Carolina Technical College System OCR Compliance Review No. 11-11-6002. <https://www2.ed.gov/about/offices/list/ocr/docs/investigations/11116002-b.pdf>

students with disabilities is the school's ability to rapidly serve those needs. A core form of accommodation is providing accessible copies of assigned course materials.

Most institutes of higher education (IHEs) are working diligently to provide adequate services. In order to make course materials accessible, staff usually need to obtain or create a digital file, modify it, and then distribute it to the student(s). After a few semesters, even a modest program will produce a significant "library" of content to organize and store. Yet the nexus for this activity is typically not the library. Furthermore, every IHE works independently. At present, there are no reliable and effective sharing

venues within the US. Production of these accessible copies is costly and time consuming. Therefore it is vital that we reduce the duplication of effort to streamline workflows and provide effective infrastructure to enable sharing in well-controlled environments.

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Accessible course content is only one piece of the large and complex work of accessibility services. However, it is one that we believe can be improved by harnessing collective action and technology. If schools can contribute their own accessible files to a shared repository, use those contributed by other participants, and search fewer locations to discover

materials, then we will have made a substantial stride toward reducing duplication of effort, increasing service speed, and allowing schools to focus on specialized work for their local constituents.

2.1 Scope

According to the US Government Accountability Office, 10.8% of students enrolled in postsecondary institutions in 2008 had a disability. This represents over two million students and this number is steadily increasing.² Students with disabilities share demographic distribution with the general population of postsecondary students in terms of race, age, and schools attended. These disabilities include one or more of the following conditions: a specific learning disability, a visual disability, a hearing impairment, deafness, a speech disability, an orthopedic disability, or a health impairment (Table 1). Statistics on disabilities in higher education are based on self-identification by students and are believed to be under-estimates. Although the population is a minority of total students, the vast majority of institutions report enrolled students with disabilities (88%), making accessibility an extensive and urgent issue in higher education.³

² U.S. Government Accountability Office (2009). *Higher Education and Disability: Education Needs a Coordinated Approach to Improve Its Assistance to Schools in Supporting Students*. No. GAO-10-33. <http://www.gao.gov/assets/300/297433.pdf> p.37.

³ "During the 12-month 2008–09 academic year, 88 percent of 2-year and 4-year Title IV degree-granting postsecondary institutions reported enrolling students with disabilities. Almost all public 2-year and 4-year institutions (99 percent) and medium and large institutions (100 percent) reported enrolling students with disabilities." National Center for Education Statistics (NCES). *Students with Disabilities at Degree-Granting Postsecondary Institutions*. <https://nces.ed.gov/pubs2011/2011018.pdf> p.3.

Table 1. Distribution of disability types as estimated by two organizations in 2008.⁴

Disability Type	NCES	AHEAD
Learning disability	28.16%	31%
ADD or ADHD	20.21%	18%
Psychological condition	15.59%	15%
Health impairment	19.25%	11%
Mobility impairment	6.2%	7%
Hard of hearing or deaf	3.25%	4%
Traumatic brain injury	2.79%	2%
Vision impairment	2.61%	3%
Intellectual disabilities	2.40%	3%
Temporary impairment	2.01%	N/A
Autism	1.94%	2%
Speech/language impairment	0.72%	1%
Deaf-blind	0.09%	N/A
Other	4.79%	3%

The largest subgroup of students with disabilities is those with learning disabilities. This segment has been growing quickly in many settings.⁵ A common accommodation for some learning disabilities is creating an audio version of a text which the student can hear while reading the text. With advances in technology, screen reading software makes it possible to create audio files or supply a digital version of a text to meet the needs of one or more students. As we'll explore later, however, the specifications for the digital version are not always simple.

2.2 Student Needs

When students request accommodations for a disability, schools are legally obligated to provide them if those students qualify. This legal obligation is mandated through the Americans with Disabilities Act (ADA) of 1990 (42 U.S.C. § 12101) and Section 504 of the Rehabilitation Act of 1973. Each institution determines its own local process and policies for students to navigate.

Disclosure of a disability is voluntary. Not surprisingly, students may be motivated to delay disclosure until after they commit to enroll. In a best case scenario, a school will become aware of the number of entering students with requests for accommodations and the types of accommodations starting in May before the fall term. Some students may wait until arrival, or until after a few months pass to seek resources and

⁴ This table represents the distribution of the 10.8% of students with a disability, as found by the 2011 National Center for Education Statistics (NCES) survey data and the 2011 Association of Higher Education and Disability (AHEAD) survey data report. Survey data is for students enrolled in 2008-09. *Reports of the Advisory Commission on Accessible Instructional Materials in Postsecondary Education for Students with Disabilities* (2011) <http://www2.ed.gov/about/bdscomm/list/aim/meeting/aim-report.pdf> p. 15-16. Subsequent references to this report will be made to "AIM Commission Report."

⁵ According to the National Longitudinal Transition Studies, the rate of enrollment of young adults with learning disabilities in any type of postsecondary education was double that of the general population from 1990 to 2005 (18% vs 9% increase). "The State of Learning Disabilities: Facts, Trends, and Emerging Issues." Third edition, 2014. P. 29. <https://www.nclld.org/wp-content/uploads/2014/11/2014-State-of-LD.pdf> See also Mull, Sitlinger, Alter "Postsecondary Education for Students with Learning Disabilities: A Synthesis of the Literature" in *Exceptional Children* 68:1, 2001.

assistance. Some students are diagnosed with disabilities during the course of their programs of study. As a result, schools may have little time to prepare for a student's needs and little awareness of how many students may need support in any given semester or year. Semester by semester, the courses and instructors involved in accommodations vary. A critical factor in the support of students with disabilities is the school's ability to rapidly serve those needs.

American K-12 school settings have changed significantly in response to accommodation needs and are regulated very differently. If an American high school student is diagnosed with a disability, the student will receive an Individualized Education Program (IEP) and the school is required to provide assistance. The onus is on the school officials to act in support of the student, and typically a team of educators develops, delivers, and monitors the IEP. At college, however, the emphasis changes and the *student* must be the active advocate for him/herself. The student must choose to disclose the disability, identify the office providing support and services, and navigate the individual institution's policies and procedures. This is a major and sudden change for many students.

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2.3 What Makes Course Materials “Accessible”?

Accessibility is often addressed on an individual basis. Later in this paper we talk about broad standards of accessibility (see 3.2 below). But, for a single student requesting an accessible version of an assigned text for class, accessibility typically refers to a version of the text that can be or has been manipulated to meet the student's need. Whether a student will use the copy electronically (such as with screen reader software or other assistive technologies) or needs a fixed version (e.g. large text, braille), an accessible file will be a digital copy of a text with mark-up of headers and other formatting features; alternative text to describe images and graphs; notification of page breaks and marginalia; and so on. In short, the accessible file replicates the structure of the document in addition to the content of the text.

In the case of web content, accessibility standards help web content designers and developers identify and address accessibility issues. The Web Content Accessibility Guidelines (WCAG) 2.0 are published by the World Wide Web Consortium (W3C).⁶ This standard consists of 12 guidelines, each with three checkpoint levels for individual success criteria for web developers to meet: Level A, Level AA, and Level AAA. Having this specific standard allows anyone developing web content to check for accessibility concerns and modify their designs accordingly.

However, for disability resources and services, there is not a corresponding accessibility guideline for non-web course content. In some cases, a university will define this for themselves. The Division of Disability Resources and Educational Services at the University of Illinois Urbana-Champaign (UIUC) has an Accessible Media Services unit (AMS).⁷ AMS has written a robust “Text Conversion Handbook” in order to train student workers to assist with reformatting texts. Since the volume of requests for this large

⁶ For an overview of WCAG 2.0, see <https://www.w3.org/WAI/intro/wcag>

⁷ The text conversion website and video captioning website for AMS are very helpful descriptions of the services provided and the complex workflows for making and fulfilling requests. Text: <http://disability.illinois.edu/academic-support/accommodations/text-conversion>. Video: <http://disability.illinois.edu/academic-support/accommodations/video-captioning>.

university is big, the Handbook assists them in generating consistent and accurate files while constantly training and re-training a rapidly changing workforce (student workers). In this specific example, the Handbook focuses on specifications for using Abbyy FineReader (optical character recognition software), Microsoft Word, and Adobe Acrobat (for PDF files). Other institutions focus more heavily on other assistive technology, such as conversion with Kurzweil Education software products.

One could argue that such manuals are the foundation for a standard of accessibility. However, there are concerns that some IHEs cannot afford to reach the standards of quality achieved by UIUC. Small schools tend to have small operations for accessibility support, with limited staff and few resources. A second approach to accessibility standards is through the use of a standard format. Many hope that ePub will become the de facto standard for digital publishing so that standards for accessibility can be built into early production of content. In July of 2016, the Book Industry Study Group (BISG) released the Quick Start Guide to Accessible Publishing.⁸ The guide can be downloaded for free as an ePub3 file. It covers the rationale for ensuring accessibility, specific steps to make content accessible, and the legal requirements for accessibility. The audience is the publishing industry with a goal that new content will be “born accessible,” but the guide can be used by anyone. It is an excellent starting point to connect to additional specifications and tools, such as the EPub for Education profile and MathML.

Accessibility of other content besides text is also an important factor. The use of video in post-secondary education is rising rapidly and video captioning is in significant demand. Schools may need to describe video for the visually impaired. As stated at the start of this section, the definition of accessible will depend largely on the needs of the student and the assistive technology being used.

2.4 The Structure of Services at IHEs

The office(s) which provides support and services at an IHE is frequently organized as a sub-section of other student services or academic support services.⁹ By design, they address student needs individually, confidentially, and with sensitivity to the ongoing stigma associated with disabilities. This administrative organization, while entirely rational, may also contribute to the work of the department occurring in isolation or as a silo operation of the university.

In order to assist students, each school must obtain or create accessible equivalents, such as audio files, screen-readable text versions and/or braille versions of course materials. If publishers cannot provide appropriate versions, or do not respond to requests, then schools do the reformatting work themselves. Custom work and faculty consultations may be needed to translate or interpret images, graphs, or other supplementary materials embedded in texts, or to convert the publisher supplied PDF into the needed file format. Multi-media materials present special challenges, such as transcribing subtitles for films, or creating new versions of films with voiced descriptions for visual components. Despite all these challenges, however, the work of reformatting and delivering the final product to the student typically takes place within the organizational confines of the disability resources and services department (DRS).

⁸ Press release and links to the downloadable file are here: <http://bisg.org/news/297929/The-BISG-Quick-Start-Guide-to-Accessible-Publishing-Moving-Inclusion-Forward.htm>.

⁹ Institutional names for these offices vary significantly, especially with respect to the term “disability” or “accessibility.” For consistency, we will refer to them as disability resources and services (DRS) throughout this white paper.

The scale of these services can range from a single student to hundreds of students (even thousands at our largest institutions). Each student makes requests based on their individual course of study. After they make course selections and obtain the class syllabus, students can request accessible copies of the assigned materials. A single class may be one large textbook, dozens of scholarly articles, a stack of early American novels, or an infinite number of other variations. The vast range of course subjects and pedagogical approaches is a cornerstone of American higher education. The innumerable curricular differences between institutions is also valued. In the context of accessibility, this academic freedom creates a cost in terms of meeting the accommodation requests of students. As a school meets those needs, the office providing services produces a significant and growing number of copies of course content in accessible formats. The resulting accessible copies are retained, of course, so that if another student takes the course the next semester, the office can avoid one act of duplication of effort.

The growing set of copies created by DRS is essentially a digital library of course content based on local needs. DRS stores those files and, in the best case scenario, will spend a little time organizing the materials so that they can be found again later. Like anyone with a growing library, DRS attempts to manage the content, but often finds over time that libraries are complex and need active maintenance. Ad hoc solutions are easy to create, but rarely suffice to cover the demands of file management over time.

With respect to supplying accessible instructional materials, the challenges for schools and students have been well documented. A key text is the *Report of the Advisory Commission on Accessible Instructional Materials in Postsecondary Education for Students with Disabilities* (AIM Commission Report, 2011) which studied the state of accessible materials and made eighteen recommendations to Congress.¹⁰ The fact that so little has changed since the time of the Commission's report is further evidence of the pernicious nature of this set of challenges for students and higher education as a whole.

3. Legal Factors

Our IHEs are prudent in attempts to reduce and mitigate risk. There are two fundamental legal areas that drive college and university behavior with accessible course content: copyright infringement and civil rights violation.

3.1. Copyright

Most course materials in today's college classroom are under copyright protection. Generally, students are expected to purchase textbooks and other required materials for personal use. If a text cannot be provided by the publisher in an accessible form for the student to purchase, then the school must make a copy. Some publishers require proof of payment before supplying an accessible version (or even an electronic version that is not accessible) to a school, and many schools require proof of purchase before they will provide an accessible copy. Whether or not such evidence (e.g. the student's receipt from the bookstore) is collected, many schools remain concerned that the act of creating an accessible version of course materials is a violation of copyright and a legal liability.

However, there are exceptions in US copyright law that support this activity. Section 121 of the Copyright Act (also known as the Chafee Amendment) states that:

¹⁰ AIM Commission Report. (2011) <http://www2.ed.gov/about/bdscomm/list/aim/meeting/aim-report.pdf>.

...it is not an infringement of copyright for an authorized entity to reproduce or to distribute copies or phonorecords of a previously published, nondramatic literary work if such copies or phonorecords are reproduced or distributed in specialized formats exclusively for use by blind or other persons with disabilities.¹¹

An authorized entity is defined as “a nonprofit organization or a governmental agency that has a primary mission to provide specialized services relating to training, education, or adaptive reading or information access needs of blind or other persons with disabilities.” Therefore, all IHEs would typically be authorized.¹² In addition to “non-dramatic literary works” the Chafee Amendment also excludes certain types of standardized tests, as well as computer software.

The legal basis for providing reformatted/accessible course content services in libraries and universities was recently strongly reaffirmed by the US Court of Appeals, Second Circuit, which ruled in *Authors’ Guild v HathiTrust* that “the doctrine of fair use allows the Libraries to provide full digital access to copyrighted works to their print disabled patrons.”¹³ Through this ruling, the court removed considerable ambiguity regarding the rights of schools and for the first time made clear that both sections 107 and 121 provide exceptions to allow an “authorized entity” to make copies for print-disabled users. This opens the door to providing accessible copies of works specifically excluded under 121, e.g., non-dramatic literary works. It is important to note, however, that the court was specifically addressing the provision of works digitized en masse from library collections, not newly produced textbooks. Further, although the logic of the ruling could be extended to other formats, such as audio and video materials, the ruling does not specifically address their reproduction. Nevertheless, the Second Circuit ruling should reassure libraries and educational institutions that they can lawfully make and provide specialized copies of educational materials for their eligible students, and it has encouraged many to expand their services.

Two elements of the Second Circuit’s opinion are worth examining closely. Discussing the specific use of works in the HathiTrust Digital Library (HDL) for print-disabled patrons, the opinion considers the four factors to be weighed in a determination of fair use. In reviewing the third factor (the amount and substantiality of the portion used in relation to the copyrighted work as a whole), the opinion specifically addresses the potential need for retention of image files as well as text files, defends the retention of multiple formats, and states, “it is reasonable for the Libraries to retain both the text and image copies.” This ruling is important, as we will later see when imagining the content of any repository for sharing.

The fourth factor (the effect of the use upon the potential market for or value of the copyrighted work) is frequently considered the most important factor. When reviewing the fourth factor, the opinion addresses the

The doctrine of fair use allows the Libraries to provide full digital access to copyrighted works to their print disabled patrons.

--Authors’ Guild v HathiTrust

¹¹ US Code Title 17 §121, <https://www.law.cornell.edu/uscode/text/17/121>

¹² It unclear what the legal basis would be for a for-profit school, but this issue is outside the scope of this paper.

¹³ *Authors Guild, Inc. v. HathiTrust*, No. 12-4547-cv, 2014 U.S. App. 278-1 (2nd Cir. June 10, 2014) p. 31 lines: 5-7

dearth of accessible content for the print-disabled.

It is undisputed that the present-day market for books accessible to the handicapped is so insignificant that “it is common practice in the publishing industry for authors to forgo royalties that are generated through the sale of books manufactured in specialized formats for the blind” Appellants’ Br. 34. “[T]he number of accessible books currently available to the blind for borrowing is a mere few hundred thousand titles, a minute percentage of the world’s books. In contrast, the HDL contains more than ten million accessible volumes.” J.A. 173 ¶ 10 (Maurer Decl.).

The need for accessible versions of texts is not new, and has not significantly changed over recent decades. We can sympathize that the market does not seem to reward publishers who would invest in supporting this smaller population of customers. However, given that publishers continue to avoid producing accessible materials (a topic discussed further below), it seems unnecessary for universities and colleges to adopt compulsory proof of purchase policies. In the current textbook market, print-disabled students are effectively required to purchase textbooks that do not support the student’s specific needs while the publisher of said textbook simultaneously refuses to produce an accessible copy (or even reduces the accessibility of texts through technical locking features!). This practice is both sadly common and inherently inequitable. While any policy will be the decision of each institution individually, higher education can only influence the market in limited ways. Of course we should purchase accessible copies, but if we purchase *inaccessible* copies that aren’t needed, while separately creating accessible ones, we short circuit any incentive for publishers to support students with disabilities. At present, there is virtually no market of accessible texts upon which any accessible use can have effect.

The dearth of accessible texts is referred to as the book drought or book famine. The Marrakesh Treaty (2013) was designed to alleviate this book drought.¹⁴ The Treaty has been signed by more than 80 countries and requires each country to have a stated exception to domestic copyright law to allow blind persons and others with print disabilities, as well as the organizations that serve them, to make accessible versions without permission from the copyright holder.¹⁵ The Treaty became in force on September 30, 2016 after the 20th country (Canada) ratified it. The Treaty is only in force for countries that have ratified it. The United States signed in 2013, but ratification remains the responsibility of Congress.

Libraries and their parent institutions must be attentive to numerous elements of potential violation of copyrighted status with published scholarly works and media, but in the context of accessible course materials, protection of copyright owners takes a backseat to a greater area of legal risk: the potential of a lawsuit or investigation for failure to provide adequate accommodations for students with disabilities by the Office of Civil Rights or Department of Justice, or by individuals and advocacy agencies.

¹⁴ For background, the text of the Marrakesh Treaty, and a list of the ratified countries, see the World Intellectual Property Organization (WIPO) site: <http://www.wipo.int/treaties/en/ip/marrakesh/index.html>

¹⁵ The World Blind Union provides a layperson’s explanation of the Marrakesh Treaty: “The Treaty of Marrakesh explained” <http://www.worldblindunion.org/english/news/Pages/The-Treaty-of-Marrakesh.aspx>

3.2. Civil Rights

Although the AIM Commission Report demonstrates that the issues are widely understood, most of our limited progress in addressing those issues has been made by institutions acting independently, often in response to litigation. Between 2009 and 2015, a series of legal settlements between universities and the US Department of Education's Office of Civil Rights (OCR) addressed institutional requirements and responsibilities with respect to electronic information technology (EIT). The growing adoption of ebook readers and ubiquity of web-based information and platforms by universities creates new challenges for students with disabilities. These digital files and platforms were, and are, routinely inaccessible.

Federal antidiscrimination law has long protected individuals with disabilities. With respect to educational institutions, the US Department of Education (DOE) is responsible to enforce Title II of the Americans with Disabilities Act (ADA), which includes public schools at all levels, including postsecondary. The Department of Justice (DOJ) is responsible to enforce Title III of the ADA, which includes private schools. In June 2010, the DOE and DOJ jointly issued a "Dear Colleague Letter" to clarify school responsibilities with respect to digital files and equipment.¹⁶ That letter was followed in May 2011 by another "Dear Colleague Letter" along with a questions and answers document (FAQ).¹⁷

The recent legal settlements and letters have provided significant guidance for IHEs. The repetitive use of definitions and terminology provides increased clarity, or perhaps what we can call a standard for accessibility. Namely, that

"...the University must implement a policy that requires the deployment of accessible technology and course content in the University setting. To that end, the University shall conduct a review of the accessibility of its technology and instructional materials and shall ensure that... all technology, including websites, instructional materials and online courses, and other electronic and information technology for use by students or prospective students, is accessible."¹⁸

By issuing a letter to all colleges and universities, the DOJ and DOE have clearly communicated what they expect each school to provide in order to comply with the law. This serves as an unambiguous signal to IHEs to develop and implement a policy and indications of how they would be evaluated by the government offices that are responsible for enforcing the ADA. Such a policy should result in accessibility according to these standards:

¹⁶ The June 29, 2010 "Dear Colleague Letter" https://www.ada.gov/kindle_ltr_eddoj.htm and the "Electronic Book Reader Dear Colleague Letter: Questions and Answers about the Law, the Technology, and the Population Affected" (FAQ) <https://www2.ed.gov/about/offices/list/ocr/docs/504-qa-20100629.html>

¹⁷ The May 26, 2011 "Dear Colleague Letter" <http://www2.ed.gov/about/offices/list/ocr/letters/colleague-201105-ese.html> and the "Frequently Asked Questions About the June 29, 2010, Dear Colleague Letter" (FAQ) <http://www2.ed.gov/about/offices/list/ocr/docs/dcl-ebook-faq-201105.html>

¹⁸ Department of Justice. Settlement Agreement between the United States of America, Louisiana Tech University, and the Board of Supervisors for the University of Louisiana System under the Americans with Disabilities Act. DJ #204-33-116. Exhibit 1. <http://www.ada.gov/louisiana-tech.htm>

“‘Accessible’ means a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use. The person with a disability must be able to obtain the information as fully, equally and independently as a person without a disability. Although this might not result in identical ease of use compared to that of persons without disabilities, it still must ensure equal opportunity to the educational benefits and opportunities afforded by the technology and equal treatment in the use of such technology.”¹⁹

One can see from the content of those settlements, together with the information provided in the 2011 FAQ, that the Office of Civil Rights is not simply focused on the availability of alternate formats of materials or other accommodations that might be created to provide access when a student need arises. OCR has stipulated that the timeliness and ease of use of those materials is a critical factor in ensuring equity:

“The FAQ also clarifies that an accommodation or modification that is available only at certain times will not be considered “equally effective and equally integrated” where other students have access to the same information at any time and any location...”²⁰

For example, streaming video of a film for a class, but requiring students with disabilities to go to the library during open hours to view the captioned version, would generally not be considered equivalent. In fact, guidance from the FAQ makes clear that while an accommodation model might suffice in certain circumstances, institutions should be considering accessibility even before an individual need may arise.

“Just as a school system would not design a new school without addressing physical accessibility, the implementation of an emerging technology should always include planning for accessibility. Given that tens of thousands of elementary, secondary, and postsecondary students have visual impairments and that the composition of the student body at a given school may change quickly and unexpectedly, the use of emerging technology at a school without currently enrolled students with visual impairments should include planning to ensure equal access to the educational opportunities and benefits afforded by the technology and equal treatment in the use of such technology. The planning should include identification of a means to provide immediate delivery of

¹⁹ Office of Civil Rights. Resolution Agreement South Carolina Technical College System OCR Compliance Review No. 11-11-6002. <https://www2.ed.gov/about/offices/list/ocr/docs/investigations/11116002-b.pdf> (last viewed January 6, 2015)

²⁰ Michigan Department of Education, “Voluntary Resolution Agreement” OCR Docket #15-14-1110 <http://www2.ed.gov/about/offices/list/ocr/docs/investigations/more/15141110-b.pdf>

accessible devices or other technology necessary to ensure accessibility from the outset.”²¹

While these comments relate directly to technology, the recent and emerging dependence of faculty and libraries on the use of electronic materials makes it imperative that those resources are provided in a format that is accessible through those technologies. This is not regularly the case. As highlighted in a 2013 settlement between the University of California, Berkeley and Disability Rights Advocates, these access requirements include the holdings of the institution’s library and all of the services it offers.²²

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For many libraries, the reactive nature of disability services in response to the requests they receive may mean that the full force of that requirement may not be understood. Libraries need to be able to provide equal access to the educational opportunities and benefits of the library—all the collections and all the services. The challenge of doing this retrospectively has been illustrated recently with respect to free online content. The University of California, Berkeley, faced with the prospect of retroactively creating captions for hundreds of hours of video educational content placed on line for public use, decided that the cost could not be justified in proportion to their institutional priorities. They removed all of the content to avoid the liability, an unfortunate but understandable response.

Despite the government expectations, there is little evidence of widespread proactive efforts by IHEs to ensure readiness for accessibility requests. While there is increased attention in the literature of librarianship recognizing the needs for accessible websites, relatively little is found regarding course materials or general collections. It appears that many IHEs are waiting until students are requesting materials to address certain accessibility issues. A notable exception to this is the recent efforts of the Committee on Institutional Cooperation (CIC) to work with EBSCO on making their platform interface accessible.²³ There is a great deal more that libraries can do to leverage their purchasing power with vendors for positive change for our students with disabilities.

The May 2011 FAQ and recent legal actions have increased school awareness of the liabilities, but have not increased the efficiencies or cost effectiveness of disability services. The combined pressures of liability to demonstrate ADA compliance and reassurances of safe harbor through the doctrine of fair use make this the perfect time for further action to address this growing need. Because the emphases of federal administrations vary over time, some institutions may be tempted to reduce their attention to

²¹ FAQ response #9 on page 4. <http://www2.ed.gov/about/offices/list/ocr/docs/dcl-ebook-faq-201105.html>

²² Settlement between University California, Berkeley and Disability Rights Advocates. May 2013. <http://dralegal.org/wp-content/uploads/files/casefiles/settlement-ucb.pdf>

²³ EBSCO’s statement on the accessibility of its products is online: <https://www.ebsco.com/technology/accessibility>. A 2006 report by UIUC documents the evaluation of EBSCO products with respects to accessibility that helped motivate the partnership: “UIUC EBSCO On-line Library Service Accessibility to People with Disabilities” http://cita.disability.uiuc.edu/collaborate/libraryebsco/reports/overall_accessibility_report.html.

these areas, assuming that the likelihood of federal investigation is lower. We hope this paper can serve as a reminder, however, that the needs of individuals—and classes of people—with disabilities persist and the courts continue to offer a viable route to challenge institutional behavior and hold schools accountable.

We have gone into some depth on two areas of legal consideration because attention to copyrights and attention to civil rights are both essential, and the two need to be balanced when providing accommodations to students with disabilities. For over 25 years the ADA has created legal obligations for serving individuals with disabilities. Institutions of higher education do not always meet those obligations, and are facing lawsuits as a result. With a new administration in the White House, schools may assess the legal risks as lowered and be tempted to reduce the level of attention provided to these accessibility issues. However, the moral obligation to meet the needs of students with disabilities and the risk of legal action from private citizens and advocacy organizations remains. At the same time, IHEs continue to be hesitant to act in the “gray areas” of copyright and the doctrine of fair use. They are afraid of the risks of litigation, especially given the limited assurances provided by case law. The HathiTrust decision by the Second Circuit creates an opportunity to build new services and meet those obligations. It creates some clarity that meeting ADA obligations can frequently be covered by the doctrine of fair use. Universities that are overly concerned with getting sued by publishers may end up facing lawsuits alleging civil rights violations and negligence with regards to ADA requirements.

4. Research: What We Learned

Before attempting to design repository services, our team designed and completed a qualitative study of the issues by conducting focus groups at the national conference of the Association of Higher Education and Disabilities (AHEAD). The study was generously funded as part of a planning grant, entitled “Repository Services for Accessible Course Content,” through the Institute for Museum and Library Services. We conducted a series of five, semi-structured focus groups at the AHEAD conference, July 15 - 17, 2015, in St. Paul, Minnesota. The AHEAD conference was selected because their annual meeting of “the premiere professional association committed to full participation of persons with disabilities in postsecondary education” draws hundreds of professionals in disability services within higher education from across the country. Recruitment was conducted by mass email to conference attendees, printed flyers, and word-of-mouth at the conference. Each focus group took approximately one hour. Sessions were simultaneously recorded and transcribed by captioners. In addition, participants completed an optional demographic survey.

The focus groups broached the following research questions:

- Q1 Based on subject matter, what kinds of content do you need to find for students needing accommodations?
- Q2 What formats are needed to be accessible to support students with disabilities?
- Q3 How are accessible digital resources supplied/sourced?
- Q4 How are accessible digital resources managed after they are distributed to a student?
- Q5 What are the challenges to providing accessible digital course content to instructors and students?

Q6 How is accessible digital content shared across and between institutions?

Q7 What are the challenges to sharing and reuse of accessible digital content?

In addition to the insights gleaned through our reading of transcripts, more formal insights were obtained by putting the transcripts through a qualitative content analysis process—a method widely used to describe systematically the meaning of responses to research questions. For more information on the specific methodology employed, see the paper “Toward Accessible Course Content: Challenges and Opportunities for Libraries and Information Systems” by K Fenlon et al in the *2016 Proceedings of the Association for Information Science and Technology* (2016, Wiley).²⁴

In the pages that follow, we will discuss the general challenges faced by participants, additional information about the relevant workflows on storage and reuse, and more about their use of existing resources. For the purposes of the white paper, we will include quotations and insights from the focus groups, as well as from the additional interviews, conversation, and reading pursued as part of the IMLS planning grant.

4.1. Typical Workflows

Focus group participants came from a range of institutional types, sizes, and locations. While these variations were relevant in shaping the resulting support for students with disabilities, we were able to identify some typical workflows for serving students. The office or person providing disability resources and services (DRS) has a basic process for meeting student needs:

1. Student self-identifies their disability(ies) to DRS. DRS provides a procedure for submitting documentation and verifies and approves the student for specific accommodations. [The remainder of these steps are only for students who have qualified for some form of alternative course materials.]
2. Each semester, the student notifies DRS that s/he wishes to use the services for accessible instructional materials and provides the information about the courses s/he is taking. In many cases, DRS is able to pursue the course materials independently if the institution has granted the staff widespread access to the course web sites in the learning management system (LMS).
3. DRS researches which materials need to be provided in alternative form. This could be electronic copies of text, captioned copies of video, audio versions of text, braille editions of books, etc. DRS searches for accessible copies of each item. If a ready version is unavailable, DRS searches for a version that can be more easily be modified to be usable, such as a digital copy of a book.
 - a. The search frequently starts with sources of ready materials, such as titles available from Reading Ally. In some cases, a school will ask on the professional listservs if anyone has already modified a particular text and can share a copy.
 - b. The second attempt is to acquire a copy from the publisher. The DRS staff identify whom to contact at the publishing house, make the request, and hope for a timely response. A major vehicle for this is the AccessText Network (ATN), which serves as a middleman between IHEs and major textbook publishers. ATN and other services are discussed in greater detail below (see 4.3). Some publishers will provide an accessible version of the

²⁴ The final version of the paper is also available via the Tufts Digital Library, <http://hdl.handle.net/10427/009761>

text. Others will provide a basic image or low-quality copy of the final text. The time frame for a response varies widely. Publisher behavior is discussed further in section 4.4.

4. If an electronic copy of a text is unavailable or of very poor quality, or if the publisher is non-responsive, a school will obtain a print copy and scan it, occasionally resorting to disbinding the text to obtain a good scan (this is increasingly rare). The scan is run through optical character recognition software (OCR) and then further modified.

The primary time that we end up cutting books is [when] the student waited and the publisher doesn't even bother to respond to us. We tell the student: "we can wait (it might be two to four weeks; we might never hear from the publisher), or we can take your book, cut it, scan it and get it back to you within four days. ...We give out pieces at a time and we do all different formats, everything from a text-based PDF to braille." (Focus group participant, AHEAD conference)

5. Each student is served individually, so the processing of the digital file will depend on the needed output for the student. In some larger institutions, DRS has established standard file output formats from which students can choose. Other institutions will adapt their work to the student's preferences. For example, a blind student may want some texts brailled, but others provided in a structured Microsoft Word document so that it can be used in the student's preferred screen reader software. External service providers may be needed to work on some projects (such as braille and video captioning) and subject experts may be needed for some materials (e.g. interpreting graphs for a prose description or to convert to tactile representation). Added service providers obviously increase the time, complexity, and cost of adapting the content.
6. When the copy is ready, there is some variation in how files are distributed. The most common mode is via the LMS, but other venues are also used to ensure the files are protected and only available to the intended student. DRS staff typically require the student to send proof of purchase of a print copy before releasing the accessible copy. Posted files usually have a specific duration of availability before being removed. Braille textbooks may require a storage arrangement, given the dimensions of the material.

Although no surprise to DRS professionals, it is significant to see the large number of software programs and file formats that are used to make materials accessible. These lists include all that were mentioned by focus group participants.

File Formats & Mark-Up Languages

PDF	Kindle	SRT
Microsoft Word	Mobi	Tactile 3D models
Daisy	AZW	XML
MP3	OBX	MathML
Kesi	CRT	LaTeX
RTF	PowerPoint	HTML
Braille	EPUB	

Software Programs & Conversion Tools

Kurzweil	OCR: ABBYY FineReader, Nuance OmniPage
ClaroRead	MathType plus Microsoft Word
Read & Write Gold	Scientific Notebook
NVDA	Duxbury Braille
Central Access Reader (CAR)	Dancing Dots, Lime Aloud, GOODFEEL
Jaws and other unspecified screen readers	Balaboka
Refreshable braille displays	Daisy Pipeline
Adobe Acrobat Pro	Embosser
Scanners and Copier machines	LaTeX
Cutters	Wiki Stix or Glue and Paper for 3D Models
Tactile Printers	Amara (captioning YouTube videos)
Compression Tools	

Once the student need is met, DRS still has a challenge with the existing copy: what to do with it. Focus group participants were very sensitive to storing files securely, in many cases using external hard drives rather than networked storage. Stories of continually having to plead for more digital storage space were common, as were tales of crashing networks when capacity was exceeded. The files are stored on servers, NAS devices, thumb drives, and in the cloud.

As the number of student requests grows, so does the storage need, and thus the management challenge. Many institutions retain the original obtained file and multiple formats.

“[We have] maintained all of our production files, our raw scans. Once we completed quality control, we maintained all of our final versions. We usually eliminated our middle step production files because they were just taking up server space” (Focus group participant, AHEAD conference)

Some faculty assign the same texts in multiple semesters, or in multiple courses. Retaining the finished accessible version is prudent for any institution. And, since the next student with a request may have a fundamentally different format need, retention of the original scans provides flexibility for any adaptation.²⁵

DRS staff develop internal file naming and organization schemes. Some maintain spreadsheets to keep a record of what has been reformatted. Several participants expressed frustration that it is difficult or impossible to find old files or know what they have currently.

“That's my weakest area is keeping track, and the organization of the files, I have them on like jump drives all over but I just need to -- I just haven't had time to really organize as well as I would like to.” (Focus group participant, AHEAD conference)

²⁵ Retention of multiple formats of the same material was addressed by the Second District Court in the HathiTrust decision, acknowledging that the different formats address different purposes and are reasonable to retain (see Section 3.1 above).

Throughout our focus groups, participants shared the same conclusions found by the AIM commission. In the list of barriers to producing accessible instructional materials (Appendix E of the report), the production issues for DRS staff include: “lack of capacity (e.g. staff, technology, funding), increased production times, increased cost of retro-fitting, files are difficult to reproduce, and the high cost of technology required for production.”²⁶ What the AIM report does not mention is that DRS staff also struggle to manage their content. By the time a file is reformatted and delivered to a student, the queue of waiting requests and/or the student standing directly in front of them needing assistance is a far more pressing priority than the metadata for stored files.

4.2. Challenges

Difficult Disciplines

A vital theme through our research is that some content areas are particularly difficult to make accessible. The number of students with accommodations is a significant factor to a school for determining the level of effort required, but some students do not ask for many alternative course materials. The number of file requests a particular school receives is also significant. Though some are very easy to resolve and take little time or effort, it is not the number of students or volume of requests as much as the *nature* of the requests that determines the amount of effort and funding required. Focus group participants were very clear that there are certain requests that are exceedingly difficult and resource intensive.

STEM

Science, Technology, Engineering and Math (STEM disciplines) are by far the most difficult and the highest in demand. The common use of equations, images, charts, and graphs make accessibility requests very challenging. Formulas and equations are difficult to convert and may require both DRS doing the conversion and the student using the material to learn markup systems like MathML. Images need text descriptions far beyond the image caption that may be provided. Charts and graphs may need to be depicted tactilely for some students. DRS staff may need to solicit help from the teaching faculty or graduate assistants to create these descriptions and interpretations.

Foreign Languages

The second most often mentioned area of difficulty was foreign language materials. Staff need to mark up the change between the foreign language and English. Additional alphabets can be challenging for an English speaking converter. Furthermore, numerous images, tables, and multimedia may need special attention for conversion/adaptation.

Music

A few schools had recently started working with students in music classes. While less common, it throws those DRS staff into a new learning mode to handle that material type.

“There’s Lime, Good Field and Dancing Dots, a suite that allows for music notation into tactile representation, and it can go both ways so a student who needs to compose music as well as a student who needs to be able to read music.” (Focus group participant, AHEAD conference)

²⁶ AIM Commission Report, p.131.

“We have a music major coming in and that's been a whole process for our office to figure out what she needs to learn how to do in order to have access to the materials, what we need to learn how to do in order to make the materials accessible and ... we still are in that process. It's a process she didn't even know about and she's only newly blind so she is not even really that familiar with screen-reading technology, with braille. She's learning these two things and apparently you have to know how to use both of these before you get into music.” (Focus group participant, AHEAD conference)

Other

There are additional subjects that, as a whole, have created challenges for schools. It is impossible to predict when these areas will be in demand. Additional challenges were mentioned for theology students and those in professional schools. In each of these, however, the nature of the challenge is consistent: more specialized subject matters and increased use of images, media, tables, charts, formulas, and non-Roman alphabets are some of the most resource intensive conversions. The participants in our study were particularly eager to share these materials. Once a school makes an advanced calculus textbook accessible, DRS loathes the thought of another school repeating that same work.

Difficulties Unrelated to Disciplines

Beyond the challenge of wrestling with everything from Arabic to Zoology, there are complications which are less related to the subject matter of the content. While not exhaustive, what follows does highlight a few considerations raised by participants in the focus groups.

Legal Risk

As mentioned above (section 3), each school must balance the legal risks of violating copyright and violating civil rights under the ADA. Focus group participants spoke at length about the fear that what they are doing in order to support students with disabilities is risky for their institution. They wonder whether the reformatting is permissible and indicated a high level of self-policing as well as consultation with university general counsel to determine the institutional risk tolerance.

“Copyright is always something that comes up ... there [are] always questions about can we do this, can we do that, is that appropriate?” (Focus group participant, AHEAD conference)

Video and other non-text formats

The use of video has exploded in pop culture, social media, and certainly in educational circles. With rapidly increasing options for sources of video content, faculty are including video and film in courses throughout the curriculum. Cisco predicts that 75% of mobile data traffic will be video by 2020.²⁷ Unfortunately, the growth of captioning has not kept pace and only a small percentage of video is captioned. Focus group participants lamented that the so-called “automatic captioning” of YouTube is so inaccurate that it does more harm than good (confusing those who need captions and falsely providing a

²⁷ Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2015–2020 White Paper. <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html>

sense of availability to faculty selecting content). The costs to create original captioning is high, as it requires considerable human intervention for accuracy.

Streaming video also creates copyright and intellectual property concerns regarding captioning. In order to create captioning with streaming video, one often needs to “rip” the video to create a copy to which captions can be added. This can create some of the internal struggle in balancing copyright and civil rights, as mentioned in Section 3 (above).

“We have about 700 online courses that we do in a given academic year and our instructors are using a lot more video... [there is a] kind of naiveté about what that CC button really will do on YouTube and that beta project, never understanding it or clicking on it to see that's not a reliable way to caption. Or this is a great YouTube video that was uploaded when YouTube first came out 20-something years ago and guess what, we can't find who the owner is to be able to ... caption it so that, you know, it can be continued to be used in the course.” (Focus group participant, AHEAD conference)

Large Number of Formats and Software

Other non-text formats provide difficulties of their own, such as transcriptions of audio for the hearing impaired or audio descriptions of visual resources, among others. Focus group participants conveyed the need for flexibility and creativity in order to provide disability accommodations. Advances in 3D printing and other technology open new options, but also create new costs. Each advancement comes with a learning curve and new demands on staff time.

Time and Financial Constraints

A key element of cost containment is frequently built on the consistency of demand. However, as we have already described, requests for disability services are highly variable from semester to semester and course to course. Although the size of the DRS varies from school to school, most described themselves as having small staffs. Those who recognized that their staff size was relatively larger still mentioned a paucity of staff resources and a growth of demand. As found in the library, DRS departments use student employees on federal work-study grants whenever possible, but do find limits for what work can be accomplished by student workers while maintaining necessary quality and confidentiality.

Special formats or advanced topics may require outsourced assistance from vendors or other specialists. Additionally, practitioners told stories of excellent partnerships with faculty and graduate students to ensure that difficult material, such as advanced mathematics, could be rendered effectively for students. These anecdotes of success suggest the creation of community on a campus—a subgroup of people who are aware of the challenges faced by students and DRS.

The compression of demands into certain weeks of the semester compounds the problem. The standards for accessibility as defined by the federal “Dear Colleague” letter requires *timeliness*. Students who register for services at the last minute and faculty who delay the release of the syllabus put constraints on the ability of DRS to meet any standard of timeliness. Similarly, when faculty identify new content for their classes (such as relevant current events or new discoveries) that is not accessible, they create compounded issues for DRS and the students needing alternative formats.

Faculty Behavior

College and university cultures differ to some degree when it comes to expectations for faculty. But any spontaneity or tardiness from faculty can exacerbate service delivery. Furthermore, if faculty are not aware of accessibility issues, they may inadvertently adopt inaccessible content when accessible substitutes would be effective equivalents. Despite a university's best efforts to support its DRS, if members of the community are not aware of accessibility issues, then it is very difficult for the university to meet its obligations.

Some focus group participants noted that the lack of faculty awareness about accessibility sometimes creates tensions or requires interventions into purchasing. As mentioned above, common challenges created by faculty content choices include new and custom textbook choices, inaccessible digital supplements to textbooks, and the use of uncaptioned video. A poor quality photocopy of an article that doesn't include a citation may be an irritation to some students, but a complete barrier for DRS who can't create a quality scan and can't seek a replacement without knowing the source.

"I think the biggest thing ... you'll hear from most people, is that we have problems getting in to talk to faculty about these issues." (Focus group participant, AHEAD conference)

Braille

Providing materials in braille can present many hurdles in and of itself. The work, time, effort, and cost of creating or acquiring braille materials can be highly variable depending on the types of materials that need to be provided. The manner in which a student accesses braille can alter the process as well. For example, some students might access braille via a refreshable braille display connected to a computer or other electronic device, while other students require an embossed physical copy of the materials. There are also different forms of braille for different subject areas. While literary works are typically rendered in contracted braille, math will be rendered in Nemeth Braille code and music in a separate Music Braille code. Producing braille in all of these formats requires significant expertise in both rendering the braille and ensuring accuracy through proofreading. Most IHEs will contract braille production to outside vendors.

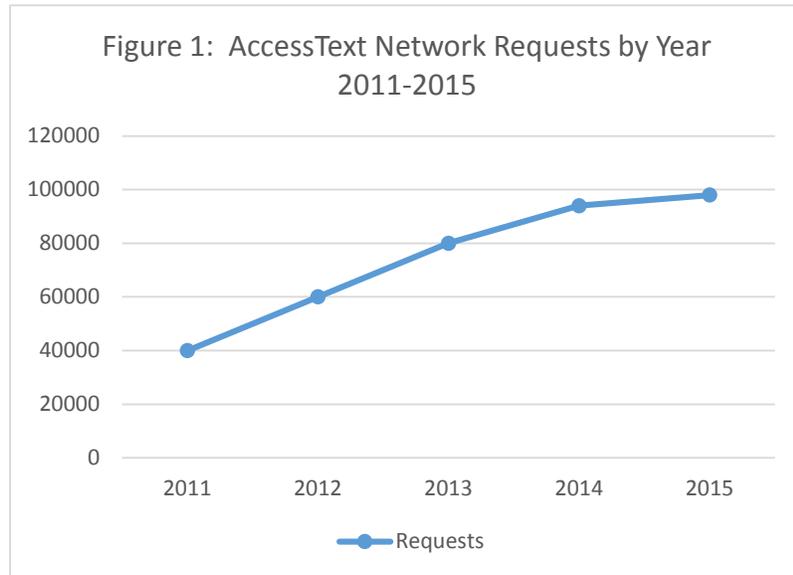
4.3. Existing Resources

Several independent services and organizations now offer assistance with accessibility: these include Bookshare, AccessText Network, Learning Ally, and HathiTrust. Each are excellent in their own way, delivering content to persons with disabilities, yet they are still insufficient for several reasons. We will briefly describe some of the existing services and offer some analysis for why these do not seem to be meeting the needs of higher education.

AccessText Network

AccessText Network (ATN) serves as a "middleman" between publishers and IHEs. It is administered by AMAC Accessibility Solutions at the Georgia Institute of Technology, under the auspices of the Board of Regents of the University System of Georgia. ATN was founded in 2009 by AMAC, the Association of American Publishers (AAP), and eight members of AAP. When a college or university joins ATN, the disabilities services office (DRS) can request electronic files via ATN's online interface. ATN sends the requests to the publisher. Publishers provide the file to ATN and ATN provides the file to the requesting

school. The average turnaround for a file is 3 days. Files can be requested in multiple formats (DOC, EPUB, PDF, RTF, XML), however it is up to the publisher to determine the file type delivered. ATN tracks all the requests. Use of ATN has grown substantially from 22,000 in 2010 to 100,000 in 2015 (see Figure 1).²⁸



When learning about AccessText Network, it is easy to imagine that this service solves a significant portion of the challenge for DRS. It has become a vital source for many colleges and universities. Participants in our focus groups frequently mentioned ATN as a significant resource for their workflows. Most of their comments were highly complimentary of the work ATN does. ATN provides a single point for a large number of requests. The speed of response is typically much faster than working

directly with most publishers.

Given the large quantity of requests, it is sensible for publishers to provide a streamlined workflow to reduce the difficulty of managing requests. However, all the features of ATN are primarily designed to optimize efficiencies for the publishers, often at the expense of the IHE. To join, each IHE signs a Membership Agreement with specified terms of use.²⁹ Some of these terms include:

I will only provide an Alternative Text to another Authorized User when both I and the Authorized User who needs the Text have received permission from the Publisher.

I acknowledge that if I receive a request from a Qualified Student for an Alternative Text that I have already supplied to another Qualified Student, I must submit a new request for permission and, if the Publisher so requires, not redistribute the file until I receive express permission to do so.

I agree to securely archive or dispose of each Publisher File once the Qualified Student requiring said File completes the course or is no longer enrolled at the institution, whichever should occur first. I further agree to dispose promptly and securely of any Alternative Text at such time as the Authorized User is no longer authorized to operate under the jurisdiction of a college or university system.

²⁸ Request figures taken from infographic on the ATN website: <http://accesstext.org/>

²⁹ "Authorized User Membership Agreement" http://accesstext.gatech.edu/wiki/Authorized_User_Membership_Agreement last viewed 9/5/2016.

These three terms exemplify the problem. The first prohibits a school from sharing a copy with another school -- even another ATN member -- unless the publisher gives explicit permission each time. ATN provides no information to IHEs about which members have already received a specific text. Similarly, a school in possession of a file from a publisher must make a new request from that publisher each time the school needs to distribute it to a different student. If three students with learning disabilities are in the same class, the DRS staff must make 3 separate requests. The third term requires “secure archiving” or disposal of alternative text files after the qualified student leaves the university. Users of ATN report that they *must* retain copies of files, as some publishers refuse to send the same file a second time if needed for a subsequent student. However, each institution is responsible for their own definition of secure archiving.

In essence, only the publishers may obtain the economies of scale from ATN. This quickens the speed of delivery to the school (a very important feature), but, beyond that, each school is required to work independently and any sharing requires subsequent approvals. The Publisher Membership Agreement indicates that publishers only grant schools permission to scan a file (i.e. create an electronic file when the publisher cannot provide one) if the school has been granted permission to do so by the publisher.³⁰ This flies in the face of the ruling of the second circuit court regarding the HathiTrust Digital Library and the obligation of schools based on the Dear Colleague letter regarding accessibility obligations of colleges and universities.

Terms such as these have prevented some institutions from joining ATN. In other cases, schools are adhering as best they can and hoping violations of these terms will not be detected. Because it is a contract, the college or university cannot rely on terms of fair use under copyright law. The contract terms supersede copyright law and the ATN member institution has consented to defer to the publisher and ask permission anytime it reuses a work.

Additional limitations of the ATN service include the following:

- The publisher members focus primarily on textbooks, with some inclusion of other books, but without any journal literature. DRS must seek other venues for articles.
- Schools cannot predict how long it will take to get a response.
- ATN’s request form permits you to ask for different formats, but there is no obligation for the publisher to provide them. You get what they send. Both users and the ATN website indicate that it is mostly PDF.

“I could say, minimum, nine out of ten files from the publishers are PDF regardless of what you ask for.” (Focus group participant, AHEAD conference)

- The ATN Membership Agreement specifies that each student must demonstrate “that he or she has purchased a copy, or that a copy has been purchased for him or her, of the commercially-available print version of the Alternative Text.” In other words, by requiring purchase of an inaccessible copy, the publishers eliminate all financial motivation of their own for changing their practice.

³⁰ See Exhibit A, Part III “Use of Files Scanned by DSS Offices with Publisher Permission” in the ATN “Publisher Member Agreement” http://accesstext.gatech.edu/wiki/Publisher_Membership_Agreement, last viewed 9/5/2016.

Obtaining the electronic file (usually a PDF) is simply the first step. DRS staff frequently must further manipulate, enhance, and convert the PDF, depending on the sophistication of the file formatting and the specific needs of the requesting student. Some PDF files are only image files of a printed page while others retain formatting information and other features of use to students. (See section 4.4 below for more on PDFs.) As a whole, the design of ATN makes it both one of the greatest resources and one of the greatest barriers to the efficient delivery of accessible content to students in need.

Learning Ally

Learning Ally is a non-profit organization that provides educational assistance to the blind, vision impaired, and dyslexic. The organization helps students of every age. For students in post-secondary institutions and for adult learners, an annual membership fee provides direct access to over 80,000 audio-books as well as a few other tools, such as software solutions to highlight text while listening for added comprehension.

In the college setting, the size of the audio-book collection is not broad enough to meet the majority of student needs. Learning Ally is not designed for institutional membership. Many DRS staff report that they will search for the content in Learning Ally if the student in question is a member. Feedback on Learning Ally resources was uniformly positive except for the limited amount of content for course materials.

BookShare

The technology non-profit Benetech is the creator and sponsor of the BookShare service, which is a source of accessible texts for individuals who register with them for individual accounts. BookShare has focused important attention on supporting the K-12 educational environment, but has increasingly expanded. BookShare is developing strong ties with publishers to have them voluntarily deposit content and metadata directly. Benetech then converts and posts the content in multiple formats which can be used in multiple reader programs. Membership is free for US students and modest for individuals (\$50/year plus a one-time \$25 set-up fee); all members must submit qualifying documentation of their disability(ies). Benetech recently announced that it had reached 10 million downloads of the BookShare corpus.³¹

While the focus group participants were aware of BookShare, few mentioned it as a regular source for content. With nearly half a million titles, BookShare's collection is substantial, but not necessarily well aligned with IHE curricula demands. It does not provide PDF versions of materials. BookShare operates under the provisions of the Chafee Amendment, rather than a fair use argument. BookShare is also pursuing connections to other repositories holding digital content, such as the Internet Archive, to facilitate discovery.

It is not entirely clear why the focus group participants did not mention BookShare more often. One possibility is the alignment of content with need for college students. BookShare includes over 500,000 titles, but it is unknown what proportion of that corpus is relevant for a post-secondary school audience. Another possibility is that the individual member model would guide students to self-service if the needed content is available, meaning the student would not need to request the content from the school. As discovery rates decline in a source, a school rationally reduces the frequency of searching that source.

³¹Press Release, September 20, 2016: <http://www.benetech.org/2016/09/20/benetech-delivers-10-million-accessible-ebooks/>

HathiTrust Digital Library

The HathiTrust Digital Library (HDL) enables users with print disabilities to access both in-copyright and public domain texts. However, in-copyright texts are available only to users at HathiTrust member schools (over 120), and the HDL corpus is based on library collections of large, research-intensive universities. HDL has established a service whereby authorized users at a member institution (who could be accessibility services staff or library staff) can obtain the electronic files for any text in the corpus. Currently, the corpus is over 15 million titles. The initial corpus was built from the scans of library collections completed through the Google Book project.

There are, however, a few significant drawbacks in the HDL for the purposes of accessible course content. The proxy access to the corpus of in-copyright texts is available only to users at member institutions. The membership pricing model is formulated for other functions of HDL, such as preservation and research uses, and as such, is seen as prohibitively expensive for many IHEs. Secondly, the corpus is based on library collections, which are typically devoid of textbooks. Therefore, it serves as a complement to AccessText Network, but not a replacement. And thirdly, a school that is able to use a scan from HDL usually has a significant amount of additional formatting to do to make the material accessible. Since they were created on such a massive scale, the scans sometimes do not meet desired levels of quality. The text files, created through massive scale processing of optical character recognition (OCR) software, typically have errors and these are likely significant if the material is in one of our categories of challenging material (see section 4). Once the file is modified for accessibility, even if simply correcting the OCR text, there is no way to upload the improved version of the text. These are issues of which the HDL leadership is aware and interested in improving, but time and resource constraints make these longer-term ideas, rather than shorter-term plans.

Landscape Change since the AIM Commission

As we can see from this brief description of the major sources of content, there are several venues that provide important resources to students. What proves so frustrating is that each one valiantly attempts to improve the environment and educational opportunities for people with disabilities, and yet, in our electronic age, some of the most basic capabilities to assist students are thwarted. We remain a long way from providing accessible texts in a timely fashion.

In 2008, the AIM commission was charged “to address and seek remedies for the challenges encountered by students with print disabilities enrolled in postsecondary institutions.”³² The final report was published in 2011 and contains 18 major recommendations for improving the educational opportunities for students with disabilities in the post-secondary education environment. Furthermore, the Commission

“urges Congress to establish mechanisms for assessing the market progress that all Commission members hope will occur to support additional means of incentivizing content developers to incorporate accessibility during product

³² AIM Commission Report, p. 11. “The Advisory Commission on Accessible Instructional Materials in Postsecondary Education for Students with Disabilities (the Commission) was established by the Higher Education Opportunity Act of 2008 (the Act). In accordance with that statute, this independent Commission has brought together government leaders, representatives from the publishing industry, individuals with print disabilities, representatives from two-year and four-year institutions of higher education, and leaders in the accessible technology field.” AIM Commission Report, p. 2.

design and to reinforce the necessity for open source instructional materials to be held to the same standards for access as other materials.”³³

When the report was published, practitioners in accessibility services in IHEs were optimistic that change would follow. Unfortunately, relatively few of the issues raised have changed substantially and, in some cases, the challenges have increased. To the best of our knowledge, zero of the eighteen recommendations were implemented. It is outside the scope of this paper to fully analyze why this is the case. The AIM Commission’s report remains a valuable resource for librarians and others in IHEs seeking to understand the depth and breadth of challenges our students face. Chapter three of the report is particularly relevant to our area of focus.

4.4. Publisher Behavior and Practice

Publishers are under no obligation to provide accessible content to students. In the United States, if a student finds that materials are not accessible, the legislation holds the school liable, not the content provider. This is a statement of fact. The Americans with Disabilities Act and other relevant statutes do not apply to published books, film, or textbooks. The office building where an editor works must be physically accessible by building code, but the products they make do not have to be. Rather, the educational institution is responsible for creating reasonable accommodations and ensuring students with disabilities are “able to obtain the information as fully, equally and independently as a person without a disability.”

It is necessary, therefore, to describe the common practices of some publishers, and commercial academic publishers in particular, to show the extent to which their behavior is at best barely helpful and, at times, disgracefully perverse. Not every publisher fits these descriptions, but the exceptions are too infrequent.

“I wish there was a way to work with the publishers and all the work that we are each individually doing to have a repository of some sort. And I really wish the publishers would go the next step and do what they need to do to function in the technology world that we’re in, and create accessible digital materials from their end.” (Focus group participant, AHEAD conference)

Belaboring the Text

When a school requests a digital copy of a book for the purposes of accessibility, they need a book that has the following minimum characteristics:

- All text is machine readable and has been proofread for accuracy.
- The organization of the text is represented through mark-up or a style sheet. For example, headers are marked as headers, rather than simply bold text or large font size.
- Images have at least a descriptive caption (and a full alt-text caption is the ideal).
- Tables are inserted as spreadsheets, not as images.

Ideally, campus accessibility staff would like to get their source files from the publisher, and they often begin by requesting that, either directly from the publisher or from a service (Access Text Network) that aggregates and brokers these requests with cooperating publishers. If Access Text Network (ATN) has the

³³ AIM Commission Report, p. 13.

title, the school will likely get a good quality machine-readable PDF. If the publisher isn't one of the 17 that cooperate with ATN, the results of direct appeals to publishers are often unrewarding, especially at four-year colleges where there's less use of textbooks and more instructor-selected readings. But even if the request is for a textbook, the response may be too slow to meet a currently enrolled student's needs. This is a problem reported particularly around STEM textbooks.

“What you generally get from the publishers is a PDF, and it's not generally an accessible PDF.” (Focus group participant, AHEAD conference)

If and when a publisher does respond, they will often send page images rather than machine-readable text. For accurate OCR, especially OCR of mathematics, software may require image resolutions as high as 600 dpi. Publishers often provide 150 dpi, which means campus accessibility staff have to scan from the printed book to get an image that will produce OCR of reasonable quality. Once they have that, the machine-readable text may well go back into a Word or RTF file—something approximating what the author probably submitted to the publisher in the first place. If publishers do provide machine-readable PDFs, they come in under the publisher's file-naming conventions, and not necessarily divided by chapter, so the material is not ready for distribution.

*Moderator: So it sounds like there's a lot of manual intervention at every phase?
Participant: Oh, yeah. Unless you're lucky and you can just hand a PDF to a student, even then, the publisher files that we get, at the very least, need to be renamed so they're in some logical order, because a lot of times they come with some strange naming protocol from the publishers which is not like what the name of the chapter is. And so at the very least, you need to divide it up, clean it, sort it out, so it's in a logical reading order for the student and then you can just give it to them after that.” (Focus group participant, AHEAD conference)*

“Sometimes they'll have things so locked up tight it makes it difficult to do the format changes.” (Focus group participant, AHEAD conference)

In recent years, ebooks have been gaining in popularity in academic library collections and for course adoption. Ebooks might seem to obviate the problems described above. The recently released EPub3 standard offers publishers a much improved format in which to create accessible ebooks, but adoption is still in progress and the format by itself does not guarantee accessibility. At present, practitioners agree that ebooks are not yet a uniform solution to the basic accessibility problem:

“I keep telling faculty, e-book does not mean accessible book.”

“In some way that's a bigger issue for us than physical books. Physical books I can always scan. E-books, not accessible....Nothing you can do.” (Two focus group participants, AHEAD conference)

Practitioners in the field sometimes seem resigned to this state of affairs, but librarians might bring a different perspective to conversations with publishers. Importantly, some universities (like Northern Arizona University and George Mason University) have begun including accessibility requirements in their procurement policies, including those applied by the library in its purchasing of electronic resources.

However, it is worth noting that the most difficult cases, in the end, will involve small publishers, including smaller scholarly societies, who will not have the staff or the resources to respond to accessibility requirements.

Fear of Publishers

The materials provided by publishers in response to requests on behalf of campus accessibility staff come with terms of agreement. Those terms often require the Institution of Higher Education (IHE) to sign a license that only permits the IHE to share the materials with one student and ask for subsequent permissions for each share/use. We found in our focus group conversations that there was widespread anxiety among campus accessibility professionals about any dealings with publishers. We heard many examples of campus staff asking permission when none was legally required, and waiting for unnecessary permission when none was forthcoming. Fear of retaliation (e.g., shutting down a service) or legal action was often cited as a reason that university staff don't keep materials for future use or share across institutions. Some have been told by risk-averse University Counsels that they cannot sign the Access Text Network membership agreement, and that if a publisher declines a request for accessible text, campus staff are forbidden from digitizing from hard copy. Extreme caution about violating publishers' rights is also reflected in staff workflows and in the manner in which learning materials are provided to the student:

“Every file I release goes with almost like a copyright warning, saying: you aren't allowed to share these files, you're receiving these files because of the need for alternate text format, you're not allowed to share them with anybody, and they must be destroyed or returned at the end of the semester. [Then] we track everything so every file that was released to a student is tracked in spreadsheets of when they requested it, what version or what format they want it in, when we requested it from a publisher or from like Access Text or something like that, when we receive it, when we receive the receipt [i.e. proof of purchase], then when we release it to the student and when we retrieve it from the student. (Focus group participant, AHEAD Conference)

Publishers may prey on this fear: for example, we heard from more than one focus group participant the opinion that captioning a film without the publisher's permission constitutes copyright violation. One participant noted that when her institution had asked for permission to caption a video, the publisher granted permission on the condition that the IHE provide a captioned copy back to the publisher. While that might be laudable if the publisher were to redistribute that captioned copy, other focus group participants reported that publishers with captioned content would often provide uncaptioned versions instead. In any case, the publisher's requirement in this scenario could raise issues at many public universities around gifting state funds to private entities. Depositing that state-captioned version in a shared repository would not raise those issues.

Micro-Publishing, Supplementary Online Materials, and Accessibility

Increasingly, the first challenge faced by campus accessibility professionals is the most difficult: determining the exact title, edition, and extent of an assigned reading. Publishers of textbooks now often create custom compilations with individual ISBNs, a practice which decreases the likelihood of finding the

right item when trying to associate a title with an ISBN, or use a known ISBN to search. A version of the same problem is created when new editions are created by the alteration or addition of a small amount of content, or by changes that only affect online supplementary materials. For simplicity's sake, faculty may regularly require the latest edition, whereupon—though it is entirely possible that the text-block of the book itself is unchanged—accessibility staff will start the process of requesting permission anew, even if they have in hand what's actually needed.

"I'm seeing more of the custom editions where folks are electing to cut out certain portions to lower the cost and it's actually not always helpful in terms of work that needs to be done to ensure we have a variety of formats... you have to do more leg work comparing editions to see what's different, what's the same, and a related challenge to that is the rapid turnover of new editions. ...A lot of the content is the same but [changes are] just in these little spots and it's hard to find those little spots to be able to retain the original and only make those changes." (Focus group participant, AHEAD conference)

Supplementary online materials come with their own, often unsolvable, accessibility issues. These are the online quizzes, study guides, 3D models, animations, short videos, and interactive material that are stored remotely, accessed by individual student license code (with no institutional license offered), and unavailable for remediation, through the publisher or otherwise. Even were they available to accessibility staff, these online materials come in some of the most irremediable information formats. Unfortunately, some (like online quizzes or study guides) may be critical to student success. Libraries that try to alleviate a different kind of access issue—affordability—will be familiar with some of the issues here, based upon their experience trying to put textbooks on reserve in a way that meets actual student need.

"What used to be the supplement is now the center...All the ancillary products, all the things that aren't fixed, printed materials are becoming very important ... and those are pre-packaged, pre-programmed and almost impossible to manipulate. They either have accessibility built in or they don't." (Focus group participant, AHEAD conference)

The cumulative effect of these publisher practices creates specific burdens for students with disabilities and the school DRS staff attempting to support them. There seems to be little incentive for publishers to change their behavior, except perhaps in the case of university presses. And if publisher practice doesn't change, the only recourse for IHEs is to attempt to find their own efficiencies through sharing.

5. Cost of the Problem

Over the years, many projects looking at accessible course materials, including the AIM Commission, have attempted to quantify the overall cost associated with the current ways IHEs create and distribute these materials. However, what quickly becomes apparent is that it is extremely difficult to estimate the current costs due to the significant variations in the way this process is implemented around the country. Some institutions create their own accessible course materials and others rely on outside vendors to remediate content for them. The differences in cost between in-house production and contracting out the work also vary greatly. Schools that produce materials in-house may rely solely on paid student workers, use only

professional staff, or depend on a combination of the two. Each of these approaches comes with different costs and benefits.

It seems as though, for those who use third party vendors, the costs should be easier to assess. However, any investigation of the rates charged by these vendors yields a range of costs, with prices that change based upon the content of the material and the desired format for accessibility. One major vendor lists rates that range between \$.08 and \$.37 per page depending upon the requested format and the complexity of the content. Braille production by third party vendors can be between \$4 and \$7 per page. Given the lengthy nature of textbooks, this can regularly cost more than \$1,000 for a book. It is also very typical for third party vendors not to provide a standard rate but to work on a “quote” basis. In those cases, the cost is not evident until the vendor looks at the materials and then provides a tailored quote. Focus group participants mentioned that they have seen their schools spend from \$20,000 to \$50,000 for a single brailled textbook.

The use of video and multimedia content in courses is now standard practice. To make sure these materials are accessible, institutions will often need to add captioning for deaf/hard of hearing students and potentially described narration for students who are blind or visually impaired. Described narration entails creating a separate audio track that is synchronized to the video and describes what is being depicted on the screen. Once again, estimating costs for these services can be difficult. Third party vendor rates for captioning range from \$1 per minute up to \$3.50 per minute (i.e. \$90 to \$315 for a 90 minute feature), and this is dependent upon whether a transcript of the video can be provided to the vendor. Most vendors include an additional charge if they are tasked with creating the transcript and not just producing a caption file from a transcript they have received. Described narration is normally done on a quote basis and generally costs between \$500 and \$700 per hour of material.

One example we are aware of is a state institution with a population of 28,000 students. This institution uses a mixture of full time staff, student workers, and third party vendors, remediating on average 1,200 print items as well as captioning 1,500 multimedia items per year. In total, the annual budget for these processes (excluding braille production, which varies significantly from year to year) is around \$100,000 for this single university.

The California Community Colleges are a rare exception, in that they are handling this work as a state-wide system (although this approach does not extend to the other UC systems). During the course of our focus groups, we heard from a few regions that there was discussion of a possible state-based collaboration. It is clear to many schools that finding a way to create some efficiencies and control some costs is vital.

We are unable to provide a realistic estimate of the costs currently spent to provide accessible instructional materials to students with disabilities. With more than 6,000 institutions of higher education in the US, however, it is possible for us to conclude that this is a multi-million dollar effort. The creation of new sharing mechanisms for IHEs will not eliminate all costs, but we are convinced that attempting to reduce these costs will have a major return on investment for individual IHEs and higher education as a whole.

6. Why Aren't Libraries Involved?

One of the more striking observations to emerge from our research is the recognition that academic libraries are surprisingly absent from the provision of accessible course materials. This finding is remarkable, given the academic library's role to provide the information required to achieve the teaching and learning mission of higher education. Libraries have a longstanding and famous tradition of striving to provide *any* learning or scholarly resource. Libraries are often highly attentive to campus constituents with specialized needs. However, the library's customary high-level of engagement with campus constituents is generally not in evidence with respect to students with disabilities. It's natural to wonder why this would be the case.

We see several reasons why libraries are not actively involved in this important set of activities. To begin with, the nature of their mission and time-scales in which they operate—providing information to everyone on campus and maintaining information permanently—make academic libraries orient their planning at an institutional scale. Libraries prioritize services and solutions that are applicable to the broadest number possible, and emphasize reliable processes that can be sustained consistently over long periods of time. Also, libraries know that students are heavy users of the library's physical space, and so may expect that students will use materials in the library or will learn its online interfaces and adapt to its particular procedures. In contrast, DRS staff focus on adapting products to the particular needs of relatively few individuals, and these products only need to be viable for a brief period of time.

Additionally, many of the resources students need remediated are textbooks. Although there are increasing calls to change this practice, academic libraries have had a longstanding reluctance to include textbooks in their collections. Textbooks, traditionally the role of the college bookstore, are thought to be something students provide for themselves. They are not seen as crucial scholarly works or key primary sources—seldom containing ground-breaking research, for example—and so do not add much to the glory of the library collection. Moreover, providing textbooks is challenging financially and logistically: there are a lot of textbooks—almost as many as an institution has courses; they cost a lot, as any student knows; many copies are needed at once; they are updated frequently by publishers; professors change them regularly; and they get heavy use.

At the same time, the work of making materials accessible does not “feel” like traditional library work. The processes involved in reformatting a textbook to make it usable by a student with a visual disability, for instance, involve OCR, editing, and reformatting. They involve, in other words, changing the original work. Libraries often consider themselves conduits for published materials, dealing mainly in the provision of materials that are created, edited, and published by others. They make things available, preserve them, restore them occasionally, but do not alter them. That is the work of the author and the publisher, from whom libraries have historically seen themselves as distinct.

Furthermore, there is the banal, but real question of basic return on investment. In the current environment, when the overall costs of providing scholarly resources have, for decades, increased at a rate drastically above inflation, libraries are forced to be extremely judicious about how they spend the funds allotted to collection development. In that context it's not surprising libraries might hesitate to invest in textbooks or in the costly labor required to provide a single resource that may only be used once by one student.

Finally, in part because libraries have not traditionally been a part of the student services world, they are largely now excluded it. As a result, information the institution has about individual student characteristics (i.e. things their advisor, professors, or dorm counselor might know about given students and their needs) is not shared with the library. Even if libraries sought to provide accessible library materials to students, they may not know who would need those materials and in which formats. From the point of view of privacy and confidentiality, this is appropriate, but it makes implementing new services difficult. Before the library can effectively participate in designing new services to improve accessibility, they will need to be considered a part of the select group of professionals now supporting students with special needs.

7. Why Should Libraries Be Involved?

Although there are several reasons libraries have not yet begun providing accessible course materials along with the myriad of other materials they routinely make available, none of these reasons leads us to believe libraries cannot adapt moving forwards. Many libraries are now reconsidering the textbook ban; popular library programs like makerspaces show that libraries can support creation and alteration as well as consumption of information; library publishing is increasingly common in academic research libraries; and a variety of creative and responsive services from laptop loaning to therapy dogs show that academic libraries today are capable of being responsive to student need. It is good to remember that certain library services—such as individualized research support—have always been tailored to the needs of the particular student or scholar.

The library is one of the five pillars of an educational institution, and if a student with a print disability does not have access to library materials, they cannot ultimately be a successful student. They might get through but they are not going to have the full educational and instructional experience that they should. They can't do research, they can't -- you know, so having access to the library is just as critical as having access to the textbook materials." (Focus group participant, AHEAD conference)

In section 6, we mentioned the difference between the missions of the disability resources and services department—focusing on individual access to particular items—and the Library—focusing on broad access to the widest breadth of materials available. We saw the difference in missions as one of the reasons libraries have been so little involved in the provision of accessible course materials. But this same library mission—to provide everything to all who need it—is of course, at the same time, an argument for libraries being involved. Bearing in mind the core principle of Universal Design—that making things accessible for those who need help makes them more accessible for everyone—one could say that only by investing in accessible content can libraries really ensure they are doing the best they can towards their broader goals of providing scholarly materials to all.

Libraries have particular kinds of expertise that give them a special advantage in providing accessible course materials. They have worked closely with publishers for years, and their collective buying power gives them the kind of leverage that could make publishers take the creation of born-accessible materials seriously. Focus group participants brought up the library's role in purchasing, especially for the thorny topic of journal articles.

Bearing in mind the core principle of Universal Design—that making things accessible for those who need help makes them more accessible for everyone—one could say that only by investing in accessible content can libraries really ensure they are doing the best they can towards their broader goals of providing scholarly materials to all.

Libraries also have mastered the art of collaboration: for decades, libraries have pooled their resources, shared expertise, mitigated risk, furthered professional development, and tackled ambitious projects through the formation of a variety of regional, national, and international consortia. In the case of the HathiTrust, which grew to hold 13 million volumes in six years, we see the power of a successful library consortium in efficiently making scholarly materials available. The HathiTrust is an excellent example of how consortia of libraries are well-equipped to handle materials at scale. This is a particularly important point, because it is *at scale* that the provision of course materials finds a workable solution—when all institutions of higher education can benefit

from, and not have to recreate, the hard work one institution does in rendering a particular course's material accessible. Make no mistake, the size of the repository will undoubtedly be very large. One focus group respondent referred to the "couple terabyte NAS device" they used to store captioned video alone. Multiply this by the variety of media available and the number of institutions required to provide accessible materials, and you can get a sense of the vast scope of any national repository of course materials.

In addition to their consortial aptitude and fluency with large collections, libraries are experts in another area absolutely critical to the formation of any repository of accessible course materials: metadata. Managing the metadata—the data collected about the object that serve to identify it and make it findable—will be crucial in a repository that needs to efficiently track multiple versions of any scholarly work (potentially a different version to serve each type of disability). Libraries have, of course, managed metadata from their beginnings, evolving new methods and systems as materials, formats, and means of distribution have changed over time. In the case of accessible instructional materials, we have two types of metadata to manage: the internal metadata of the document, describing the structure of the content (similar to XML), and the metadata that describes the file and its accessibility features (similar to a catalog record).

The work of making course materials accessible is not that far removed from certain mainstays of ordinary library activity. Over the last thirty years, for instance, libraries have mastered the art and science of digitization. From small local projects, to the vast scale of the HathiTrust, libraries have responded to the affordances of the digital age by digitizing and making available online millions of volumes of rare and inaccessible materials. In its essence, the challenge of making course materials accessible is simply

another sort of digitization and distribution challenge of the kind libraries have expertly handled for decades.

Providing accessible course materials is also closely related to another core service of the academic library: course reserves. The course reserves model began as a way to make a limited number of physical course materials available to a large number of students, organizing the materials by course and managing a special check-out service of limited duration. Over the years, course reserves evolved to include digital materials as well. Digital course materials are now regularly made available for students enrolled in courses through online interfaces such as Course Management Systems. Providing accessible course materials to the appropriate students could be seen as a simple refinement or enhancement of this successful service.

The principles of universal design lend themselves easily to the ethos of libraries. Many services of libraries are designed to be applicable to multiple populations and circumstances. Universal design is an approach to designing a product or environment that prioritizes making it usable for as broad an audience as possible. A classic example of universal design is the automatic sliding doors at a grocery or airport. The doors perceive a body moving toward them and open without requiring physical interaction. The doors are not only helpful when carrying groceries or wheeling luggage, but also when pushing a baby stroller or using a wheelchair. In a library environment, we emphasize access to broad quantities of content. The first principle in the Code of Ethics of the American Library Association states “We provide the highest level of service to all library users through appropriate and usefully organized resources; equitable service policies; equitable access; and accurate, unbiased, and courteous responses to all requests.” Thus, in a significant way, improving the access of students with disabilities to the academic content for their courses is a vital way to meet a core value.

Files that are accessible for students with disabilities may also prove very effective and useful for other purposes. For example, digitized texts might be studied in additional ways, as is done through the HathiTrust Research Center. Captioned videos might be searched to find a clip or used in environments that are not conducive to sound (e.g. watching a video presentation on a commuter train). Beyond any legal obligation to provide accommodation, academic institutions have the opportunity to unlock additional opportunities for academic study with content that has been reformatted.

8. What to Do: Next Steps

Throughout our study, we have found it very easy to critique the systems and environments in this landscape. However, constructing scalable solutions and actionable steps is much more challenging. Whether modest or radical, we propose the following steps for various stakeholders.

8.1 Libraries

- A. Library directors and deans must prioritize education about issues of accessibility on campus as well as in relation to libraries, library collections, and library expertise. Required reading should include the AIM Commission Report, the Dear Colleague letter and FAQ, and several of the settlement agreements. Talking to students with disabilities on campus and learning about their experiences in the library is vital research and outreach to perform.
- B. Libraries should pursue a consortial approach to addressing accessibility issues wherever possible and proactively construct collaborative infrastructure to better serve students. If we are

successful in standing up infrastructure, such as a secure repository, the long-term viability of such an effort will depend in significant measure on how libraries choose to rank this work with respect to other priorities.

- C. Libraries should lead the way on their campuses, when it comes to making accessibility a non-negotiable requirement in the procurement of information resources and technologies.
- D. Libraries typically lack a certain level of expertise regarding accessibility, given that there is a designated office for university services for students with disabilities. Libraries need to be more proactive in this sphere. The library needs a relationship with the disabilities services office, just as it frequently has with the writing center or other student support programs. Locally, libraries should seek interaction with the office(s) or unit(s) providing accessibility services at their institution. See Appendix A for suggested questions and discussion topics for jumpstarting this partnership.
- E. As a context for moving forward with the above steps, libraries must also deliberate internally about their role and mission on their campus. Given the scarcity of resources and abundance of ambitions in academic libraries, extensive collaboration with disability services introduces new costs and demands on the library. These are university-wide concerns, needing attention from many units and departments.
- F. Libraries should conduct an accessibility audit of their library services and then devise a strategy for addressing weaknesses and opportunities based on the local environment(s) and context(s). See Appendix B for resources to support an audit and suggested tangible steps a typical library could take to improve accessibility.
- G. Libraries need to put pressure on library schools to prepare students properly for these issues and this work. (Computer science and informatics programs should do this too.)
- H. Libraries should create apprentice opportunities for library school students to learn about accessibility in action. The creation of service-based learning or other hands-on experiences may be the best teacher.

8.2 Publishers

- A. Publishers, especially textbook and academic publishers, have the ability to make a significant difference for students with disabilities, and need to keep in mind that this represents more than 10% of the student market, and growing. A formative step that publishers can take—even without changing their current practices—is to publicly recognize the obligation that IHEs have to provide accessible versions of materials to students with disabilities. A statement by a publisher acknowledging this work by IHEs would calm fears at institutions that publishers will take legal action, and would build some trust where it is badly needed.
- B. Publishers should familiarize themselves with the *BISG Guide to Accessible Publishing* (see Section 2.3 above), implement its recommendations, and make accessibility another core factor of the publishing process. Publications that are accessible, especially in the academic market, ensure that the full customer base can actually *use* the product.
- C. The majority of publishers already require authors to submit manuscripts in digital form according to a style guide. Publishers prepare digital pre-press files, so they should make the most accessible of these file formats available to DRS. The currently common practice of providing schools with “fixed” or even “locked” PDFs is counterproductive. Doing so as a response to an accessibility

request is obstructionist and perverse. In many cases schools *must* create manipulable and formatted files in order to meet student need.

- D. Publisher members of AccessText Network should change the membership agreement terms, particularly these two elements:
 - a. Remove the requirement that schools request permission for each time a text is needed or used. Specify instead that schools are expected to retain a copy of the file and may continue to reuse it for other students with qualifying disabilities.
 - b. Specify that schools may share their accessible copies with other IHEs for authorized students with qualifying disabilities.
- E. Publishers need to make online supplementary materials accessible, or at the very least provide source files to campus accessibility staff and allow them to try.
- F. Micropublishing should be discouraged as inherently unfriendly to accessibility, unless publishers make accessible versions of new sections, apart from the whole, readily available for users with demonstrated need

8.3 Universities

- A. University administration should support and encourage collaboration between the disability resources and services departments and the library and information technology divisions.
- B. University senior administration has an opportunity to shift the culture of the institution regarding disability. Beyond the moral and legal obligation to support students with disabilities, universities that are proactive with respect to universal design have the chance to innovate in educational effectiveness and potentially unlock new pedagogy and technology to advance scholarship *and* enhance student success. This is unlikely to happen at any school that is simply reactive and minimally compliant regarding accommodation requests.
- C. Engage legal counsel in discussion of balancing risks of copyright compliance and ADA compliance.
- D. As a general policy, do not require students to buy inaccessible content unless that copy is necessary to create the accessible version.
- E. Encourage and support the sharing of effort across the landscape of higher education in the United States. As we have learned in the library environment through our programs of cooperative cataloging, scalable collaboration and sharing are possible and ultimately massively efficient, but it can be cumbersome and slow to catch on.

9. Closing

The investigation that resulted in this white paper was very specific in focus. It was driven by a single question: would repository services be an effective way to assist IHEs with providing accessible instructional materials to students with disabilities? The investigation led to a much broader educational process, a recognition of our own systemic ignorance, and a vision for more comprehensive improvements. Through partnership and collaboration with experts in disability services, the librarian authors of this paper have come to a deeper understanding of and commitment to services for students needing accommodations. It has been a humbling process.

The needs of students with disabilities can seem daunting at times. University colleagues in disability services manage a widely varying set of requests and demands. Librarians often complain about how hard it is to process course reserve requests, but this is child's play in comparison to the time pressures and

consequences borne by DRS. Our planning study accomplished several things, but the most important is its confirmation that:

1. The challenges faced by DRS staff in delivering accessible instructional materials are real, systemic, and costly;
2. As DRS staff accomplish their mission of accommodations for students, they are isolated by institution, which results in the duplication of effort across higher education and the creation of significant caches of digital content that are relatively unmanaged and insufficiently leveraged;
3. Academic librarians are well equipped to support the work of DRS through collaboration on digitization, metadata, standards development, and storage;
4. Students with disabilities are on all of our campuses, their number is increasing, and they need proactive attention from many areas of the university, certainly including the library.

These statements combined indicate a clear opportunity for libraries and librarians to commit new energy and resources to serving this population and addressing a range of concerns. Much has been written on the evolving roles of the library in the 21st century. Here is an area where libraries can and should have immediate impact on the success of our students and contribute to the core mission of the university. There are many ways to help, so it is time to roll up our sleeves.

10. Acknowledgements

This white paper was created as a product of an Institute of Museum and Library Services (IMLS) planning grant, "Repository Services for Accessible Course Content." Our work would not have been possible without this grant as well as the generous support, commitment, knowledge, insights, feedback, enthusiasm, and contributions of many others, including the following:

Our Advisory Committee: Prudence S. Adler, Associate Executive Director, Federal Relations and Information Policy, Association of Research Libraries (ARL); Jack Bernard, Esq., Associate General Counsel, University of Michigan; Lou Ann Blake, Deputy Director, National Federation of the Blind; Karen Keninger, Director, National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress; Mark Riccobono, President, National Federation of the Blind; Robin Seaman, Director of Content Acquisition, Benetech;

AHEAD: especially Stephan J. Smith, Executive Director; Richard Allegra, Associate Director Education and Outreach Services, National Center for Students with Disabilities; AHEAD Conference 2015 focus group participants and conference attendees; ACS Captions – Jack Nunn and staff;

Conversation Partners and AIM experts: Angela Anderson, Disability Specialist, Alternate Format Production, University of Illinois, Urbana-Champaign; Gaier Dietrich, Director, High Tech Center Training Unit, California Community Colleges; Elizabeth Dupuis, Associate University Librarian, Educational Initiatives & User Services, University of California, Berkeley; Katya Pereyaslavskaya, Project Manager, Ontario Council of University Libraries; Ann Snowman, Head of Access Services and User Services Training Program, PennState University Libraries; Carli Spina, Head Librarian, Assessment and Outreach, Boston College Libraries Ron Stewart, Consultant, AltFormat Solutions; .

University of Illinois at Urbana-Champaign Staff and Graduate Students: Megan Finn Senseney, Research Scientist, Center for Informatics Research in Science and Scholarship, Graduate School of Library and Information Science (GSLIS); Nushrat Jahan Khan, Graduate Student, GSLIS, for her IRB application work

and co-formulation and synthesis of the AHEAD conference focus group questions and other materials; and, especially, Katrina Fenlon, PH.D. candidate, GSLIS, for her facilitation of the AHEAD focus groups and leadership in coding and content analysis and writing “Toward Accessible Course Content: Challenges and Opportunities for Libraries and Information Systems;”

CNI: Clifford A. Lynch, Executive Director; Joan K. Lippincott, Associate Executive Director; Jackie Eudell, Office Manager; and Maurice-Angelo Cruz for allowing us, in tandem with the Fall CNI meetings, to use meeting space, as well as for handling logistics for catering and AV services with great grace and responsiveness for our multi-group working meetings in December 2015 and 2016;

Our December 2015 Meeting Working Group Partners: Holly Anderson, U.S. Department of Education (DOE); Brett Bobley, Chief Information Officer, Director, Office of Digital Humanities, National Endowment for the Humanities; Helen Cullyer, Executive Director of the Society for Classical Studies, The Andrew W. Mellon Foundation; Paul Fontaine, Assistive Technology and E-Text Coordinator Disability Support Services, The Catholic University of America; Caroline Jackson, Esq., Staff Attorney, National Association of the Deaf Law and Advocacy Center (NAD); Bill Kasdorf, Vice President & Principal Consultant, Content & Media Solutions, Apex CoVantage; Mark H. Leddy, PhD, Program Director, Division of Human Resource Development (HRD), Directorate for Education and Human Resources (EHR), National Science Foundation (NSF); Charles Watkinson, Director, University of Michigan Press; and Advisory Committee members, Lou Ann Blake, Prue Adler, Karen Keninger, and Robin Seaman;

Our Accessible Course Content Pilot Kickoff Meeting Partners: John G Zenelis, Dean of Libraries and University Librarian, University Libraries, George Mason University; Wally Grotophorst, Associate University Librarian for Digital Programs & Systems, University Libraries, George Mason University; Korey J. Singleton, Manager, Assistive Technology Initiative, Compliance, Diversity and Ethics, George Mason University; Damon Burke, Digital Media Technologist, Cline Library, Northern Arizona University; Dave H. Carlson, Dean of University Libraries, Texas A&M; Beth German, Assistant Professor, Libraries, Texas A&M; Kristie Orr, Director, Disability Services, Texas A&M; Kirsten Behling, Director of Student Accessibility Services, Tufts University; Jeff MacKie-Mason, University Librarian, Chief Digital Scholarship Officer, Professor, School of Information and Professor of Economics, University of California Berkeley; Erik Mitchell, Associate University Librarian, University of California Berkeley; Jennifer Dorner, Head, Instruction Services Division, Librarian for History & History of Science, University of California Berkeley; Beth Sandore Namachchivaya, Associate University Librarian for Research, Associate Dean of Libraries, Professor, University of Illinois Urbana-Champaign; Barbara Zunder, Director, Student Disability Access Center, University of Virginia; Lori Kressin, Coordinator of Academic Accessibility, University of Virginia; Ed Van Gemert, Vice Provost for Libraries and University Librarian, University of Wisconsin Madison; Todd Schwanke, Assistant Director, Adaptive Technology Services, McBurney Disability Resource Center, University of Wisconsin Madison; and Prue Adler, Association of Research Libraries;

The HathiTrust Digital Library and the HathiTrust Research Center, including their boards and advisors;

Tufts University A&S Research Affairs Office, especially Jackie Dejean, Director; and the Office of Sponsored Programs Accounting, especially, Susan Morrison, Senior Associate Director, and Elizabeth Gelzinis, Senior Post-Award Financial Specialist;

And most importantly, we thank Harriet Chenkin, Administrative Assistant at Tisch Library, Tufts University, for her unflagging energy, ideas, attention to detail, and logistical brilliance.

Appendix A: Discussion Suggestions for Libraries and DRS

Libraries and disability resources and services (DRS) ought to understand their potentially overlapping interests, services and workflows. If you are unsure of where to start in building a stronger relationship on your campus, we offer suggested questions and discussion topics:

1. Student Needs
 - a. What should the library know about the current student body with respect to disabilities?
 - b. Are there particular trends, challenges, or major challenges that DRS is working on that would help the library understand our local needs and context?
 - c. Is there software that can be licensed and provided in the library for students with disabilities?
2. Digitized Content
 - a. Are we creating accessible files when the libraries digitize content?
 - b. Do we use Optical Character Recognition when we scan content?
 - c. Do we have a process to ensure proper reading order?
 - d. Do we have a process for ensuring proper tagging of files stored in PDF format?
 - e. Do we have a process for ensuring that pictures have alternative text equivalents? If the contents of the picture convey important information, do we provide long descriptions?
 - f. Do we have a process for ensuring graphs and charts are presented in an accessible way?
3. Course Reserves and Document Delivery
 - a. Who is responsible for the accessibility of course reserves and document delivery?
 - b. Do we have a process to make course reserves available in an accessible format?
 - c. Are course reserves accessible from the start or are they remediated upon request?
 - d. Is that process timely? (Does the student have the materials when everyone else does or do they need to wait for them?)
 - e. Do we have a process for ensuring accessibility for ILL and/or document delivery?
 - f. To what extent can the library address accessibility so that further DRS remediation isn't necessary? Under what circumstances will DRS involvement be needed?
4. Physical volumes in the library collection
 - a. Who is responsible for the accessibility of physical volumes in the library?
 - b. Do we have a process for providing accessible electronic versions if a student needs it?
 - c. Is the process timely?
 - d. Do we provide live readers in the library if necessary?
5. Are the electronic catalog systems and licensed resources we use accessible?
 - a. Do they meet the accessibility standard chosen by our institution (i.e. WCAG 2.0 AA, Sec 508)?
 - b. Do we have a process for evaluating accessibility during license negotiation?
 - c. Does our institution's model license include language regarding accessibility standards?
 - d. If a platform is deemed inaccessible, do we have a process for assisting students?
6. Training
 - a. If our staff is not trained on creating accessible content, can we work together to provide training?
 - b. If the DRS staff has expertise, can they train library staff?
 - c. How can library staff help DRS staff improve the way materials are stored and distributed?

Appendix B: Library Accessibility Assessment Resources

Many institutions will conduct a formal accessibility audit, typically using 3rd party expertise from outside the institution and managed by senior administration. If such a process is not occurring at the university or school level, a library can benefit from familiarity with best practices through a more informal evaluation. Through this process, libraries can prioritize future action for improving the libraries' facilities, services, and procurement processes. What follows are suggested considerations and resources for getting started with assessing (or auditing) your library's accessibility.

General environment and culture

How many staff members see how their work is connected to the accessibility of the library? How aware are staff of the challenges facing the students with disabilities on your campus? Do staff recognize that they may not be able to detect visually that an accommodation is required? Will staff be appropriately sensitive to the needs of users? Can accessibility concerns be addressed as part of existing services and workflows rather than separately? To what extent can the library be more proactive—anticipating needs of students—rather than reactive? By considering these and similar questions, needs for broad or targeted training, policy modification or creation, and self-reflection may surface.

Licensing

It can be hard to estimate how many existing licenses are covered by statements about accessibility. The currently available model licenses often have an accessibility statement, but that statement can vary greatly in its strength. Some vendors will provide a Voluntary Product Accessibility Template (VPAT), but these can be of limited value. The act of providing a VPAT is not enough to demonstrate that a given resource is actually fully accessible, or even mostly accessible, as it is acceptable to complete a VPAT with several fields indicating that a given function is *not* accessible, or is under consideration. There is no mechanism to indicate if a particular VPAT is particularly strong or not, most of the model licenses are simply asking to indicate the presence or absence of a VPAT. Furthermore, simply stating compliance on a particular line in a VPAT has not necessarily proven to be true. A 2015 study looking into how accurate self-reported VPATs were found 94% of the VPATs reviewed had errors or discrepancies between what was reported and what testing showed.³⁴ Therefore, checking licenses for accessibility statements is only a starting point. There is reason to believe that the consolidation among the major publishers and library vendors has led to widespread understanding of the major issues in accessibility of platforms and resources. However, libraries must follow-up with actual testing and continued inquiries to vendors. Any promises of accessibility features must be pursued and checked for compliance. The more libraries can do this work through consortia and other partnerships, the greater the pressure on vendors to comply with accessibility standards.

Public computing and technology

Whether computers in the library are managed by a separate IT department or the library itself, the library must consider the available equipment and software in light of the potential needs for accessibility. Is screen reader software a standard part of the software suite? Can students borrow head phones or use speech features without disturbing others? Is there additional equipment that could

³⁴ Laura DeLancey, "Assessing the Accuracy of Vendor-supplied Accessibility Documentation," *Library Hi Tech* 33, 1 (2015): 103-113.

complement the accommodation strategies used by disability resources and services? When the library invests in new technology, is there a process for evaluating the products for accessibility? Library policies, procedures, and software should harmonize with what is done elsewhere on campus to make it easier for patrons to predict what resources and services will be available. Clearance and height of hardware and furniture should be checked against state standards. A minimum set of software for accessibility should be made available to students, which might include screen reading, enlargement of hard copy documents, screen reading of e-texts, screen reading of mathematics, and DAISY reading.

Web and discovery platforms

The library's website should adhere to the institution's accessibility standard. If one is not established, then WCAG 2.0 level AA is a good target. The library can set these standards as a requirement in the RFP process for design and technical support firms. This best practices model can and should be extended to include other library subscribed web-based platforms and services. Does the institution have any resources for evaluating existing and future systems for discovery and display of information (ex.: research guide platforms, ILMS, etc.)? If not, how can the library begin to include these evaluations as a part of an investigation of products?

Teaching and Consultation Services

The accessibility of course materials extends to the materials provided by librarians. Do librarians teaching workshops, embedded in courses, or providing instruction in any form know how to use universal design principles to ensure their materials are accessible for students? Does your library have templates for standard file formats so that new content can be created that is accessible? Some librarians, in a desire to try the latest technologies may inadvertently create burdens and barriers for students. For example, Prezi may create accessibility challenges that can be avoided with PowerPoint. Adding accessibility standards to library presentations, handouts, and teaching tools may change the way we consider adopting new tools. The growth of this awareness within the library community may, in turn, empower the librarians to serve as ambassadors for students with disabilities, sharing this awareness with faculty and other campus partners as we do our work. Librarians are in a particularly good position to model practice for faculty and other community members, especially if we embrace goals for universal design.

Physical environment

When was your building constructed? Last renovated in a significant way? The ADA was enacted in 1990, so earlier construction may not be compliant with today's code. Even if a building is compliant, that doesn't mean the building is easy to navigate. There is a difference between being technically compliant and being fully accessible. Some buildings present major and expensive challenges for accessibility that require significant advocacy to secure the necessary resources. But in other cases, small changes can make a facility substantially more accommodating for students, faculty and staff—including library staff themselves—to use and enjoy. For example, door buttons are less common in older buildings. Can they be added in strategic areas? Similarly, swapping the design of faucet or door hardware for a different model/type may provide greater accessibility to an individual in your library.

Other Services

Most libraries will happily page materials for individuals with disabilities. But numerous other services deserve consideration. If a student with a disability makes an ILL request for a journal article, shouldn't the library be able to deliver that file as an accessible PDF, rather than a PDF that is a simple image file?

Can your self-service scanning equipment provide audio output? Can streaming video services provide captioned options? These are just a few examples of questions and considerations for a library.

Additional Resources

The Arizona State University Accessibility Guide

<http://onlinestudio.asu.edu/wp-content/uploads/2015/07/Final-Acessibility-Guide.pdf>) ASU provides brief tips and links to further resources that can assist faculty and librarians in ensuring that any learning materials are accessible.

Association of Research Libraries Web Accessibility Toolkit

<http://accessibility.arl.org/> The toolkit is designed to promote the principles of accessibility, universal design, and digital inclusion; help research libraries achieve digital accessibility; and connect research libraries with the tools, people, and examples they need to provide accessible digital content.

Best Practices for Ensuring Accessibility in Hybrid and Online Courses

<http://accessinghigherground.org/wp/wp-content/uploads/2015/04/Best-Practice-Checklist-for-Hybrid-Accessibility.pdf> This sample from Suffolk University is directed at faculty but includes numerous practices of relevance to librarians who prepare materials and/or collaborate with faculty.

The Center for Universal Design in Education

<http://www.washington.edu/doit/programs/center-universal-design-education/overview> The CUDE provides information to introduce universal design concepts and applications. One section is specifically devoted to resources for postsecondary education.

EDUCAUSE IT Accessibility Risk Statements and Evidence

<https://library.educause.edu/~media/files/library/2015/7/accessrisk15-pdf.pdf> Created by the EDUCAUSE IT Accessibility Constituent Group, this document helps identify accessibility risks that IT leaders should consider in their risk management process. EDUCAUSE also maintains a wiki for accessibility. <https://sites.google.com/a/educause.edu/educause-wiki-site/home/accessibility-home> The IT Accessibility FAQ, links to video examples, and “Top 10 Things CIOs Need to Know About Accessibility” pages are just some of the valuable information found in the wiki.

GOALS Blueprint for Institutional Web Accessibility

<http://www.ncdae.org/goals/blueprint.php> This Blueprint from the National Center on Disability and Access to Education (NCDAE) is designed to guide you through several key phases of implementing institutional accessibility: gaining support from administration, engaging in institutional self-study, benchmarking and planning, reporting and providing recommendations, and finally making accessibility improvements at your institution. While geared towards an institution as a whole, it is also helpful for thinking about a major university unit, such as the library, and provides an iterative process for improvement.

Higher Ed Accessibility Lawsuits, Complaints, and Settlements

<http://www.d.umn.edu/~lcarlson/atteam/lawsuits.html> Laura L. Carlson at the University of Minnesota, Duluth maintains this resource, providing links to relevant documentation for various postsecondary school cases and resolutions. It is a handy compendium.

Massachusetts Facility Assessment Tool

<http://www.mass.gov/eohhs/docs/dph/health-equity/massachusetts-facility-assessment-tool.pdf> Each state maintains guidance for compliance with facilities. This is one example from Massachusetts. This particular guide is not comprehensive, but does provide insight into the specifications of many ADA regulations pertaining to buildings.

Professional Development

Some national resources for increasing expertise and awareness include: Accessing Higher Ground (<http://accessinghigherground.org/>), AHEAD (<https://www.ahead.org/>), the Center on Postsecondary Education and Disability (<http://cped.uconn.edu/>), the National Center on Disability and Access to Education (<http://www.ncdae.org/>) and WebAIM (<http://webaim.org/>). In addition to online and in-person training events, these organizations host a growing array of resources of use to libraries. A growing number of library organizations are also providing opportunities.

Report of the ARL Joint Task Force on Services to Patrons with Print Disabilities

<http://www.arl.org/storage/documents/publications/print-disabilities-tfreport02nov12.pdf> Though focused on research libraries, this report includes excellent information for academic libraries of many shapes and sizes.

Developing Inclusive Research Libraries for Patrons and Staff of All Abilities

<http://publications.arl.org/rli286/> Issue no. 286 (2015) of Research Library Issues was entitled *Focus on Diversity* and includes this chapter on accessibility.

WebAIM WCAG 2.0 Checklist

<http://webaim.org/standards/wcag/checklist> The checklist can be used for the creation of content and also as a basis of a review process for evaluating new technology and content. It is primarily designed for the evaluation of HTML content.

These are just a few of the many resources available to assist libraries in moving toward universal design and accessibility. We hope this is a jumping off point for librarians seeking to advance their institution's accessibility.